Environmental Review Record

for the
University Avenue Apartments Project

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PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

William Jessup University Apartments
University Avenue
Rocklin, California

PREPARED FOR:

USA PROPERTIES FUND, INC.
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GEOCON PROJECT NO. S2486-05-01

NOVEMBER 2022

Project No. S2486-05-01
November 1, 2022

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Subject: PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT
WILLIAM JESSUP UNIVERSITY APARTMENTS
UNIVERSITY AVENUE
ROCKLIN, CALIFORNIA

Ms. Tamari:

In accordance with Geocon Proposal No. LS-22-318 dated October 4, 2022, Geocon Consultants, Inc. has performed a Phase I Environmental Site Assessment (ESA) of an approximate 12.74-acre-property (the Site) between Larkspur Drive and Sunset Boulevard in Rocklin, California. We performed the Phase I ESA for USA Properties Fund to assess the Site for the potential presence of recognized environmental conditions as defined by the American Society for Testing and Materials *Designation E1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* prior to their purchasing the Site for development. The enclosed report describes the Phase I ESA and presents our findings, conclusions, and recommendations.

We appreciate the opportunity to have performed this Phase I ESA for USA Properties Fund. Please contact us if you have any questions concerning the report and our findings or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Austin Perry, GIT
Staff Geologist

John Juhrend, PE, CEG
Senior Engineer

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PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

1.0 INTRODUCTION

Geocon Consultants, Inc. (Geocon) has performed a Phase I Environmental Site Assessment (ESA) of an approximate 12.74-acre property (the Site) between Larkspur Drive and Sunset Boulevard in Rocklin, California. We performed the Phase I ESA for USA Properties Fund (USA Properties, the Client) to assess the Site for the potential presence of recognized environmental conditions (REC), as defined by the American Society for Testing and Materials (ASTM) *Designation E1527-21*, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* prior to their purchasing the Site for development.

This report describes and presents the findings of the Phase I ESA and provides our conclusions and recommendations based on those findings. The report is organized as follows:

- Section 1.0 provides a description of the purpose and objectives of the Phase I ESA, defines conditions and/or features that constitute an REC, other qualified RECs, and potential environmental concerns, and describes the Phase I ESA services, limitations, and any identified data gaps;
- Section 2.0 describes the Site's physical setting and conditions and that of the surrounding area;
- Section 3.0 summarizes information regarding the Site provided by USA Properties as the "user" of the Phase I ESA;
- Section 4.0 summarizes readily available records for the Site and surrounding properties that we obtained from regulatory and administrative agencies and other sources;
- Section 5.0 describes the historical use of the Site and surrounding area ascertained from historical records and information sources;
- Section 6.0 describes our observations of the Site and surrounding properties and facilities from our site and vicinity reconnaissance;
- Section 7.0 summarizes information obtained from interviews of persons (owner, occupants, tenants, neighbors, etc.) familiar with the Site;
- Section 8.0 presents our Phase I ESA findings, provides our conclusions regarding the environmental conditions of the Site including the potential presence of RECs, other qualified RECs, or potential environmental concerns, and provides recommendations for further environmental assessment, if any;
- Section 9.0 lists the references for information sources used during this Phase I ESA; and
- Section 10.0 provides a qualifications statement from the environmental professional responsible for the Phase I ESA and report.

1.1 Purpose and Definitions

The purpose of the Phase I ESA was to identify evidence or indications of RECs, or other qualified RECs, at the Site as defined by ASTM *Designation E1527-21* and/or any potential environmental

concerns. Section 1.1.1 of ASTM *Designation E1527-21* defines an REC as "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. A de minimis condition is not a recognized environmental condition." De minimis conditions are those that generally do not present a threat to human health or the environment and that generally would not be the subject of the enforcement action if brought to the attention of appropriate governmental agencies.

ASTM *Designation E1527-21* also defines 'Historical' and 'Controlled' RECs (HREC and CREC, respectively). An 'Historical REC' is defined as "a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations)." A 'Controlled REC' is defined as "recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)." An HREC is not an REC if a property meets current standards for unrestricted residential use. A CREC remains an REC by definition when a property does not meet the unrestricted residential use requirement unconditionally.

We define a "potential environmental concern" as a past use of the Site or adjoining or adjacent property that may have involved the use, storage, and/or release of hazardous substances or petroleum products that could have impacted the Site, but for which there are no records or other information to confirm that use, storage, or release. An example would be the possible application of pesticides to an agricultural field (i.e., irrigated row crop or orchard), but for which there are no records of such application or confirmation from a knowledgeable person (i.e., site owner/occupant/operator) that pesticides were used at the Site.

We also conducted the Phase I ESA in general accordance with the requirements of 42 United States Code (USC) § 9601(35)(B) and 40 Code of Federal Regulations (CFR) Part 312 titled *Standards and Practices for All Appropriate Inquiries,* as required under Sections 101(35)(B)(ii) and (iii) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The purpose of conducting an all appropriate inquiries investigation into the previous ownership and uses of a property is to meet the provisions necessary for the landowner, contiguous property owner, and/or bona fide prospective purchaser to qualify for certain landowner liability protections under CERCLA.

1.2 Phase I ESA Principles

The following principles are an integral part of ASTM *Designation E1527-21*:

- "**Uncertainty Not Eliminated** - No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a subject property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a subject property, and this practice recognizes reasonable limits of time and cost."
- "**Not Exhaustive** - All Appropriate Inquiries does not mean an exhaustive assessment of a property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of this practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an environmental site assessment and the reduction of uncertainty about unknown conditions resulting from additional information."
- "**Level of Inquiry is Variable** - Not every property will warrant the same level of assessment. Consistent with good commercial and customary standards and practices as defined at 42 U.S.C. § 9601(35)(B), the appropriate level of environmental site assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, future intended uses of the subject property disclosed to the environmental professional, and the information developed in the course of the inquiry."
- **"Comparison with Subsequent Inquiry** - It should not be concluded or assumed that an inquiry was not all appropriate inquiries merely because the inquiry did not identify recognized environmental conditions in connection with a subject property. Environmental site assessments must be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made. Subsequent environmental site assessments should not be considered valid standards to judge the appropriateness of any prior assessment based on hindsight, new information, use of developing technology or analytical techniques, or other factors."
- **"Point in Time** - The environmental site assessment is based upon conditions at the time of completion of the individual environmental site assessment elements." The following table lists the Phase I ESA elements and the date they were completed:

Phase I ESA Element	Report Section	Completion Date
Physical Setting Resources	2.0	November 1, 2022
User's Responsibilities	3.0	October 11, 2022
Government Records	4.0	November 1, 2022
Historical Records	5.0	November 1, 2022
Site Reconnaissance	6.0	October 25, 2022
Owner/Operator/Occupant Interviews	7.0	November 1, 2022
Local Government Official Interviews	4.0	November 1, 2022
Evaluation and Report	8.0	November 1, 2022

Therefore, the information contained herein is valid as of October 11, 2022, and will require an update after approximately 180 days to reflect updated records and another site reconnaissance to assess current site conditions.

1.3 Scope of Services

Geocon Proposal No. LS-22-318 dated October 4, 2022 describes the services for this Phase I ESA. We performed the services as outlined in the proposal with the exception that we did not review Sanborn Fire Insurance Maps (Sanborn maps) as Environmental Data Resources, Inc. (EDR) indicated that Sanborn map coverage does not exist for the Site and vicinity.

The main components of the Phase I ESA and their objectives, as specified by the referenced standards, include the following:

- **Physical Setting:** We reviewed various references to obtain information concerning the topographic, geologic, and hydrogeologic characteristics of the Site and vicinity. Such information may be indicative of the direction and/or extent that a contaminant could be transported in the event of a spill or release on or near the Site.
- **Records Review:** We reviewed publicly available federal, state, and local regulatory agency records to obtain information that could potentially help identify RECs at or potentially affecting the Site.
- **Site History:** We reviewed historical information sources to assess previous uses of the Site and surrounding area and identify those that could have led to RECs on the Site. Those information sources included historical aerial photographs and topographic maps, and city directories. In addition, we conducted interviews with persons who were expected to be reasonably knowledgeable about historical and/or current uses and conditions at of the Site.
- **Site Reconnaissance:** We performed a site reconnaissance to observe site uses and conditions for evidence or indications of RECs. We viewed adjoining and adjacent offsite properties and features solely from the vantage of the Site and public thoroughfares.

1.4 Report Limitations

We prepared this Phase I ESA report exclusively for USA Properties. The information obtained is only relevant for the latest of the dates of the records reviewed, the latest site visit, and completion of interviews with governmental officials and/or site owner(s), occupant(s), and/or operator(s) as cited in Section 1.1.

USA Properties should recognize that a Phase I ESA is not a comprehensive site characterization and should not be construed as such. The findings and conclusions presented in this report are predicated on the site reconnaissance, information in the specified regulatory records, and information regarding the historical usage of the Site, as presented in this report. USA Properties should also understand that we did not assess the Site for wetlands or perform testing (sample collection and laboratory analysis) for asbestos-containing building materials, lead-containing paint, lead in drinking water, radon, mercury

related to mining, methane, mold, per- and polyfluoroalkyl substances, or potential naturally occurring hazards such as asbestos and arsenic as part of this Phase I ESA.

Therefore, this report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the Phase I ESA is implied within the intent of this report or any subsequent reports, correspondence or consultation, either express or implied. We strived to conduct the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

1.5 Data Gaps and Significant Data Gaps

A data gap is defined by ASTM *Designation E1527-21* as "a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information." Data gaps could include such things as insufficient historical information, the inability to interview persons with direct site knowledge (e.g., the owner(s), past owner(s), tenants, workers, etc.) or the lack of access to all parts of a site during the site reconnaissance.

A significant data gap is defined by *ASTM Designation E1527-21* as "a data gap that affects the ability of the environmental professional to identify a recognized environmental condition." These data gaps are only significant if "other information and/or professional experience raises reasonable concerns involving the effects of that data gap on the ability of the environmental professional to render an opinion regarding whether conditions exist that are indicative of recognized environmental conditions or controlled recognized environmental conditions."

We identified one data gap and no significant data gaps during this Phase I ESA. As described in Section 1.2, we did not review Sanborn maps for the Site as EDR indicated that Sanborn map coverage does not exist for the Site and vicinity. However, we were able to review other sufficient historical information and therefore do not consider the lack of Sanborn map coverage a data gap. We also did not receive an owner/occupant questionnaire. However, we were able to review other sufficient historical information and therefore do not consider the lack of an owner/occupant questionnaire a significant data gap.

2.0 SITE DESCRIPTION

This section describes the location and physical characteristics of the Site including its size, topography, geologic, soil, and hydrogeologic conditions of the Site.

2.1 Location and Legal Description

The Site is located on the west side of University Avenue between Larkspur Drive and Sunset Boulevard in Rocklin, California (Figure 1). Within the Public Land Survey System of California, the Site is in the northwestern quarter of Section 10 of Township 11 North, Range 6 East, Mount Diablo Base and Meridian.

There is no street address associated with the Site that is currently owned by William Jessup University. The Site is identified by Placer County assessor's parcel numbers 017-276-005 and 017-276-006. A parcel map depicting the Site is in Appendix A.

2.2 Site and Vicinity General Characteristics

The approximate 12.74-acre Site is vegetated with seasonal grasses and brush. A paved pedestrian pathway exists along the northern and western site boundaries and unimproved roadways cross the central portion of the Site. A piped drainage system has been installed on the north and west to move water from natural drainages within the Site under the pedestrian pathway to surrounding drainages within the wetland area north of the Site (Figure 2). The Site is surrounded by similar undeveloped land, Highway 65, and William Jessup University.

2.2.1 Topography

The United States Geological Survey (USGS) *Roseville, California* 7.5-minute topographic map shows that the Site is in a region with low topographic relief. The elevation of the relatively flat Site is approximately 150 feet above mean sea level (USGS, 2021).

2.2.2 Geologic Conditions

We obtained site geologic information from a variety of sources including:

- *California Geology* (Harden, 2003);
- *Note 36, California Geomorphic Provinces* (California Geological Survey [CGS], 2002);
- *Geologic Map of the Sacramento Quadrangle, California* (California Division of Mines and Geology [CDMG], 1981). and

Following are summaries of pertinent information obtained.

2.2.2.1 Geomorphic Region

The Site is located in the eastern portion of the Sacramento Valley, which is the northern portion of the Great Valley geomorphic province of California. The Site is situated at the base of the foothills of the Sierra Nevada geomorphic province to the east.

2.2.2.2 Geologic Formations/Stratigraphy

The Site is underlain by the Quaternary-age Turlock Lake Formation, which consists of interbedded sand, silt, and gravel. The Turlock Lake Formation contacts the Mehrten Formation near the Site. The Mehrten Formation consists of andesitic conglomerate, sandstone, and breccia (CDMG, 1981).

We advanced twelve test pits via backhoe on October 24, 2022, as a part of a Geologic Investigation to depths ranging from six inches to ten feet, all terminated at refusal for a shallow bedrock. No groundwater was encountered in any test pits.

2.2.3 Soil Conditions

The United States Department of Agriculture – Natural Resources Conservation Service *Web Soil Survey* (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx) indicates that surficial soil on the Site is primarily classified as:

- **Exchequer-Rock Outcrop Complex:** very stony loam and residuum weathered from volcanic breccia
- **Fiddyment-Kaseberg Loams:** clay loam formed from a siltstone alluvium
- **Inks-Exchequer Complex:** cobbly loam to unweathered bedrock formed in residuum weathered from conglomerate.

2.2.4 Hydrologic and Hydrogeologic Conditions

Drainage ponds and culverts are present on the Site, but were dry at the time of the Site reconnaissance.

Site-specific groundwater information is not available. The California Department of Water Resources (DWR) Groundwater Information Center Interactive Map (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels) indicates that depth to groundwater on the Site from 2011 to 2022 has varied from approximately 40 to 60 feet below surface and that groundwater flow is predominantly to the southeast.

2.3 Current and Planned Uses of the Site

The Site is currently used as a walking path. USA Properties plans to develop the Site with university apartment housing.

2.4 Descriptions of Structures, Roads, Other Improvements on the Site

No structures are present on the Site. A walking path extends along the western, northern, and eastern perimeter of the Site with associated drainage culverts. A barbed wire fence is present along the western site boundary. An unimproved road extends east-west across the central portion of the Site. Further description of site conditions is in Section 6.0.

2.5 Current Uses of Adjoining Properties

Similar generally undeveloped land is adjoining the north and south of the Site. The Site is adjoined to the east by University Avenue beyond which is undeveloped land and William Jessup University. The Site is adjoined to the west by State Route 65.

3.0 USER–PROVIDED INFORMATION

This section summarizes user (USA Properties)-provided information regarding the Site provided by Hannah Tamari with USA Properties. We also provided Ms. Tamari with a User Questionnaire to obtain information from USA Properties as the "user" of the Phase I ESA regarding the past and present uses of the Site and the potential for impacts related to the use, storage, or disposal of hazardous substances and/or petroleum products on the Site. A copy of the User Questionnaire is in Appendix B.

3.1 Title, Appraisal and Sale Agreement Records

Ms. Tamari provided a Preliminary Report of the Site, dated August 23, 2022. The Preliminary Report does not describe property conditions indicative of an REC for the Site.

3.2 Environmental Liens or Activity and Use Limitations

Ms. Tamari indicated that she is not aware of any environmental liens or activity and use limitations for the Site.

3.3 Specialized Knowledge

Ms. Tamari indicated that she has no specialized knowledge regarding the Site or its past or current uses that could potentially impair, or could have impaired, the environmental conditions of the Site. We also asked Ms. Tamari if she had knowledge of legal or administrative proceedings involving the Site and she indicated that she did not.

3.4 Commonly Known or Reasonably Ascertainable Information

Ms. Tamari indicated that she is not aware of any commonly known or reasonably ascertainable information about the Site.

3.5 Valuation Reduction for Environmental Issues

Ms. Tamari is not aware of any environmental conditions on the Site that could lead to a potential valuation reduction for the Site.

3.6 Owner, Property Manager, and Occupant Information

We provided John Jackson, PhD, president of William Jessup University, with a Site Owner/Occupant Questionnaire. Dr. Jackson refused to answer any of the questions on the questionnaire.

3.7 Reason for Performing Phase I ESA

USA Properties requested the Phase I ESA to obtain information regarding the potential presence of RECs at the Site prior to USA Properties purchasing the Site to construct university apartment housing.

3.8 Previous Documents

We also asked Ms. Tamari if she knew of previous environmental reports or documents that may exist and, if so, whether copies could be provided. She indicated that she did not know of any previous environmental reports or documents pertaining to the Site.

4.0 RECORDS REVIEW

This section summarizes information we obtained from readily available agency records pertaining to the Site and properties and facilities in the vicinity of the Site.

4.1 Standard Environmental Record Sources

EDR searched federal, state, and local environmental databases for the Site and properties/facilities within one mile of the Site. A copy of the EDR report: *The EDR Radius Map Report with GeoCheck*, dated October 10, 2022, is in Appendix C. EDR did not identify the Site or any properties within ¼ of a mile on any release-related databases[1].

4.2 Orphan Summary

EDR's Orphan Summary identifies properties and facilities that have incomplete address information and therefore could not be accurately plotted. Four properties or facilities are listed in the Orphan Summary. One facility, Thunder Mountain Train Wreck Site, is listed on the Superfund Enterprise Management System (SEMS) database at the intersection of Industrial Avenue and Athens Avenue in Lincoln, California, approximately 1.25 miles northwest of the Site. An On-scene coordinator, Michelle Rogow, was listed as a contact for this Site. We contacted Ms. Rogow and she indicated that she has no knowledge of this Site and that a search of her EPA records found nothing for this case. The facility is unlikely to have caused an REC on the Site due to its proximity and the fact that no release has been recorded. The remaining facilities are all greater than four miles away from the Site and therefore are unlikely to have caused an REC on the Site.

[1] "Release" refers to an unauthorized release of a petroleum product or hazardous substance to the environment - i.e. the ground surface, soil, soil vapor, groundwater, or surface water on a property. "Release-related database" refers to those which provide information regarding an unauthorized release. "Non-release-related database" refers to those that may report use, storage, or disposal of hazardous substances and/or petroleum products or other environmental conditions, but do not report releases of such.

4.3 Other Environmental Record Sources

4.3.1 GeoTracker and EnviroStor

We reviewed information available on the California State Water Resources Control Board's GeoTracker (http://geotracker.waterboards.ca.gov) and the California Department of Toxic Substances Control's (DTSC) EnviroStor (http://www.envirostor.dtsc.ca.gov/public/) online data management systems for information regarding documented environmental assessment and cleanup at the Site and/or properties/facilities within ¼ mile of the Site. No information pertaining to the Site or any properties or facilities within ¼ mile of the Site is available on GeoTracker or EnviroStor.

4.3.2 Placer County Environmental Health

We submitted a request to Placer County Environmental Health (PCEH) for records pertaining to the Site using Placer County's Public Records Request website (https://placercounty.nextrequest.com/requests). Taunya Bisordi with PCEH indicated that they do not have any records pertaining to the Site.

4.3.3 California Geologic Energy Management Division

The California Geologic Energy Management Division's (CalGEM) Well Finder, an online petroleum (oil and natural gas) field and well mapping system, does not show any oil or natural gas wells on or within ¼ mile of the Site (CalGEM, 2022).

4.3.4 National Pipeline Mapping System

The National Pipeline Mapping System (NPMS) online pipeline mapping system does not show any natural gas or liquid petroleum pipelines on or in the vicinity of the Site (USDOT, 2022).

5.0 HISTORICAL USE

We evaluated the historical use of the Site and adjacent properties through review of historical aerial photographs, topographic maps, and city directories provided by EDR. This section summarizes information obtained from these sources.

5.1 Aerial Photographs

We reviewed historical aerial photographs provided by EDR for the years 1938, 1947, 1952, 1962, 1966, 1975, 1984, 1993, 1998, 2006, 2009, 2012, and 2016 (Appendix D) and aerial imagery available on Google Earth for the years 2013 through 2018, 2020, and 2021 for indications of past land uses that had the potential to have impacted the Site through the use, storage or disposal of hazardous substances and/or petroleum. The following table summarizes our observations of the Site and adjacent properties on the historical aerial photographs.

Year	Observations	
	Site	Adjoining and Adjacent Properties
1938 (1" = 500')	The Site was undeveloped land	The adjoining properties were similar undeveloped land. A stream was just north of the Site.
1947, 1952, and 1962 (1" = 500')	Conditions were generally similar to those observed on the 1938 photograph.	Conditions were generally similar to those observed on the 1938 photograph.
1966 (1" = 500')	Conditions were generally similar to those observed on the 1962 photograph except an unimproved road was in the central portion of the Site.	Conditions were generally similar to those observed on the 1962 photograph except a road was approximately 1,000 feet south of the Site.
1975 (1" = 500')	Conditions were generally similar to those observed on the 1966 photograph.	Conditions were generally similar to those observed on the 1966 photograph except Highway 65 is west of the Site.
1984 (1" = 500')	Conditions were generally similar to those observed on the 1975 photograph.	Conditions were generally similar to those observed on the 1975 photograph.
1993 (1" = 500')	Conditions were generally similar to those observed on the 1984 photograph except trees are on the western portion of the Site.	Conditions were generally similar to those observed on the 1984 photograph except William Jessup University is east of the Site.
1998 (1" = 500')	Conditions were generally similar to those observed on the 1993 photograph.	Conditions were generally similar to those observed on the 1993 photograph.
2006 and 2009 (1" = 500')	Conditions were similar to those observed on the 1998 photograph except the trees planted in the eastern portion of the Site are no longer present and a walking path is located along the western and northern Site boundaries.	Conditions were similar to those observed on the 1998 photograph except there is additional development east of Highway 65 and shopping centers are located south and west of the Site.
2012 and 2016 (1" = 500') 2013 through 2018, 2020, and 2021 (Google Earth)	Conditions were similar to those observed on the 2006 and 2009 photographs.	Conditions were similar to those observed on the 2006 and 2009 photographs.

We observed no land uses on the Site or adjoining and adjacent properties on the aerial photographs that would suggest the presence of environmental concerns or RECs on the Site.

5.2 Topographic Maps

We reviewed historical topographic maps provided by EDR for the years 1891, 1892, 1893, 1910, 1941, 1942, 1953, 1967, 1975, 1981, 1992, 2012, 2015, and 2018 (Appendix E). The following table summarizes our observations of the Site and adjacent properties on the historical topographic maps.

Year	Observations	
	Site	Adjoining and Adjacent Properties
1891, 1892, and 1893 (1:125,000)	No structures or land uses are depicted on the Site.	No structures or land uses are depicted on the adjoining and adjacent properties except for a road west of the Site.
1910 (1:24,000)	Conditions depicted are similar to those on the 1891, 1892, and 1893 maps.	Conditions depicted are similar to those on the 1891, 1892, and 1893 maps.
1941 and 1942 (1:62,500)	Conditions depicted are similar to those on the 1910 map.	Conditions depicted are similar to those on the 1910 map.
1953 (1:24,000)	Conditions depicted are similar to those on the 1942 map.	Conditions depicted are similar to those on the 1942 map except a reservoir is depicted adjacent to the northeast of the Site.
1967 (1:24,000)	Conditions depicted are similar to those on the 1953 map.	Conditions depicted are similar to those on the 1953 map except Placer Boulevard is depicted to the south of the Site.
1975 and 1981 (1:24,000)	Conditions depicted are similar to those on the 1967 map.	Conditions depicted are similar to those on the 1967 map.
1992 (1:24,000)	Conditions depicted are similar to those on the 1981 map.	Conditions depicted are similar to those on the 1981 map except University Avenue and three buildings are depicted to the east of the Site.
2012, 2015, and 2018 (1:24,000)	No structures or land uses are depicted on these maps. However, conditions depicted are similar to those on the 1992 map.	No structures or land uses are depicted on these maps. However, conditions depicted are similar to those on the 1992 map.

The topographic maps do not depict features or land uses that directly suggest the presence of RECs on the Site or adjacent properties.

5.3 City Directories

EDR prepared an abstract of city directories including city, cross reference and telephone directory listings (Appendix F). EDR included information from directories at approximate 5-year intervals, if available, from 1971 to 2017. The Site is not listed on the city directories dating back to 1971. The city directories only list individual homeowners for nearby properties in 2014 and William Jessup University in 2017.

6.0 SITE RECONNAISSANCE

This section summarizes our observations of the Site and surrounding properties during the site reconnaissance.

6.1 Methodology and Limiting Conditions

Chris Bates, Senior Staff Scientist with Geocon, performed the site reconnaissance on October 25, 2022, by driving and walking throughout the Site to observe site features and conditions. Mr. Bates performed the offsite survey by observing adjoining and adjacent properties from the Site and public roads. Weather

on the day of the site reconnaissance was sunny with temperatures in the mid-60s°F. Photographs of various site features and offsite properties are appended.

6.2 Site Setting

The Site is situated in an area with an undeveloped drainage basin, a university, local government offices, and commercial development.

6.3 Onsite Survey

The Site consists predominantly of undeveloped land and drainage ponds (dry during site reconnaissance) (Photos 1 and 2). A walking path with several manholes extends along the western, northern, and eastern perimeter of the Site (Photos 3 and 4). Multiple drainage culverts that extend beneath the walking path are in the northern and eastern portions of the Site (Photos 5 and 6). An unimproved road extends east-west across the central portion of the Site (Photo 7). A barbed wire fence extends along the western portion of the Site (Photo 8). We observed no features or conditions on the Site with the potential to have caused an REC at the Site.

6.4 Offsite Survey

Adjoining and adjacent properties consist of the following:

- North – An undeveloped drainage basin with a nature sitting area beyond which is Ansel Park Assisted Living facility (Photos 9 and 10);
- East – University Avenue beyond which is undeveloped land and William Jessup University (Photo 11);
- South – Undeveloped land beyond which is Sunset Boulevard (Photo 12); and
- West – State Route 65 beyond which are (north to south) Creekside Church, Placer County Association of Realtors, and commercial businesses (Photos 13 and 14).

We observed no conditions or uses on adjoining and adjacent properties likely to cause or have caused an REC at the Site.

7.0 INTERVIEWS

We provided John Jackson, PhD, president of William Jessup University, with a Site Owner/Occupant Questionnaire. Dr. Jackson refused to answer any of the questions on the questionnaire.

8.0 CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I ESA, in general conformance with the scope and limitations of ASTM *Designation E1527-21* of an approximate 12.74-acre property (the Site) between Larkspur Drive and Sunset Boulevard in Rocklin, California. Exceptions to, or deletions from, this practice are described in Section 1.4 of this report.

The Phase I ESA has revealed no evidence of RECs or significant data gaps in connection with the Site. No further environmental investigation of the Site appears to be warranted at this time.

9.0 REFERENCES

American Society for Testing and Materials, *Designation E1527-21 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, 2021.

California Department of Toxic Substances Control, EnviroStor website http://www.envirostor.dtsc.ca.gov/public/, accessed October 2022.

California Division of Mines and Geology, *Geologic Map of the Sacramento Quadrangle, California*, 1981.

California Geologic Energy Management Division, Oil and gas well information in the site vicinity, https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx, accessed October 2022.

California Geological Survey, *Note 36, California Geomorphic Provinces*, 2002.

California State Water Resources Board, GeoTracker website, http://geotracker.swrcb.ca.gov/, accessed October 2022.

Harden, D.R, California Geology: 2nd edition, 2003.

United States Department of Transportation, National Pipeline Mapping System, https://www.npms.phmsa.dot.gov/default.aspx, accessed October 2022.

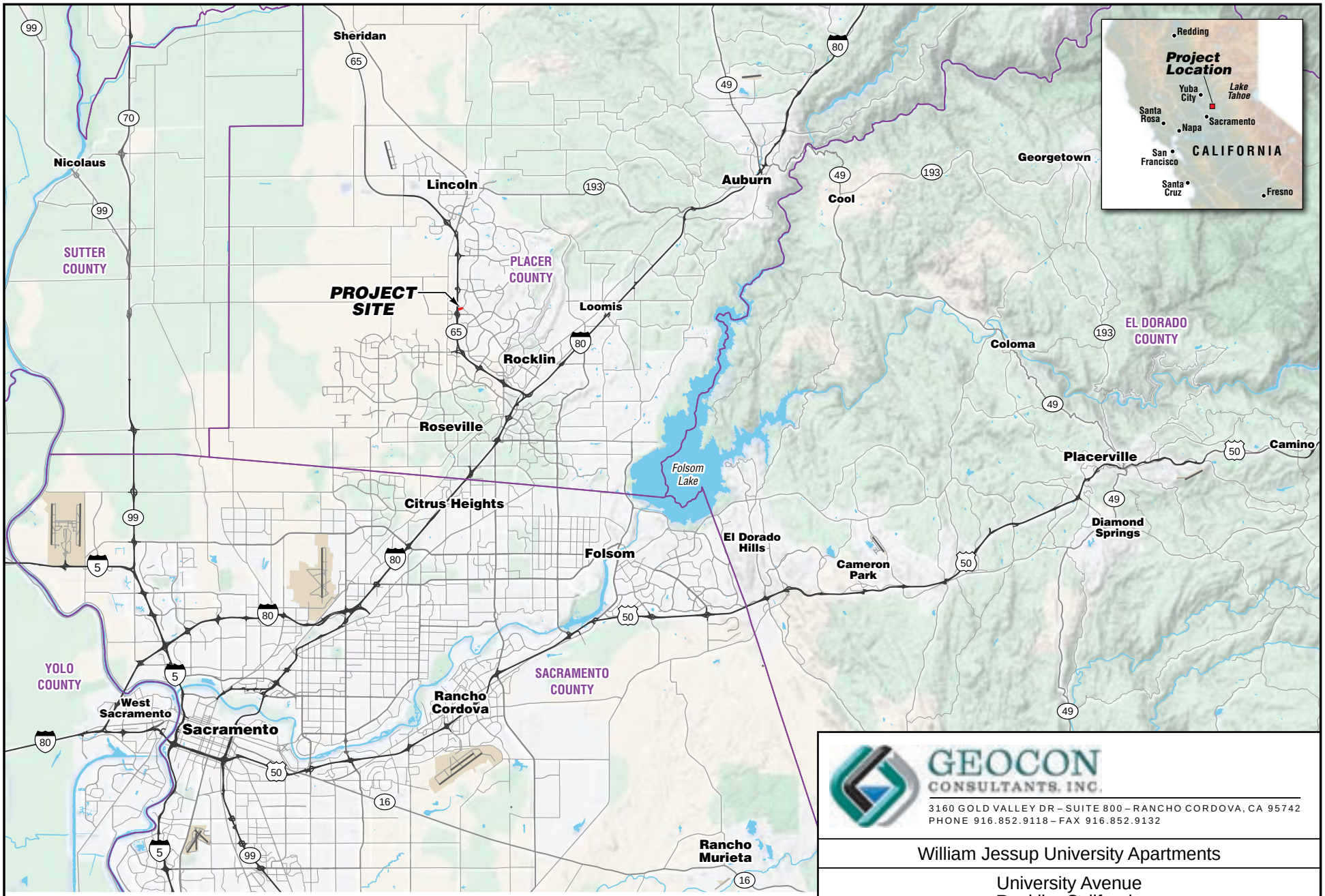
10.0 QUALIFICATIONS

This Phase I ESA report was prepared by Austin Perry and reviewed by John Juhrend, PE, CEG. Austin Perry has a Bachelor of Science degree in Geology. He has worked on a variety of projects for clients in water resources research, environmental health and safety, and soil, soil vapor, and groundwater sampling. Mr. Perry has performed Phase I and II ESAs on several commercial, industrial, agricultural, and residential properties throughout California.

Mr. Juhrend has over 35 years of experience in the environmental and geotechnical consulting industry in California and Nevada. Mr. Juhrend is a California Professional Engineer and Certified Engineering Geologist, with a BS degree in engineering geology and MS degree in civil engineering. His personal experience includes the performance of hundreds of environmental projects including Phase I and Phase II site assessments, remedial investigations and feasibility studies, corrective action programs and litigation support. His primary expertise includes environmental assessments of Brownfields properties, industrial, commercial and residential properties, and transportation corridors.

I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in §312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries investigation in conformance with the standards and practices set forth in 40 CFR Part 312.

John Juhrend, PE, CEG
Senior Engineer



GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

William Jessup University Apartments

University Avenue
Rocklin, California

SITE LOCATION MAP

S2486-05-01	November 2022	Figure 1

LEGEND:

Approximate Site Boundary

Site Photograph Location & Orientation

0 100

Scale in Feet

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Rocklin, California

SITE PLAN

S2486-05-01	November 2022	Figure 2

Photo No. 1 View to the northwest of the Site

Photo No. 2 Dry drainage pond in the northern central portion of the Site

PHOTOS NO. 1 & 2

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Photo No. 3 View to the south of walking path in northern portion of Site

Photo No. 4 Manhole in southeastern portion of Site

PHOTOS NO. 3 & 4

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Photo No. 5 Drainage culvert in central northern portion of Site

Photo No. 6 Drainage culvert in eastern portion of Site

PHOTOS NO. 5 & 6

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Rocklin, California

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Photo No. 7 Unimproved road extends east to west across the central portion of Site

Photo No. 8 Barbwire fence extends along western portion of Site

PHOTOS NO. 7 & 8

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Photo No. 9 View to the north of drainage basin beyond which is Ansel Park Assisted Living facility

Photo No. 10 View to the north of drainage basin beyond which is undeveloped land

PHOTOS NO. 9 & 10

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Rocklin, California

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Photo No. 11 View east of University Avenue beyond which is William Jessup University

Photo No. 12 View south of undeveloped land beyond which is Sunset Boulevard

PHOTOS NO. 11 & 12

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Photo No. 13 View west of California State Route 65 beyond which is Creekside Church

Photo No. 14 View west of California State Route 65 beyond which is Placer County Association of Realtors and commercial businesses

PHOTOS NO. 13 & 14

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William Jessup University Apartments

University Avenue
Rocklin, California

GEOCON Project No. S2486-05-01 | November 2022

APPENDIX A

POR. E1/2 SEC. 9, N.1/2 SEC.10, T.11N., R.6E., M.D.B. & M.

17-27

Pacific Technology Spectrum Industrial Owner's Assoc. East Condo. #2002-0070260
Pacific Technology Spectrum Industrial Owner's Assoc. West Condo. #2002-0070261
Stanford Ranch Tech-Center,#593M.O.R.Bk.0,Pg.24
Placer Corporate Cen. M.O.R. Bk.W, Pg.22
250 Technology Wy Condo. #2017-0020870

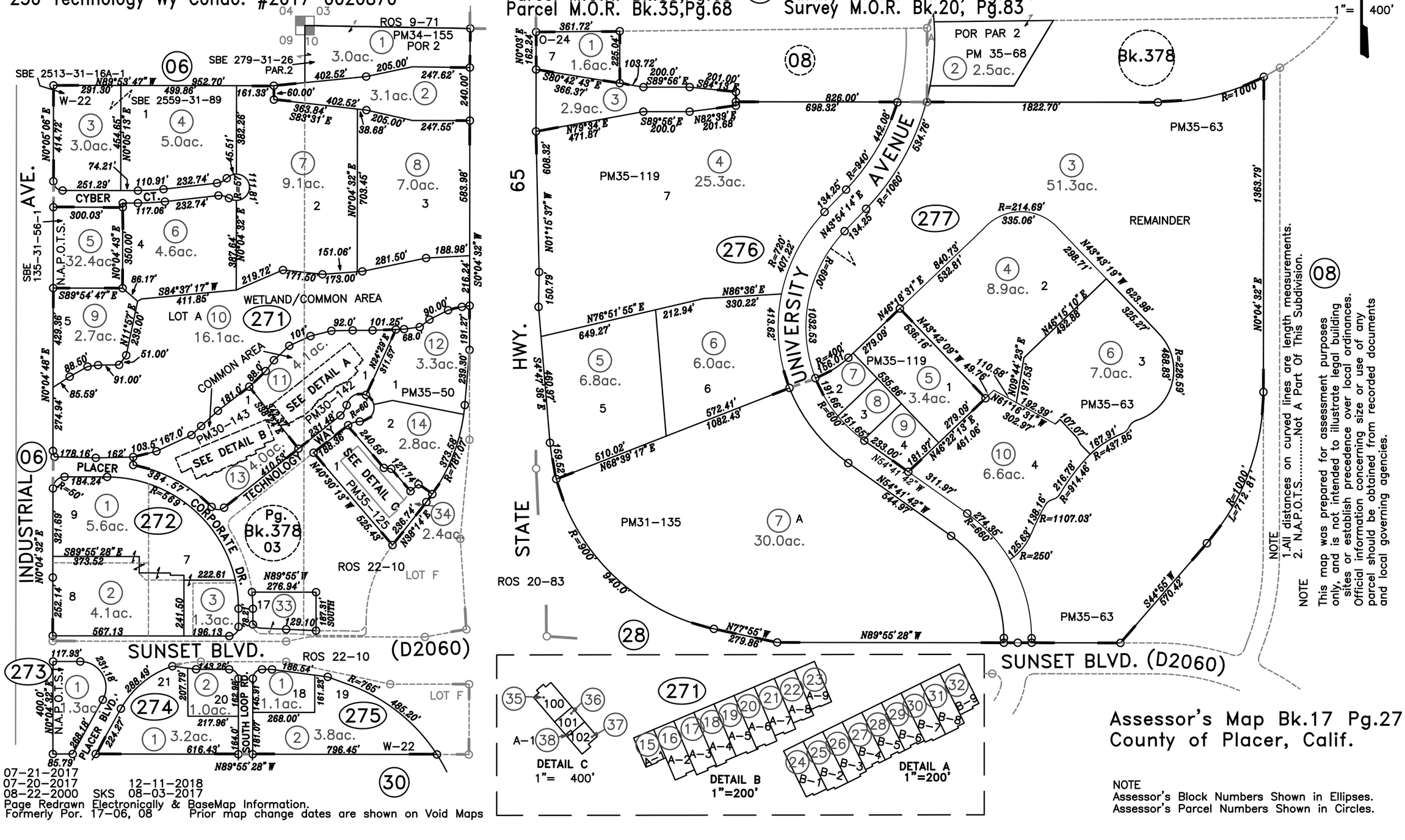
Parcel M.O.R. Bk.34,Pg.155
Parcel M.O.R. Bk.35,Pg.50
Parcel M.O.R. Bk.35,Pg.63
Parcel M.O.R. Bk.35,Pg.68

08

Parcel M.O.R. Bk.35,Pg.119
Survey M.O.R. Bk.2, Pg.25
Survey M.O.R. Bk.4, Pg.98
Survey M.O.R. Bk.9, Pg.71
Survey M.O.R. Bk.10, Pg.101
Survey M.O.R. Bk.18, Pg.114
Survey M.O.R. Bk.20, Pg.83

Survey M.O.R. Bk.22, Pg.10,
Parcel M.O.R. Bk.31,Pg.135
Parcel M.O.R. Bk.35,Pg.125

1"= 400'



NOTE
1.All distances on curved lines are length measurements.
2. N.A.P.O.T.S.....Not A Part Of This Subdivision.

NOTE
This map was prepared for assessment purposes only, and is not intended to illustrate legal building sites or establish precedence over local ordinances. Official information concerning size or use of any parcel should be obtained from recorded documents and local governing agencies.

07-21-2017
07-20-2017 12-11-2018
08-22-2000 SKS 08-03-2017
Page Redrawn Electronically & BaseMap Information.
Formerly Por. 17-06, 08 Prior map change dates are shown on Void Maps

Assessor's Map Bk.17 Pg.27
County of Placer, Calif.

NOTE
Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

APPENDIX B

User Questionnaire

1. What is the purpose of the Phase I Environmental Site Assessment? What is the planned use?

   Acquisition of properties for the construction of multifamily affordable housing apartment home communities.

2. Who is the property owner(s)?

   WILLIAM JESSUP UNIVERSITY / DAVID PUNT CFO

3. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?
   None known

4. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place for the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law?
   None known

5. Do you have any specialized knowledge related to the property or nearby properties?

   No specialized knowledge of the properties

6. Does the purchase price reasonably reflect the fair market value of the property?
   Yes

7. Do you know the past uses of the property?
   None known

8. What is the planned use of the property?
   Affordable Housing apartment homes; inclusionary housing for the specific plan area

9. Do you know of specific chemicals that are present or once were present at the property?
   None known

10. Do you know of spills or other chemical releases that have taken place at the property?
    None known

11. Do you know of any environmental cleanups that have taken place at the property?
    None known

12. Do you know whether any helpful documents exist and, if so, whether copies can and will be provided for this assessment? These documents may include Phase I or II Environmental Site Assessment reports, environmental compliance audit reports, environmental permits, registrations for underground or aboveground storage tanks, registrations for underground injection systems, or any other documents related to the property.

This questionnaire was completed by:

Name: Hannah Tamari

Title: Development Project Associate

Phone M: 813.997.7348 P: 916.724.3833

number:

Date: 10/11/2022

Signature: Hannah Tamari

APPENDIX C

William Jessup Apartments Ph I ESA
Not Reported
ROCKLIN, CA 95765

Inquiry Number: 7143448.2s
October 10, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	218
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-10
Physical Setting Source Map Findings	A-12
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NOT REPORTED
ROCKLIN, CA 95765

COORDINATES

Latitude (North):	38.8206830 - 38ˆ 49' 14.45''
Longitude (West):	121.2977310 - 121ˆ 17' 51.83''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	647782.2
UTM Y (Meters):	4298047.0
Elevation:	135 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12021643 ROSEVILLE, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140713
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NOT REPORTED
ROCKLIN, CA 95765

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	WILLIAM JESSUP UNIVE	333 SUNSET AVE	EMI, HAZNET, CA PLACER CO. MS, CIWQS, CERS, HWTS	Higher	681, 0.129, East
A2	WILLIAM JESSUP UNIVE	333 SUNSET BLVD	RCRA NonGen / NLR	Higher	681, 0.129, East
A3	HERMAN MILLER INC	333 SUNSET BLVD	RCRA-SQG, FINDS, ECHO, HAZNET, HWTS	Higher	681, 0.129, East
B4	GREENHECK FAN CORP	170 CYBER CT	RCRA NonGen / NLR	Lower	824, 0.156, NW
B5	GREENHECK FAN CORP	170 CYBER CT	CERS HAZ WASTE, EMI, CA PLACER CO. MS, NPDES,...	Lower	824, 0.156, NW
6	ANSEL PARK	1250 ORCHID DR	CA PLACER CO. MS, CERS	Higher	1069, 0.202, NNE
C7	SALERNO MOTOR SPORTS	3746 PLACER CORPORAT	RCRA NonGen / NLR	Lower	1163, 0.220, WSW
C8	SALERNO MOTOR SPORTS	3746 PLACER CORPORAT	CERS HAZ WASTE, HAZNET, CA PLACER CO. MS, CERS,...	Lower	1163, 0.220, WSW
9	SUNSET 76 SERVICE ST	3710 PLACER CORPORAT	CA PLACER CO. MS	Higher	1314, 0.249, WSW
10	HEWLETT-PACKARD	3625 CINCINNATI AVEN	ENVIROSTOR, CA PLACER CO. MS	Lower	3466, 0.656, West
11	MARIA MONTESSORI SCH	SIOUX STREET	ENVIROSTOR, SCH	Higher	3498, 0.663, ENE
D12	FORMICA CORP	3500 CINCINNATI AVE	SEMS-ARCHIVE, CORRACTS, RCRA-TSDF, RCRA-SQG,...	Higher	3774, 0.715, WNW
D13	FORMICA CORP	3500 CINCINNATI AVE	SWEEPS UST, CA FID UST, ENF, HAZNET, HWP, CA...	Higher	3774, 0.715, WNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROLS ---------- Institutional Controls Sites List

Federal ERNS list

ERNS ---------- Emergency Response Notification System

EXECUTIVE SUMMARY

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ---------- State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ---------- Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---------- Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
CDL ---------- Clandestine Drug Labs
Toxic Pits ---------- Toxic Pits Cleanup Act Sites

US CDL ..... National Clandestine Laboratory Register
AQUEOUS FOAM ..... Former Fire Training Facility Assessments Listing
PFAS ..... PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST ..... SWEEPS UST Listing
HIST UST ..... Hazardous Substance Storage Container Database
CERS TANKS ..... California Environmental Reporting System (CERS) Tanks
CA FID UST ..... Facility Inventory Database

Local Land Records

LIENS ..... Environmental Liens Listing
LIENS 2 ..... CERCLA Lien Information
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS ..... Formerly Used Defense Sites
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST ..... EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act
TRIS ..... Toxic Chemical Release Inventory System
SSTS ..... Section 7 Tracking Systems
ROD ..... Records Of Decision
RMP ..... Risk Management Plans
RAATS ..... RCRA Administrative Action Tracking System
PRP ..... Potentially Responsible Parties
PADS ..... PCB Activity Database System
ICIS ..... Integrated Compliance Information System
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ..... Material Licensing Tracking System
COAL ASH DOE ..... Steam-Electric Plant Operation Data
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database
RADINFO ..... Radiation Information Database
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ..... Incident and Accident Data
CONSENT ..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV ..... Indian Reservations
FUSRAP ..... Formerly Utilized Sites Remedial Action Program
UMTRA ..... Uranium Mill Tailings Sites

LEAD SMELTERS ---- Lead Smelter Sites
US AIRS ---- Aerometric Information Retrieval System Facility Subsystem
US MINES ---- Mines Master Index File
ABANDONED MINES ---- Abandoned Mines
FINDS ---- Facility Index System/Facility Registry System
DOCKET HWC ---- Hazardous Waste Compliance Docket Listing
UXO ---- Unexploded Ordnance Sites
ECHO ---- Enforcement & Compliance History Information
FUELS PROGRAM ---- EPA Fuels Program Registered Listing
CA BOND EXP. PLAN ---- Bond Expenditure Plan
Cortese ---- "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings ---- CUPA Resources List
DRYCLEANERS ---- Cleaner Facilities
EMI ---- Emissions Inventory Data
ENF ---- Enforcement Action Listing
Financial Assurance ---- Financial Assurance Information Listing
HAZNET ---- Facility and Manifest Data
ICE ---- ICE
HIST CORTESE ---- Hazardous Waste & Substance Site List
HWT ---- Registered Hazardous Waste Transporter Database
MINES ---- Mines Site Location Listing
MWMP ---- Medical Waste Management Program Listing
NPDES ---- NPDES Permits Listing
PEST LIC ---- Pesticide Regulation Licenses Listing
PROC ---- Certified Processors Database
Notify 65 ---- Proposition 65 Records
UIC ---- UIC Listing
UIC GEO ---- UIC GEO (GEOTRACKER)
WASTEWATER PITS ---- Oil Wastewater Pits Listing
WDS ---- Waste Discharge System
WIP ---- Well Investigation Program Case List
MILITARY PRIV SITES ---- MILITARY PRIV SITES (GEOTRACKER)
PROJECT ---- PROJECT (GEOTRACKER)
WDR ---- Waste Discharge Requirements Listing
CIWQS ---- California Integrated Water Quality System
CERS ---- CERS
NON-CASE INFO ---- NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS ---- OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS ---- PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT ---- SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ---- Well Stimulation Project (GEOTRACKER)
HWTS ---- Hazardous Waste Tracking System
MINES MRDS ---- Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---- Recovered Government Archive Solid Waste Facilities List

EXECUTIVE SUMMARY

RGA LUST---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 06/20/2022 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FORMICA CORP EPA ID:: CAD000415455	***3500 CINCINNATI AVE***	***WNW 1/2 - 1 (0.715 mi.)***	***D12***	***120***

Lists of Federal RCRA generators

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/20/2022 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HERMAN MILLER INC EPA ID:: CAD983633371	***333 SUNSET BLVD***	***E 1/8 - 1/4 (0.129 mi.)***	***A3***	***39***

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/25/2022 has revealed that there are 3 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARIA MONTESSORI SCH Facility Id: 60000388 Status: No Action Required	***SIOUX STREET***	***ENE 1/2 - 1 (0.663 mi.)***	***11***	***117***
FORMICA CORP Facility Id: 31300003 Facility Id: 80001300 Facility Id: 60001397 Status: Refer: RWQCB Status: No Further Action	***3500 CINCINNATI AVE***	***WNW 1/2 - 1 (0.715 mi.)***	***D12***	***120***

Lower Elevation	Address	Direction / Distance	Map ID	Page
HEWLETT-PACKARD Facility Id: 31360001 Status: Refer: Other Agency	***3625 CINCINNATI AVEN***	***W 1/2 - 1 (0.656 mi.)***	***10***	***115***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 07/18/2022 has revealed that there are 2 CERS HAZ WASTE sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GREENHECK FAN CORP	***170 CYBER CT***	***NW 1/8 - 1/4 (0.156 mi.)***	***B5***	***67***
SALERNO MOTOR SPORTS	***3746 PLACER CORPORAT***	***WSW 1/8 - 1/4 (0.220 mi.)***	***C8***	***101***

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/20/2022 has revealed that there are 3 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WILLIAM JESSUP UNIVE EPA ID:: CAL000403642	333 SUNSET BLVD	E 1/8 - 1/4 (0.129 mi.)	A2	36

Lower Elevation	Address	Direction / Distance	Map ID	Page
GREENHECK FAN CORP EPA ID:: CAL000365517	170 CYBER CT	NW 1/8 - 1/4 (0.156 mi.)	B4	64
SALERNO MOTOR SPORTS EPA ID:: CAL000391905	3746 PLACER CORPORAT	WSW 1/8 - 1/4 (0.220 mi.)	C7	99

HWP: Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

A review of the HWP list, as provided by EDR, and dated 05/16/2022 has revealed that there is 1 HWP site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FORMICA CORP EPA ID: CAD000415455 Cleanup Status: CLOSED	***3500 CINCINNATI AVE***	***WNW 1/2 - 1 (0.715 mi.)***	***D13***	***166***

CA PLACER CO. MS: Placer County Master List of Facilities includes Aboveground Hazardous Material tanks, Underground Storage tanks, Site Clean-up sites.

A review of the CA PLACER CO. MS list, as provided by EDR, and dated 05/25/2022 has revealed that there are 5 CA PLACER CO. MS sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WILLIAM JESSUP UNIVE Facility Status: Closed Facility Id: FA0001831	***333 SUNSET AVE***	***E 1/8 - 1/4 (0.129 mi.)***	***A1***	***9***
ANSEL PARK Facility Status: Active Facility Id: FA0020905	***1250 ORCHID DR***	***NNE 1/8 - 1/4 (0.202 mi.)***	***6***	***96***
SUNSET 76 SERVICE ST Facility Status: Closed Facility Id: FA0006969	3710 PLACER CORPORAT	WSW 1/8 - 1/4 (0.249 mi.)	9	115

Lower Elevation	Address	Direction / Distance	Map ID	Page
GREENHECK FAN CORP	***170 CYBER CT***	***NW 1/8 - 1/4 (0.156 mi.)***	***B5***	***67***

Facility Status: Active
Facility Id: FA0005361

SALERNO MOTOR SPORTS	***3746 PLACER CORPORAT***	***WSW 1/8 - 1/4 (0.220 mi.)***	***C8***	***101***

Facility Status: Active
Facility Id: FA0019745

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 4 records.

Site Name	Database(s)
THUNDER MOUNTAIN TRAIN WRECK SITE	SEMS
FOREST PRODUCTS MANUFACTURING ?	CPS-SLIC
SOUTHERN PACIFIC PIPELINES- ROSEVI	CPS-SLIC
C-80 ELEMENTARY SCHOOL	ENVIROSTOR, SCH

OVERVIEW MAP - 7143448.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	William Jessup Apartments Ph I ESA	CLIENT:	Geocon Consultants, Inc.
ADDRESS:	Not Reported ROCKLIN CA 95765	CONTACT:	Austin Perry
LAT/LONG:	38.820683 / 121.297731	INQUIRY #:	7143448.2s
		DATE:	October 10, 2022 6:31 pm

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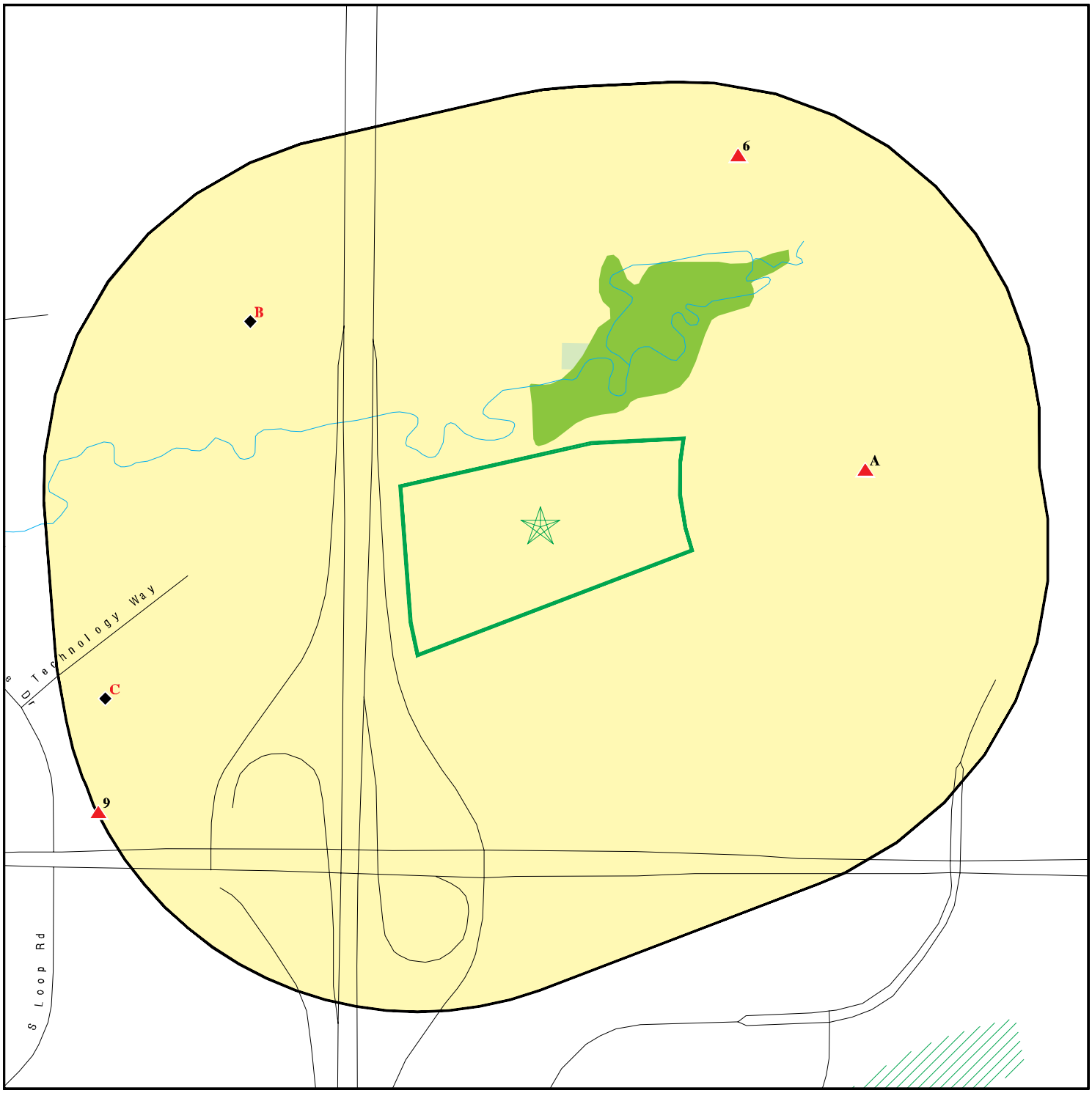
DETAIL MAP - 7143448.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	William Jessup Apartments Ph I ESA	CLIENT:	Geocon Consultants, Inc.
ADDRESS:	Not Reported ROCKLIN CA 95765	CONTACT:	Austin Perry
		INQUIRY #:	7143448.2s
LAT/LONG:	38.820683 / 121.297731	DATE:	October 10, 2022 6:32 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	1	NR	1
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	1	NR	NR	NR	1
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	3	NR	3
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	2	NR	NR	NR	2
US CDL	0.001		0	NR	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	3	NR	NR	NR	3
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	1	NR	1
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
CA PLACER CO. MS	0.250		0	5	NR	NR	NR	5
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	11	0	5	0	16

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
East
1/8-1/4
0.129 mi.
681 ft.

Relative:
Higher

Actual:
161 ft.

WILLIAM JESSUP UNIVERSITY
333 SUNSET AVE
ROCKLIN, CA 95765

Site 1 of 3 in cluster A

Database(s): EMI, HAZNET, CA PLACER CO. MS, CIWQS, CERS, HWTS

EDR ID Number: S110504334
EPA ID Number: N/A

EMI:

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2008
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.0071056371387967787
Reactive Organic Gases Tons/Yr:	.003
Carbon Monoxide Emissions Tons/Yr:	.047
NOX - Oxides of Nitrogen Tons/Yr:	.056
SOX - Oxides of Sulphur Tons/Yr:	.0003
Particulate Matter Tons/Yr:	.004
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.004

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2009
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	8.9999999999999993E-3
Reactive Organic Gases Tons/Yr:	3.7399999999999998E-3
Carbon Monoxide Emissions Tons/Yr:	5.7119999999999997E-2
NOX - Oxides of Nitrogen Tons/Yr:	6.8000000000000005E-2
SOX - Oxides of Sulphur Tons/Yr:	0.000408
Particulate Matter Tons/Yr:	5.1679999999999999E-3
Part. Matter 10 Micrometers and Smllr Tons/Yr:	5.0000000000000001E-3

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2010
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.1072951207958299E-2
Reactive Organic Gases Tons/Yr:	4.6750000000000003E-3
Carbon Monoxide Emissions Tons/Yr:	7.1400000000000005E-2
NOX - Oxides of Nitrogen Tons/Yr:	8.5000000000000006E-2
SOX - Oxides of Sulphur Tons/Yr:	5.1000000000000004E-4
Particulate Matter Tons/Yr:	6.4599999999999996E-3
Part. Matter 10 Micrometers and Smllr Tons/Yr:	6.4599999999999996E-3

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2011
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.011072951208
Reactive Organic Gases Tons/Yr:	0.004675
Carbon Monoxide Emissions Tons/Yr:	0.0714
NOX - Oxides of Nitrogen Tons/Yr:	0.085
SOX - Oxides of Sulphur Tons/Yr:	0.00051
Particulate Matter Tons/Yr:	0.00646
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.00646

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2012
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.011072951208
Reactive Organic Gases Tons/Yr:	0.004675
Carbon Monoxide Emissions Tons/Yr:	0.0714
NOX - Oxides of Nitrogen Tons/Yr:	0.085
SOX - Oxides of Sulphur Tons/Yr:	0.00051
Particulate Matter Tons/Yr:	0.00646
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.00646

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2013
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.011072951208
Reactive Organic Gases Tons/Yr:	0.004675
Carbon Monoxide Emissions Tons/Yr:	0.0714
NOX - Oxides of Nitrogen Tons/Yr:	0.085
SOX - Oxides of Sulphur Tons/Yr:	0.00051
Particulate Matter Tons/Yr:	0.00646
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.00646

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2014
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0068181818182
Reactive Organic Gases Tons/Yr:	0.003
Carbon Monoxide Emissions Tons/Yr:	0.045
NOX - Oxides of Nitrogen Tons/Yr:	0.0535
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.004
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.004

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2015
County Code:	31
Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0068181818182
Reactive Organic Gases Tons/Yr:	0.003
Carbon Monoxide Emissions Tons/Yr:	0.045
NOX - Oxides of Nitrogen Tons/Yr:	0.0535
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.004
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.004

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Year:	2016
County Code:	31

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Air Basin:	SV
Facility ID:	2425
Air District Name:	PLA
SIC Code:	8221
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.013636363636
Reactive Organic Gases Tons/Yr:	0.006
Carbon Monoxide Emissions Tons/Yr:	0.087
NOX - Oxides of Nitrogen Tons/Yr:	0.0781
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.008
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.008

HAZNET:

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET BLVD
Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 95765
Contact:	GEORGE STUBBLEFIELD/BIOLOGY DEPT
Telephone:	9165778044
Mailing Name:	Not reported
Mailing Address:	2121 UNIVERSITY AVENUE
Year:	2019
Gepaid:	CAL000403642
TSD EPA ID:	NVD980895338
CA Waste Code:	551 - Laboratory waste chemicals
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.00450
Year:	2018
Gepaid:	CAL000403642
TSD EPA ID:	INR000127621
CA Waste Code:	551 - Laboratory waste chemicals
Disposal Method:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.02250
Year:	2017
Gepaid:	CAL000403642
TSD EPA ID:	ARD981057870
CA Waste Code:	343 - Unspecified organic liquid mixture
Disposal Method:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.0335
Year:	2017
Gepaid:	CAL000403642
TSD EPA ID:	ARD981057870
CA Waste Code:	331 - Off-specification, aged or surplus organics
Disposal Method:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.041
Year:	2017
Gepaid:	CAL000403642
TSD EPA ID:	NVT330010000

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

CA Waste Code: 181 - Other inorganic solid waste
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 0.2425

Year: 2016
Gepaid: CAL000403642
TSD EPA ID: CAD059494310
CA Waste Code: 352 - Other organic solids
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.02

Year: 2016
Gepaid: CAL000403642
TSD EPA ID: CAD059494310
CA Waste Code: 792 - Liquids with pH <= 2 with metals
Disposal Method: H070 -
Tons: 0.00417

Year: 2016
Gepaid: CAL000403642
TSD EPA ID: ARD981057870
CA Waste Code: 343 - Unspecified organic liquid mixture
Disposal Method: H061 - Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0.0236

Year: 2016
Gepaid: CAL000403642
TSD EPA ID: ARD981057870
CA Waste Code: 331 - Off-specification, aged or surplus organics
Disposal Method: H061 - Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0.0275

Year: 2015
Gepaid: CAL000403642
TSD EPA ID: UTD981552177
CA Waste Code: 551 - Laboratory waste chemicals
Disposal Method: H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons: 0.03

Click this hyperlink while viewing on your computer to access
5 additional CA HAZNET: record(s) in the EDR Site Report.

Detail Two:
Year: 2019
EM Manifest ID: 330187
Shipment Date: 6/19/2018
Receipt Date: 7/9/2018
Manifest Number: 000217669DAT
Generator EPA ID: CAL000403642
Name: WILLIAM JESSUP UNIVERSITY
Address: 333 SUNSET BLVD
Address 2: Not reported
City: ROCKLIN
Zip: 95765

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Telephone:	800-633-8253
Contact:	Not reported
Contact Telephone:	916-577-8044
Transporter 1 EPA ID:	CAR000179747
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAD982523433
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	INR000127621
TSDF Name:	COVANTA ENVIRONMENTAL SOLUTIONS LLC
TSDF Address 1:	5625 OLD PORTER RD
TSDF Address 2:	W BLDG 1
TSDF City:	PORTAGE
TSDF Zip:	46368-1137
TSDF Telephone:	Not reported

State:

Year:	2019
EM Manifest ID:	330187
Generator EPA ID:	CAL000403642
Shipment Date:	2018-06-19
Manifest Number:	000217669DAT
Line Number:	1
Method Code:	H061
Quantity Tons:	0.02250
Quantity Waste:	45.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
State Code:	551

Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Shipment Date:	6/12/2019
Receipt Date:	7/5/2019
Manifest Number:	000247078DAT
Generator EPA ID:	CAL000403642
Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET BLVD
Address 2:	Not reported
City:	ROCKLIN
Zip:	95765
Telephone:	800-483-3718
Contact:	George Stubblefield
Contact Telephone:	916-577-8044
Transporter 1 EPA ID:	CAR000179747
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAR000179747
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	UTD981552177
TSDF Name:	Clean Harbors Aragonite LLC
TSDF Address 1:	PO Box 1339
TSDF Address 2:	Not reported
TSDF City:	Grantsville
TSDF Zip:	84029
TSDF Telephone:	800-483-3718

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Federal:

Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	1
Method Code:	H040
Quantity Tons:	0.00350
Quantity Waste:	7.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D001

Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	1
Method Code:	H040
Quantity Tons:	0.00350
Quantity Waste:	7.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D005

Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	1
Method Code:	H040
Quantity Tons:	0.00350
Quantity Waste:	7.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D007

Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	1
Method Code:	H040
Quantity Tons:	0.00350
Quantity Waste:	7.000000
Quantity Unit:	P
Number of Containers:	1

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D008
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	1
Method Code:	H040
Quantity Tons:	0.00350
Quantity Waste:	7.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D011
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	2
Method Code:	H040
Quantity Tons:	0.00700
Quantity Waste:	14.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D002
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	3
Method Code:	H040
Quantity Tons:	0.00450
Quantity Waste:	9.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D002
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	5
Method Code:	H040
Quantity Tons:	0.01500

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Quantity Waste:	30.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D001
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	5
Method Code:	H040
Quantity Tons:	0.01500
Quantity Waste:	30.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D002
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	5
Method Code:	H040
Quantity Tons:	0.01500
Quantity Waste:	30.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D022
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT
Line Number:	5
Method Code:	H040
Quantity Tons:	0.01500
Quantity Waste:	30.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	F002
Year:	2019
EM Manifest ID:	3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247078DAT

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Line Number: 5
Method Code: H040
Quantity Tons: 0.01500
Quantity Waste: 30.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: Fiberboard or plastic drums, barrels, kegs
Quantity Type: Pounds
Federal Code: F003

State:
Year: 2019
EM Manifest ID: 3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID: CAL000403642
Shipment Date: 2019-06-12
Manifest Number: 000247078DAT
Line Number: 1
Method Code: H040
Quantity Tons: 0.00350
Quantity Waste: 7.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: Fiberboard or plastic drums, barrels, kegs
Quantity Type: Pounds
State Code: 551

Year: 2019
EM Manifest ID: 3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID: CAL000403642
Shipment Date: 2019-06-12
Manifest Number: 000247078DAT
Line Number: 2
Method Code: H040
Quantity Tons: 0.00700
Quantity Waste: 14.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: Fiberboard or plastic drums, barrels, kegs
Quantity Type: Pounds
State Code: 551

Year: 2019
EM Manifest ID: 3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID: CAL000403642
Shipment Date: 2019-06-12
Manifest Number: 000247078DAT
Line Number: 3
Method Code: H040
Quantity Tons: 0.00450
Quantity Waste: 9.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: Fiberboard or plastic drums, barrels, kegs
Quantity Type: Pounds
State Code: 551

Year: 2019

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

EM Manifest ID: 3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID: CAL000403642
Shipment Date: 2019-06-12
Manifest Number: 000247078DAT
Line Number: 4
Method Code: H040
Quantity Tons: 0.00300
Quantity Waste: 6.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: Fiberboard or plastic drums, barrels, kegs
Quantity Type: Pounds
State Code: 551

Year: 2019
EM Manifest ID: 3263fd29-e261-4e17-bb91-d96a68c00482
Generator EPA ID: CAL000403642
Shipment Date: 2019-06-12
Manifest Number: 000247078DAT
Line Number: 5
Method Code: H040
Quantity Tons: 0.01500
Quantity Waste: 30.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: Fiberboard or plastic drums, barrels, kegs
Quantity Type: Pounds
State Code: 551

Year: 2019
EM Manifest ID: 486458
Shipment Date: 6/12/2019
Receipt Date: 7/22/2019
Manifest Number: 000247079DAT
Generator EPA ID: CAL000403642
Name: WILLIAM JESSUP UNIVERSITY
Address: 333 SUNSET BLVD
Address 2: Not reported
City: ROCKLIN
Zip: 95765
Telephone: 877-577-2669
Contact: Not reported
Contact Telephone: 775-575-2760
Transporter 1 EPA ID: MNS000110924
Transporter 1 Emergency Number: Not reported
Transporter 2 EPA ID: CAR000179747
Transporter 2 Emergency Number: Not reported
TSDF EPA ID: NVD980895338
TSDF Name: 21st Century Environmental Management of Nevada, LLC
TSDF Address 1: 2095 Newlands Drive East
TSDF Address 2: Not reported
TSDF City: Fernley
TSDF Zip: 89408
TSDF Telephone: Not reported

Federal:
Year: 2019

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

EM Manifest ID:	486458
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247079DAT
Line Number:	1
Method Code:	H141
Quantity Tons:	0.00200
Quantity Waste:	4.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D001

Year:	2019
EM Manifest ID:	486458
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247079DAT
Line Number:	1
Method Code:	H141
Quantity Tons:	0.00200
Quantity Waste:	4.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D003

Year:	2019
EM Manifest ID:	486458
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247079DAT
Line Number:	2
Method Code:	H141
Quantity Tons:	0.00250
Quantity Waste:	5.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D009

State:

Year:	2019
EM Manifest ID:	486458
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247079DAT
Line Number:	1
Method Code:	H141
Quantity Tons:	0.00200
Quantity Waste:	4.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Quantity Type:	Pounds
State Code:	551
Year:	2019
EM Manifest ID:	486458
Generator EPA ID:	CAL000403642
Shipment Date:	2019-06-12
Manifest Number:	000247079DAT
Line Number:	2
Method Code:	H141
Quantity Tons:	0.00250
Quantity Waste:	5.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Fiberboard or plastic drums, barrels, kegs
Quantity Type:	Pounds
State Code:	551

Detail Two:

Year:	2018
EM Manifest ID:	000176721DAT20170810_D_1
Shipment Date:	8/10/2017
Receipt Date:	8/22/2017
Manifest Number:	000176721DAT
Generator EPA ID:	CAL000403642
Name:	WILLIAM JESSUP UNIVERSITY
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	CAR000179747
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAD982523433
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	ARD981057870
TSDF Name:	RINECO
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

Federal:

Year:	2018
EM Manifest ID:	000176721DAT20170810_D_1
Generator EPA ID:	CAL000403642
Shipment Date:	2017-08-10
Manifest Number:	000176721DAT
Line Number:	1
Method Code:	H061
Quantity Tons:	0.04100
Quantity Waste:	82.000000
Quantity Unit:	P

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Number of Containers: 1
Type of Container: NULL
Quantity Type: NULL
Federal Code: D001

Year: 2018
EM Manifest ID: 000176721DAT20170810_D_1
Generator EPA ID: CAL000403642
Shipment Date: 2017-08-10
Manifest Number: 000176721DAT
Line Number: 2
Method Code: H061
Quantity Tons: 0.03350
Quantity Waste: 67.000000
Quantity Unit: P
Number of Containers: 2
Type of Container: NULL
Quantity Type: NULL
Federal Code: D001

Year: 2018
EM Manifest ID: 000176721DAT20170810_D_1
Generator EPA ID: CAL000403642
Shipment Date: 2017-08-10
Manifest Number: 000176721DAT
Line Number: 2
Method Code: H061
Quantity Tons: 0.03350
Quantity Waste: 67.000000
Quantity Unit: P
Number of Containers: 2
Type of Container: NULL
Quantity Type: NULL
Federal Code: D035

State:
Year: 2018
EM Manifest ID: 000176721DAT20170810_D_1
Generator EPA ID: CAL000403642
Shipment Date: 2017-08-10
Manifest Number: 000176721DAT
Line Number: 1
Method Code: H061
Quantity Tons: 0.04100
Quantity Waste: 82.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: NULL
Quantity Type: NULL
State Code: 331

Year: 2018
EM Manifest ID: 000176721DAT20170810_D_1
Generator EPA ID: CAL000403642
Shipment Date: 2017-08-10
Manifest Number: 000176721DAT
Line Number: 2

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Method Code:	H061
Quantity Tons:	0.03350
Quantity Waste:	67.000000
Quantity Unit:	P
Number of Containers:	2
Type of Container:	NULL
Quantity Type:	NULL
State Code:	343

Year:	2018
EM Manifest ID:	000176719DAT20170810_D_1
Shipment Date:	8/10/2017
Receipt Date:	8/18/2017
Manifest Number:	000176719DAT
Generator EPA ID:	CAL000403642
Name:	WILLIAM JESSUP UNIVERSITY
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	CAR000179747
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAD982523433
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	NVT330010000
TSDF Name:	US ECOLOGY- BEATTY
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

State:

Year:	2018
EM Manifest ID:	000176719DAT20170810_D_1
Generator EPA ID:	CAL000403642
Shipment Date:	2017-08-10
Manifest Number:	000176719DAT
Line Number:	1
Method Code:	H132
Quantity Tons:	0.24250
Quantity Waste:	485.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	NULL
Quantity Type:	NULL
State Code:	181

Year:	2018
EM Manifest ID:	000176720DAT20170810_D_1
Shipment Date:	8/10/2017
Receipt Date:	8/23/2017
Manifest Number:	000176720DAT

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Generator EPA ID:	CAL000403642
Name:	WILLIAM JESSUP UNIVERSITY
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	CAR000179747
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAD982523433
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	INR000127621
TSDF Name:	COVANTA ENVIRONMENTAL SOLUTIONS LLC
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

State:

Year:	2018
EM Manifest ID:	000176720DAT20170810_D_1
Generator EPA ID:	CAL000403642
Shipment Date:	2017-08-10
Manifest Number:	000176720DAT
Line Number:	1
Method Code:	H061
Quantity Tons:	0.01400
Quantity Waste:	28.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	NULL
Quantity Type:	NULL
State Code:	223

Year:	2018
EM Manifest ID:	000176720DAT20170810_D_1
Generator EPA ID:	CAL000403642
Shipment Date:	2017-08-10
Manifest Number:	000176720DAT
Line Number:	2
Method Code:	H061
Quantity Tons:	0.13050
Quantity Waste:	261.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	NULL
Quantity Type:	NULL
State Code:	331

Year:	2018
EM Manifest ID:	000176720DAT20170810_D_1
Generator EPA ID:	CAL000403642
Shipment Date:	2017-08-10
Manifest Number:	000176720DAT
Line Number:	3

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Method Code:	H061
Quantity Tons:	0.15500
Quantity Waste:	310.000000
Quantity Unit:	P
Number of Containers:	2
Type of Container:	NULL
Quantity Type:	NULL
State Code:	551
Year:	2018
EM Manifest ID:	000176720DAT20170810_D_1
Generator EPA ID:	CAL000403642
Shipment Date:	2017-08-10
Manifest Number:	000176720DAT
Line Number:	4
Method Code:	H061
Quantity Tons:	0.01251
Quantity Waste:	3.000000
Quantity Unit:	G
Number of Containers:	1
Type of Container:	NULL
Quantity Type:	NULL
State Code:	223

Additional Info:

Year:	2017
Gen EPA ID:	CAL000403642
Shipment Date:	20170810
Creation Date:	8/2/2018 18:30:33
Receipt Date:	20170818
Manifest ID:	000176719DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (SACRAMENTO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY- BEATTY
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	181 - Other inorganic solid waste Organics
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.2425
Waste Quantity:	485
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20170810
Creation Date:	11/2/2018 18:30:14
Receipt Date:	20170823

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Manifest ID:	000176720DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (ESCONDIDO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	INR000127621
Trans Name:	COVANTA ENVIRONMENTAL SOLUTIONS LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.014
Waste Quantity:	28
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20170810
Creation Date:	11/2/2018 18:30:14
Receipt Date:	20170823
Manifest ID:	000176720DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (ESCONDIDO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	INR000127621
Trans Name:	COVANTA ENVIRONMENTAL SOLUTIONS LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.1305
Waste Quantity:	261
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20170810
Creation Date:	7/17/2018 18:30:18
Receipt Date:	20170822
Manifest ID:	000176721DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (SACRAMENTO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	ARD981057870
Trans Name:	RINECO
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Waste Code Description:	343 - Unspecified organic liquid mixture
RCRA Code:	D035
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.0335
Waste Quantity:	67
Quantity Unit:	P
Additional Code 1:	D001
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20170810
Creation Date:	11/2/2018 18:30:14
Receipt Date:	20170823
Manifest ID:	000176720DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (ESCONDIDO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	INR000127621
Trans Name:	COVANTA ENVIRONMENTAL SOLUTIONS LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.01251
Waste Quantity:	3
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20170810
Creation Date:	7/17/2018 18:30:18
Receipt Date:	20170822
Manifest ID:	000176721DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (SACRAMENTO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	ARD981057870
Trans Name:	RINECO
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.041
Waste Quantity:	82
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20170810
Creation Date:	11/2/2018 18:30:14
Receipt Date:	20170823
Manifest ID:	000176720DAT
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (ESCONDIDO)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD TRUCKING INC
TSDF EPA ID:	INR000127621
Trans Name:	COVANTA ENVIRONMENTAL SOLUTIONS LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.155
Waste Quantity:	310
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2016
Gen EPA ID:	CAL000403642
Shipment Date:	20150924
Creation Date:	1/11/2016 22:16:14
Receipt Date:	20151009
Manifest ID:	014895209JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	792 - Not reported
RCRA Code:	D011
Meth Code:	H070 - Not reported
Quantity Tons:	0.01251
Waste Quantity:	3
Quantity Unit:	G
Additional Code 1:	D005
Additional Code 2:	D002
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	1/11/2016 22:16:14

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Receipt Date:	20151009
Manifest ID:	014895209JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D011
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.005
Waste Quantity:	10
Quantity Unit:	P
Additional Code 1:	D005
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20150924
Creation Date:	4/7/2016 22:15:27
Receipt Date:	20151012
Manifest ID:	014895215JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	UTD981552177
Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.03
Waste Quantity:	60
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20150924
Creation Date:	3/22/2016 22:15:58
Receipt Date:	20151011
Manifest ID:	014895214JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD ENVIRONMENTAL SERVICES
TSDF EPA ID:	ARD981057870
Trans Name:	RINECO

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	3/22/2016 22:15:58
Receipt Date:	20151011
Manifest ID:	014895214JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD ENVIRONMENTAL SERVICES
TSDF EPA ID:	ARD981057870
Trans Name:	RINECO
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	343 - Unspecified organic liquid mixture
RCRA Code:	F003
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.187
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	D001
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	1/11/2016 22:16:14
Receipt Date:	20151009
Manifest ID:	014895209JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.035
Waste Quantity:	70
Quantity Unit:	P

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2015
Gen EPA ID:	CAL000403642
Shipment Date:	20150924
Creation Date:	1/11/2016 22:16:14
Receipt Date:	20151009
Manifest ID:	014895209JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	792 - Not reported
RCRA Code:	D011
Meth Code:	H070 - Not reported
Quantity Tons:	0.01251
Waste Quantity:	3
Quantity Unit:	G
Additional Code 1:	D005
Additional Code 2:	D002
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	1/11/2016 22:16:14
Receipt Date:	20151009
Manifest ID:	014895209JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D011
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.005
Waste Quantity:	10
Quantity Unit:	P
Additional Code 1:	D005
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	4/7/2016 22:15:27
Receipt Date:	20151012
Manifest ID:	014895215JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	UTD981552177
Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.03
Waste Quantity:	60
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	3/22/2016 22:15:58
Receipt Date:	20151011
Manifest ID:	014895214JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	CAD982523433
Trans 2 Name:	DILLARD ENVIRONMENTAL SERVICES
TSDF EPA ID:	ARD981057870
Trans Name:	RINECO
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150924
Creation Date:	3/22/2016 22:15:58
Receipt Date:	20151011
Manifest ID:	014895214JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	CAD982523433

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Trans 2 Name:	DILLARD ENVIRONMENTAL SERVICES
TSDF EPA ID:	ARD981057870
Trans Name:	RINECO
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	343 - Unspecified organic liquid mixture
RCRA Code:	F003
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.187
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	D001
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20150924
Creation Date:	1/11/2016 22:16:14
Receipt Date:	20151009
Manifest ID:	014895209JJK
Trans EPA ID:	CAR000179747
Trans Name:	INGENIUM (MILPITAS)
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.035
Waste Quantity:	70
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

PLACER CO. MS:

Name:	HERMAN MILLER INC.
Address:	333 SUNSET BLVD
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0001831
Facility Status:	Closed
Program Element Code:	2106
Program:	**DO NOT USE**HAZMAT- ABOVE GROUND WITH WASTE
Record Num:	PR0002603
District Code:	18
Decode for Fstatus:	Closed

Name:	HERMAN MILLER INC.
Address:	333 SUNSET BLVD
City,State,Zip:	ROCKLIN, CA 95765

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Facility ID:	FA0001831
Facility Status:	Closed
Program Element Code:	2270
Program:	SMALL QUANTITY GENERATOR
Record Num:	PR0007004
District Code:	18
Decode for Fstatus:	Closed

CIWQS:

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET BLVD
City,State,Zip:	ROCKLIN, CA 95765
Agency:	William Jessup University
Agency Address:	333 Sunset Boulevard, Rocklin, CA 95765
Place/Project Type:	Construction - Commercial, Reconstruction
SIC/NAICS:	Not reported
Region:	5S
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	5S31C352435
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	07/07/2008
Termination Date:	08/16/2011
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	Not reported
Longitude:	Not reported

Name:	WJU DORM
Address:	333 SUNSET BLVD
City,State,Zip:	ROCKLIN, CA 95675
Agency:	William Jessup University
Agency Address:	333 Sunset Blvd, Rocklin, CA 95675
Place/Project Type:	Construction
SIC/NAICS:	Not reported
Region:	5S
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	5S31C371828
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	01/05/2015
Termination Date:	03/11/2016
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	38.819194
Longitude:	-121.292612

Name:	WILLIAM JESSUP UNIVERSITY STOCKPILE
Address:	333 SUNSET BLVD
City,State,Zip:	ROCKLIN, CA 95675
Agency:	William Jessup University
Agency Address:	333 Sunset Blvd, Rocklin, CA 95675
Place/Project Type:	Construction - Other: Temporary Stockpile Grading
SIC/NAICS:	Not reported
Region:	5S
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	5S31C369038
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	02/27/2014
Termination Date:	03/19/2015
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	38.82098
Longitude:	-121.29254

CERS:

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET AVE
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	505313
CERS ID:	110041512128
CERS Description:	US EPA Air Emission Inventory System (EIS)

HWTS:

Name:	WILLIAM JESSUP UNIVERSITY
Address:	333 SUNSET BLVD
Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 95765
EPA ID:	CAL000403642
Inactive Date:	06/30/2019
Create Date:	01/14/2015
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	2121 UNIVERSITY AVENUE
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ROCKLIN, CA 95765
Owner Name:	WILLIAM JESSUP UNIVERSITY
Owner Address:	2121 UNIVERSITY AVENUE

WILLIAM JESSUP UNIVERSITY (Continued) **S110504334**

Owner Address 2:	Not reported
Owner City,State,Zip:	ROCKLIN, CA 95765
Contact Name:	GEORGE STUBBLEFIELD/BIOLOGY DEPT
Contact Address:	2121 UNIVERSITY AVENUE
Contact Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Inactive
Facility Type:	PERMANENT
Category:	STATE
Latitude:	38.81733573
Longitude:	-121.29239281

NAICS:

EPA ID:	CAL000403642
Create Date:	2015-01-14 09:07:18.077
NAICS Code:	61131
NAICS Description:	Colleges, Universities, and Professional Schools
Issued EPA ID Date:	2015-01-14 09:07:18.06700
Inactive Date:	2019-06-30 00:00:00
Facility Name:	WILLIAM JESSUP UNIVERSITY
Facility Address:	333 SUNSET BLVD
Facility Address 2:	Not reported
Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	95765

A2 **WILLIAM JESSUP UNIVERSITY** **RCRA NonGen / NLR** **1024848214**
East **333 SUNSET BLVD** **CAL000403642**
1/8-1/4 **ROCKLIN, CA 95765**
0.129 mi.
681 ft. **Site 2 of 3 in cluster A**

Relative:
Higher

Actual:
161 ft.

RCRA Listings:

Date Form Received by Agency:	20150114
Handler Name:	WILLIAM JESSUP UNIVERSITY
Handler Address:	333 SUNSET BLVD
Handler City,State,Zip:	ROCKLIN, CA 95765
EPA ID:	CAL000403642
Contact Name:	GEORGE STUBBLEFIELD/BIOLOGY DEPT
Contact Address:	2121 UNIVERSITY AVENUE
Contact City,State,Zip:	ROCKLIN, CA 95765
Contact Telephone:	916-577-8044
Contact Fax:	916-577-2280
Contact Email:	GSTUBBLEFIELD@JESSUP.EDU
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	2121 UNIVERSITY AVENUE
Mailing City,State,Zip:	ROCKLIN, CA 95765

WILLIAM JESSUP UNIVERSITY (Continued) **1024848214**

Owner Name:	WILLIAM JESSUP UNIVERSITY
Owner Type:	Other
Operator Name:	GEORGE STUBBLEFIELD/BIOLOGY DEPT
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180906
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No

WILLIAM JESSUP UNIVERSITY (Continued) **1024848214**

Manifest Broker: No
Sub-Part P Indicator: No

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: GEORGE STUBBLEFIELD/BIOLOGY DEPT
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 2121 UNIVERSITY AVENUE
Owner/Operator City,State,Zip: ROCKLIN, CA 95765
Owner/Operator Telephone: 916-577-8044
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: WILLIAM JESSUP UNIVERSITY
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 2121 UNIVERSITY AVENUE
Owner/Operator City,State,Zip: ROCKLIN, CA 95765
Owner/Operator Telephone: 916-577-2218
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20150114
Handler Name: WILLIAM JESSUP UNIVERSITY
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 61131
NAICS Description: COLLEGES, UNIVERSITIES, AND PROFESSIONAL SCHOOLS

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

A3 **HERMAN MILLER INC** **RCRA-SQG** **1000686112**
East **333 SUNSET BLVD** **FINDS** **CAD983633371**
1/8-1/4 **ROCKLIN, CA 95677** **ECHO**
0.129 mi. **HAZNET**
681 ft. **Site 3 of 3 in cluster A** **HWTS**

Relative: **Higher**
Actual: **161 ft.**

RCRA Listings:

Date Form Received by Agency:		19920423
Handler Name:	HERMAN MILLER INC	
Handler Address:		333 SUNSET BLVD
Handler City,State,Zip:		ROCKLIN, CA 95677
EPA ID:		CAD983633371
Contact Name:		ALLEN YUHL
Contact Address:		333 SUNSET BLVD
Contact City,State,Zip:		ROCKLIN, CA 95677
Contact Telephone:		916-624-2448
Contact Fax:		Not reported
Contact Email:		Not reported
Contact Title:		Not reported
EPA Region:		09
Land Type:		Private
Federal Waste Generator Description:		Small Quantity Generator
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		333 SUNSET BLVD
Mailing City,State,Zip:		ROCKLIN, CA 95677
Owner Name:	HERMAN MILLER INC	
Owner Type:		Private
Operator Name:	Not reported	
Operator Type:		Not reported
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		NN
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported

HERMAN MILLER INC (Continued) **1000686112**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20020627
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: HERMAN MILLER INC	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	8500 BYRON RD
Owner/Operator City,State,Zip:	ZEELAND, MI 49464
Owner/Operator Telephone:	616-772-3300
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	19920423
Handler Name: HERMAN MILLER INC	
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes

HERMAN MILLER INC (Continued) **1000686112**

Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 312229
NAICS Description: OTHER TOBACCO PRODUCT MANUFACTURING

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110002874300

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000686112
Registry ID: 110002874300
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110002874300
Name: HERMAN MILLER INC
Address: 333 SUNSET BLVD
City,State,Zip: ROCKLIN, CA 95677

HAZNET:
Name: MILLER SQA
Address: 333 SUNSET BLVD
Address 2: Not reported
City,State,Zip: ROCKLIN, CA 956770000
Contact: EVELYN CROSBY-YUHL-ENV COORD
Telephone: 9166324260
Mailing Name: Not reported
Mailing Address: 333 SUNSET BLVD

Year: 2001
Gepaid: CAD983633371
TSD EPA ID: CAD980884183
CA Waste Code: 491 - Unspecified sludge waste
Disposal Method: D99 - Disposal, Other
Tons: 1.1842

Year: 2001

HERMAN MILLER INC (Continued) **1000686112**

Gepaid:	CAD983633371
TSD EPA ID:	CAD980884183
CA Waste Code:	281 - Adhesives
Disposal Method:	D99 - Disposal, Other
Tons:	0.6255
Year:	2001
Gepaid:	CAD983633371
TSD EPA ID:	CAD044003556
CA Waste Code:	223 - Unspecified oil-containing waste
Disposal Method:	H01 - Transfer Station
Tons:	4.17
Year:	2001
Gepaid:	CAD983633371
TSD EPA ID:	CAD028409019
CA Waste Code:	211 - Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)
Disposal Method:	H01 - Transfer Station
Tons:	0.2
Year:	2001
Gepaid:	CAD983633371
TSD EPA ID:	CAD028409019
CA Waste Code:	223 - Unspecified oil-containing waste
Disposal Method:	H01 - Transfer Station
Tons:	0.175
Year:	1998
Gepaid:	CAD983633371
TSD EPA ID:	CAD000088252
CA Waste Code:	223 - Unspecified oil-containing waste
Disposal Method:	H01 - Transfer Station
Tons:	0.01
Year:	1998
Gepaid:	CAD983633371
TSD EPA ID:	CAD000088252
CA Waste Code:	281 - Adhesives
Disposal Method:	H01 - Transfer Station
Tons:	0.2293
Year:	1998
Gepaid:	CAD983633371
TSD EPA ID:	CAD000088252
CA Waste Code:	141 - Off-specification, aged or surplus inorganics
Disposal Method:	H01 - Transfer Station
Tons:	0.9174
Year:	1996
Gepaid:	CAD983633371
TSD EPA ID:	CAD000088252
CA Waste Code:	343 - Unspecified organic liquid mixture
Disposal Method:	H01 - Transfer Station
Tons:	0.102
Year:	1996

HERMAN MILLER INC (Continued) **1000686112**

Gepaid: CAD983633371
TSD EPA ID: CAD000088252
CA Waste Code: 221 - Waste oil and mixed oil
Disposal Method: H01 - Transfer Station
Tons: 0.418

Click this hyperlink while viewing on your computer to access
18 additional CA HAZNET: record(s) in the EDR Site Report.

Additional Info:
Year: 2001
Gen EPA ID: CAD983633371

Shipment Date: 20011114
Creation Date: Not reported
Receipt Date: Not reported
Manifest ID: 21126592
Trans EPA ID: CAR000085787
Trans Name: Not reported
Trans 2 EPA ID: CAD982524480
Trans 2 Name: Not reported
TSDF EPA ID: CAD028409019
Trans Name: Not reported
TSDF Alt EPA ID: CAD028409019
TSDF Alt Name: Not reported
Waste Code Description: 281 - Adhesives
RCRA Code: D002
Meth Code: H01 - Transfer Station
Quantity Tons: 0.1125
Waste Quantity: 225
Quantity Unit: P
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

Shipment Date: 20011114
Creation Date: Not reported
Receipt Date: Not reported
Manifest ID: 21126592
Trans EPA ID: CAR000085787
Trans Name: Not reported
Trans 2 EPA ID: CAD982524480
Trans 2 Name: Not reported
TSDF EPA ID: CAD028409019
Trans Name: Not reported
TSDF Alt EPA ID: CAD028409019
TSDF Alt Name: Not reported
Waste Code Description: 141 - Off-specification, aged, or surplus inorganics
RCRA Code: D002
Meth Code: H01 - Transfer Station
Quantity Tons: 0.0475
Waste Quantity: 95
Quantity Unit: P
Additional Code 1: Not reported

HERMAN MILLER INC (Continued) **1000686112**

Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	2/19/2002 0:00:00
Receipt Date:	20011116
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0375
Waste Quantity:	75
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	2/19/2002 0:00:00
Receipt Date:	20011116
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	211 - Halogenated solvents (chloroform, methyl chloride, perchloroethylene, etc.
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	2/19/2002 0:00:00
Receipt Date:	20011116

HERMAN MILLER INC (Continued) **1000686112**

Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	211 - Halogenated solvents (chloroform, methyl chloride, perchloroethylene, etc.
RCRA Code:	D002
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1875
Waste Quantity:	375
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	2/19/2002 0:00:00
Receipt Date:	20011116
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019

HERMAN MILLER INC (Continued) **1000686112**

TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1375
Waste Quantity:	275
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D002
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.04
Waste Quantity:	80
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.05
Waste Quantity:	100
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported

HERMAN MILLER INC (Continued) **1000686112**

Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011114
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	21126592
Trans EPA ID:	CAR000085787
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.15
Waste Quantity:	300
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1998
Gen EPA ID:	CAD983633371
Shipment Date:	19981106
Creation Date:	7/29/2013 14:43:51
Receipt Date:	19981109
Manifest ID:	96413055
Trans EPA ID:	CA0000646497
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD000088252
TSDF Alt Name:	Not reported
Waste Code Description:	141 - Off-specification, aged, or surplus inorganics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.9174
Waste Quantity:	220
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19981106

HERMAN MILLER INC (Continued) **1000686112**

Creation Date:	7/29/2013 14:43:51
Receipt Date:	19981109
Manifest ID:	96413055
Trans EPA ID:	CA0000646497
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD000088252
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.01
Waste Quantity:	20
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19980331
Creation Date:	5/26/1998 0:00:00
Receipt Date:	19980403
Manifest ID:	96413000
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD000088252
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1996
Gen EPA ID:	CAD983633371

Shipment Date:	19961216
Creation Date:	5/20/1997 0:00:00
Receipt Date:	19961217
Manifest ID:	96412809
Trans EPA ID:	CAD983582701
Trans Name:	Not reported

HERMAN MILLER INC (Continued) **1000686112**

Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.209
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19961216
Creation Date:	5/20/1997 0:00:00
Receipt Date:	19961217
Manifest ID:	96412809
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19960911
Creation Date:	9/12/1997 0:00:00
Receipt Date:	19960917
Manifest ID:	95170754
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station

HERMAN MILLER INC (Continued) **1000686112**

Quantity Tons:	0.209
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19960911
Creation Date:	9/12/1997 0:00:00
Receipt Date:	19960917
Manifest ID:	95170754
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.033
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19960911
Creation Date:	9/12/1997 0:00:00
Receipt Date:	19960917
Manifest ID:	95170754
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	343 - Unspecified organic liquid mixture
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.102
Waste Quantity:	30
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HERMAN MILLER INC (Continued) **1000686112**

Shipment Date:	19960911
Creation Date:	9/12/1997 0:00:00
Receipt Date:	19960917
Manifest ID:	95170754
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0208
Waste Quantity:	5
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19960521
Creation Date:	5/20/1997 0:00:00
Receipt Date:	19960522
Manifest ID:	95170721
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	291 - Latex waste
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19960521
Creation Date:	5/20/1997 0:00:00
Receipt Date:	19960522
Manifest ID:	95170721
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252

HERMAN MILLER INC (Continued) **1000686112**

Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19960109
Creation Date:	9/18/1996 0:00:00
Receipt Date:	19960116
Manifest ID:	95170449
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	OHO000000539
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19960109
Creation Date:	9/18/1996 0:00:00
Receipt Date:	19960116
Manifest ID:	95170449
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	OHO000000539
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G

HERMAN MILLER INC (Continued) **1000686112**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1995
Gen EPA ID:	CAD983633371
Shipment Date:	19951107
Creation Date:	7/26/1996 0:00:00
Receipt Date:	19951108
Manifest ID:	95170581
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD000088252
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.198
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19951017
Creation Date:	7/26/1996 0:00:00
Receipt Date:	19951019
Manifest ID:	95170560
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.209
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HERMAN MILLER INC (Continued) **1000686112**

Shipment Date:	19951017
Creation Date:	7/26/1996 0:00:00
Receipt Date:	19951019
Manifest ID:	95170560
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0417
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19951017
Creation Date:	7/26/1996 0:00:00
Receipt Date:	19951019
Manifest ID:	95170560
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0165
Waste Quantity:	5
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19950725
Creation Date:	3/29/1996 0:00:00
Receipt Date:	19950726
Manifest ID:	95170625
Trans EPA ID:	CAD982519209
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148

HERMAN MILLER INC (Continued) **1000686112**

Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19950331
Creation Date:	3/29/1996 0:00:00
Receipt Date:	19950403
Manifest ID:	95170543
Trans EPA ID:	CAD980814594
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	- Not reported
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.271
Waste Quantity:	65
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19950331
Creation Date:	3/29/1996 0:00:00
Receipt Date:	19950403
Manifest ID:	95170543
Trans EPA ID:	CAD980814594
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G

HERMAN MILLER INC (Continued) **1000686112**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19950331
Creation Date:	3/29/1996 0:00:00
Receipt Date:	19950403
Manifest ID:	95170543
Trans EPA ID:	CAD980814594
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0417
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19950331
Creation Date:	3/29/1996 0:00:00
Receipt Date:	19950403
Manifest ID:	95170543
Trans EPA ID:	CAD980814594
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.033
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19950208
Creation Date:	3/29/1996 0:00:00
Receipt Date:	19950208

HERMAN MILLER INC (Continued) **1000686112**

Manifest ID:	95170521
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAT080011059
Trans 2 Name:	Not reported
TSDF EPA ID:	CAL000051079
Trans Name:	Not reported
TSDF Alt EPA ID:	CAL000051079
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.209
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1994
Gen EPA ID:	CAD983633371
Shipment Date:	19941115
Creation Date:	3/28/1996 0:00:00
Receipt Date:	19941123
Manifest ID:	92892894
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD980814594
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19941115
Creation Date:	3/28/1996 0:00:00
Receipt Date:	19941123
Manifest ID:	92892894
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD980814594
Trans 2 Name:	Not reported

HERMAN MILLER INC (Continued) **1000686112**

TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19940803
Creation Date:	3/26/1996 0:00:00
Receipt Date:	19940804
Manifest ID:	92892866
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080022148
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.3336
Waste Quantity:	80
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19940506
Creation Date:	3/25/1996 0:00:00
Receipt Date:	19940511
Manifest ID:	92893126
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD983582701
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55

HERMAN MILLER INC (Continued) **1000686112**

Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19940506
Creation Date:	3/25/1996 0:00:00
Receipt Date:	19940511
Manifest ID:	92893126
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD983582701
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19940228
Creation Date:	3/25/1996 0:00:00
Receipt Date:	19940302
Manifest ID:	92893144
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD980814594
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1251
Waste Quantity:	30
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19940228
Creation Date:	3/25/1996 0:00:00

HERMAN MILLER INC (Continued) **1000686112**

Receipt Date:	19940302
Manifest ID:	92893144
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD980814594
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1251
Waste Quantity:	30
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19940228
Creation Date:	3/25/1996 0:00:00
Receipt Date:	19940302
Manifest ID:	92893144
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD980814594
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	281 - Adhesives
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2293
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1993
Gen EPA ID:	CAD983633371

Shipment Date:	19931108
Creation Date:	9/14/1995 0:00:00
Receipt Date:	19931110
Manifest ID:	92818672
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD980814594

HERMAN MILLER INC (Continued) **1000686112**

Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080010101
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080010101
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1815
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19930804
Creation Date:	9/12/1995 0:00:00
Receipt Date:	19930805
Manifest ID:	90765821
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980887418
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD980887418
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.418
Waste Quantity:	110
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19930720
Creation Date:	9/8/1995 0:00:00
Receipt Date:	Not reported
Manifest ID:	90765826
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080010101
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	213 - Hydrocarbon solvents (benzene, hexane, Stoddard, etc.
RCRA Code:	D001
Meth Code:	- Not reported
Quantity Tons:	0.4587

HERMAN MILLER INC (Continued) **1000686112**

Waste Quantity:	110
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930720
Creation Date:	9/8/1995 0:00:00
Receipt Date:	Not reported
Manifest ID:	90765826
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080010101
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	213 - Hydrocarbon solvents (benzene, hexane, Stoddard, etc.
RCRA Code:	D001
Meth Code:	- Not reported
Quantity Tons:	0.0417
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930315
Creation Date:	9/6/1995 0:00:00
Receipt Date:	19930318
Manifest ID:	90765880
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080010101
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080010101
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.099
Waste Quantity:	30
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930315

HERMAN MILLER INC (Continued) **1000686112**

Creation Date:	9/1/1995 0:00:00
Receipt Date:	Not reported
Manifest ID:	90765884
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD083166728
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.209
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	MILLER SQA
Address:	333 SUNSET BLVD
Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 95677
EPA ID:	CAD983633371
Inactive Date:	06/30/2002
Create Date:	04/23/1992
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	333 SUNSET BLVD
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ROCKLIN, CA 957653707
Owner Name:	HERMAN MILLER INC
Owner Address:	333 SUNSET BLVD
Owner Address 2:	Not reported
Owner City,State,Zip:	ROCKLIN, CA 957653707
Contact Name:	EVELYN CROSBY-YUHL-ENV COORD
Contact Address:	333 SUNSET BLVD
Contact Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 957653707
Facility Status:	Inactive
Facility Type:	PERMANENT
Category:	FEDERAL
Latitude:	38.819396
Longitude:	-121.300439

NAICS:

EPA ID:	CAD983633371
Create Date:	2002-03-14 16:36:27.000
NAICS Code:	337125
NAICS Description:	Household Furniture (except Wood and Metal) Manufacturing
Issued EPA ID Date:	1992-04-23 00:00:00
Inactive Date:	2002-06-30 00:00:00

HERMAN MILLER INC (Continued) **1000686112**

Facility Name:	MILLER SQA
Facility Address:	333 SUNSET BLVD
Facility Address 2:	Not reported
Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	956770000
EPA ID:	CAD983633371
Create Date:	2002-03-14 16:36:27.000
NAICS Code:	337125
NAICS Description:	Household Furniture (except Wood and Metal) Manufacturing
Issued EPA ID Date:	1992-04-23 00:00:00
Inactive Date:	2002-06-30 00:00:00
Facility Name:	MILLER SQA
Facility Address:	333 SUNSET BLVD
Facility Address 2:	Not reported
Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	956770000

B4 **GREENHECK FAN CORP** **RCRA NonGen / NLR** **1024830482**
NW **170 CYBER CT** **CAL000365517**
1/8-1/4 **ROCKLIN, CA 95765**
0.156 mi.
824 ft. **Site 1 of 2 in cluster B**

Relative: **Lower**
Actual: **127 ft.**

RCRA Listings:

Date Form Received by Agency:		20110712
Handler Name:	GREENHECK FAN CORP	
Handler Address:		170 CYBER CT
Handler City,State,Zip:		ROCKLIN, CA 95765
EPA ID:		CAL000365517
Contact Name:		DOUG BORRE
Contact Address:		PO BOX 410
Contact City,State,Zip:		SCHOFIELD, WI 54476
Contact Telephone:		715-203-2477
Contact Fax:		715-355-2444
Contact Email:		DOUG.BORRE@GREENHECK.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		170 CYBER CT
Mailing City,State,Zip:		ROCKLIN, CA 95765-0000
Owner Name:	GREENHECK FAN CORP	
Owner Type:		Other
Operator Name:	DOUG BORRE	
Operator Type:		Other
Short-Term Generator Activity:		No

GREENHECK FAN CORP (Continued) **1024830482**

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180906
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

GREENHECK FAN CORP (Continued) **1024830482**

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: DOUG BORRE
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: PO BOX 410
Owner/Operator City,State,Zip: SCHOFIELD, WI 54476
Owner/Operator Telephone: 715-203-2477
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: GREENHECK FAN CORP
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: PO BOX 410
Owner/Operator City,State,Zip: SCHOFIELD, WI 54476-0410
Owner/Operator Telephone: 715-203-2477
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20110712
Handler Name: GREENHECK FAN CORP
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 333412
NAICS Description: INDUSTRIAL AND COMMERCIAL FAN AND BLOWER MANUFACTURING

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B5 **GREENHECK FAN CORP** **CERS HAZ WASTE** **S105113391**
NW **170 CYBER CT** **EMI** **N/A**
1/8-1/4 **ROCKLIN, CA 95677** **CA PLACER CO. MS**
0.156 mi. **NPDES**
824 ft. **Site 2 of 2 in cluster B** **CIWQS**
CERS

Relative: Lower

Actual: 127 ft.

CERS HAZ WASTE:

Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	34369
CERS ID:	10205656
CERS Description:	Hazardous Waste Generator

EMI:

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2008
County Code:	31
Air Basin:	SV
Facility ID:	2532
Air District Name:	PLA
SIC Code:	7532
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.217112077895172985
Reactive Organic Gases Tons/Yr:	1.175
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2009
County Code:	31
Air Basin:	SV
Facility ID:	2532
Air District Name:	PLA
SIC Code:	5149
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	4.0000000000000001E-3
Reactive Organic Gases Tons/Yr:	3.4949999999999998E-3
Carbon Monoxide Emissions Tons/Yr:	0.01553
NOX - Oxides of Nitrogen Tons/Yr:	0.1462
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.002
Part. Matter 10 Micrometers and Smllr Tons/Yr:	2.6250000000000002E-3

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677

GREENHECK FAN CORP (Continued) **S105113391**

Year:	2010
County Code:	31
Air Basin:	SV
Facility ID:	2532
Air District Name:	PLA
SIC Code:	5149
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	8.3662005497788898E-3
Reactive Organic Gases Tons/Yr:	7.0000000000000001E-3
Carbon Monoxide Emissions Tons/Yr:	0.039
NOX - Oxides of Nitrogen Tons/Yr:	0.35125000000000001
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	6.1475409836065503E-3
Part. Matter 10 Micrometers and Smllr Tons/Yr:	6.0000000000000001E-3

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2011
County Code:	31
Air Basin:	SV
Facility ID:	2532
Air District Name:	PLA
SIC Code:	5149
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0083662005498
Reactive Organic Gases Tons/Yr:	0.007
Carbon Monoxide Emissions Tons/Yr:	0.039
NOX - Oxides of Nitrogen Tons/Yr:	0.35125
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.0061475409836
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.006

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2012
County Code:	31
Air Basin:	SV
Facility ID:	2532
Air District Name:	PLA
SIC Code:	5149
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0083662005498
Reactive Organic Gases Tons/Yr:	0.007
Carbon Monoxide Emissions Tons/Yr:	0.039
NOX - Oxides of Nitrogen Tons/Yr:	0.35125
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.0061475409836
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.006

GREENHECK FAN CORP (Continued) **S105113391**

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2013
County Code:	31
Air Basin:	SV
Facility ID:	2386
Air District Name:	PLA
SIC Code:	7532
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.52827843381
Reactive Organic Gases Tons/Yr:	0.51
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2014
County Code:	31
Air Basin:	SV
Facility ID:	2386
Air District Name:	PLA
SIC Code:	7532
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.52827843381
Reactive Organic Gases Tons/Yr:	0.51
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2015
County Code:	31
Air Basin:	SV
Facility ID:	2386
Air District Name:	PLA
SIC Code:	7532
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.52827843381
Reactive Organic Gases Tons/Yr:	0.51
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0

GREENHECK FAN CORP (Continued) **S105113391**

Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Name: GREENHECK FAN CORP
Address: 170 CYBER CT
City,State,Zip: ROCKLIN, CA 95677
Year: 2016
County Code: 31
Air Basin: SV
Facility ID: 2386
Air District Name: PLA
SIC Code: 7532
Air District Name: PLACER COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0.52827843381
Reactive Organic Gases Tons/Yr: 0.51
Carbon Monoxide Emissions Tons/Yr: Not reported
NOX - Oxides of Nitrogen Tons/Yr: Not reported
SOX - Oxides of Sulphur Tons/Yr: Not reported
Particulate Matter Tons/Yr: Not reported
Part. Matter 10 Micrometers and Smllr Tons/Yr: Not reported

Name: GREENHECK FAN CORP
Address: 170 CYBER CT
City,State,Zip: ROCKLIN, CA 95677
Year: 2017
County Code: 31
Air Basin: SV
Facility ID: 2386
Air District Name: PLA
SIC Code: 3564
Air District Name: PLACER COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: Not reported
NOX - Oxides of Nitrogen Tons/Yr: Not reported
SOX - Oxides of Sulphur Tons/Yr: Not reported
Particulate Matter Tons/Yr: Not reported
Part. Matter 10 Micrometers and Smllr Tons/Yr: Not reported

Name: GREENHECK FAN CORP
Address: 170 CYBER CT
City,State,Zip: ROCKLIN, CA 95677
Year: 2018
County Code: 31
Air Basin: SV
Facility ID: 2386
Air District Name: PLA
SIC Code: 3564
Air District Name: PLACER COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0

GREENHECK FAN CORP (Continued) **S105113391**

Carbon Monoxide Emissions Tons/Yr:	Not reported
NOX - Oxides of Nitrogen Tons/Yr:	Not reported
SOX - Oxides of Sulphur Tons/Yr:	Not reported
Particulate Matter Tons/Yr:	Not reported
Part. Matter 10 Micrometers and Smllr Tons/Yr:	Not reported

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2019
County Code:	31
Air Basin:	SV
Facility ID:	2386
Air District Name:	PLA
SIC Code:	3564
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	Not reported
NOX - Oxides of Nitrogen Tons/Yr:	Not reported
SOX - Oxides of Sulphur Tons/Yr:	Not reported
Particulate Matter Tons/Yr:	Not reported
Part. Matter 10 Micrometers and Smllr Tons/Yr:	Not reported

Name:	GREENHECK FAN CORP
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95677
Year:	2020
County Code:	31
Air Basin:	SV
Facility ID:	2386
Air District Name:	PLA
SIC Code:	3564
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	Not reported
NOX - Oxides of Nitrogen Tons/Yr:	Not reported
SOX - Oxides of Sulphur Tons/Yr:	Not reported
Particulate Matter Tons/Yr:	Not reported
Part. Matter 10 Micrometers and Smllr Tons/Yr:	Not reported

PLACER CO. MS:

Name:	GREENHECK FAN CORPORATION
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0005361
Facility Status:	Active
Program Element Code:	2105
Program:	HAZMAT BUSINESS PLAN
Record Num:	PR0008094
District Code:	18
Decode for Fstatus:	Active

GREENHECK FAN CORP (Continued) **S105113391**

Name:	GREENHECK FAN CORPORATION
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0005361
Facility Status:	Active
Program Element Code:	2270
Program:	SMALL QUANTITY GENERATOR
Record Num:	PR0008245
District Code:	18
Decode for Fstatus:	Active

NPDES:

Name:	GREENHECK FAN COMPANY
Address:	170 CYBER COURT
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	5S31IN605365
Regulatory Measure Type:	Industrial
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Undetermined
Status Date:	04/03/2019
Operator Name:	Greenheck Fan Company
Operator Address:	170 Cyber Court
Operator City:	Rocklin
Operator State:	California
Operator Zip:	95765

Name:	GREENHECK FAN COMPANY
Address:	170 CYBER COURT
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	5S31NNA363
Regulatory Measure Type:	Industrial
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported

GREENHECK FAN CORP (Continued) **S105113391**

Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Undetermined
Status Date:	04/03/2019
Operator Name:	Greenheck Fan Company
Operator Address:	170 Cyber Court
Operator City:	Rocklin
Operator State:	California
Operator Zip:	95765

Name:	GREENHECK FAN CORPORATION
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Active
NPDES Number:	CAS000001
Region:	5S
Agency Number:	0
Regulatory Measure ID:	528123
Place ID:	Not reported
Order Number:	97-03-DWQ
WDID:	5S31I028970
Regulatory Measure Type:	Enrollee
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	11/20/2020
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	PO Box 410
Discharge Name:	Greenheck Fan Corporation
Discharge City:	Schofield
Discharge State:	Wisconsin
Discharge Zip:	54476
Status:	Not reported
Status Date:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported

Name:	GREENHECK FAN CORPORATION
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	5S31I028970
Regulatory Measure Type:	Industrial

GREENHECK FAN CORP (Continued) **S105113391**

Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Active
Status Date:	11/20/2020
Operator Name:	Greenheck Fan Corporation
Operator Address:	PO Box 410
Operator City:	Schofield
Operator State:	Wisconsin
Operator Zip:	54476

Name:	GREENHECK FAN
Address:	170 CYBER COURT
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	Not reported
Regulatory Measure Type:	Industrial
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Returned
Status Date:	08/13/2019
Operator Name:	Greenheck Fan
Operator Address:	170 Cyber Court
Operator City:	Rocklin
Operator State:	California
Operator Zip:	95765

CIWQS:

Name:	GREENHECK FAN CORPORATION
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Agency:	Greenheck Fan Corporation
Agency Address:	PO Box 410, Schofield, WI 54476
Place/Project Type:	Industrial - Industrial and Commercial Fans and Blowers and Air Purification Equipment
SIC/NAICS:	3564

GREENHECK FAN CORP (Continued) **S105113391**

Region:	5S
Program:	INDSTW
Regulatory Measure Status:	Active
Regulatory Measure Type:	Storm water industrial
Order Number:	2014-0057-DWQ
WDID:	5S31I028970
NPDES Number:	CAS000001
Adoption Date:	Not reported
Effective Date:	11/20/2020
Termination Date:	Not reported
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	38.82256
Longitude:	-121.30143

CERS:

Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	34369
CERS ID:	887670
CERS Description:	Industrial Facility Storm Water

Violations:

Site ID:	34369
Site Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Violation Date:	09-26-2014
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	The hazardous materials inventory reported in the business plan on file does not accurately represent the inventory on site. Submit new chemical inventory pages for all hazardous materials in reportable quantities. Do this by 10/26/14.
Violation Division:	Placer County Environmental Health
Violation Program:	HMRRP
Violation Source:	CERS,

Site ID:	34369
Site Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Violation Date:	02-11-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 03/11/2016. The layout of the shop area has changed significantly since the last CERS submittal was completed. Operator to update storage map as necessary and submit it to CERS by 3/12/2016.
Violation Division:	Placer County Environmental Health

GREENHECK FAN CORP (Continued) **S105113391**

Violation Program: HMRRP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-19-2022
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically recertified in CERS on or before 2/10/2022. The operator completed a submittal to CERS while on-site to make a minor revision to the hazardous materials inventory. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the facility maps. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On site for a routine hazardous waste generator inspection. Reviewed all consolidated and uniform hazardous waste manifests for the past year. All hazardous waste disposal records were organized, accurate and complete. This facility is a Small Quantity Generator (SQG) of hazardous waste. All employees participate in safety meetings on emergency response and hazardous materials training at least annually and the training sessions are documented. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the EPA ID profile information in the hazardous waste tracking system. The information is accurate and the ID number is active. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-07-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The hazardous wastes generated on-site include waste oil, waste oily solids, aqueous parts washing solution and waste lazer metal. Shop rags are managed by Cintas which is a commercial laundry service. Hazardous materials and spill response training is provided to all employees at least annually. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the uniform and consolidate hazardous waste manifests for past three years. All

GREENHECK FAN CORP (Continued) **S105113391**

	hazardous waste manifests were accurate and complete. Reviewed the information on the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. No violations observed this date.
Eval Division:	Placer County Environmental Health
Eval Program:	HW
Eval Source:	CERS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	12-01-2020
Violations Found:	No
Eval Type:	Industrial Storm Water Compliance Evaluation
Eval Notes:	On 1 December 2020, Central Valley Water Board staff (Staff) conducted an inspection of the Greenheck (Discharger) Greenheck Fan Corporation facility located at 170 Cyber Ct in Rocklin (see attached inspection report).
Eval Division:	Water Boards
Eval Program:	INDSTW
Eval Source:	SMARTS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	02-07-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 1/29/2020. The operator completed a submittal to CERS while on-site to make a minor revision to the hazardous materials inventory. Operator to verify the total quantity of electrolyte in the forklift batteries and report the electrolyte in the facilities hazardous materials inventory if the total quantity is 55 gallons or more. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the completeness of the facility maps. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed [Truncated]
Eval Division:	Placer County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	09-26-2014
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	This facility is a small quantity generator (SQG) of hazardous waste. Wastes generated at this facility include used hydraulic oil, laser waste metal, used absorbent and universal waste. Reviewed all hazardous waste disposal receipts / manifests for 2014. Improve record keeping of the hazardous waste disposal receipts as discussed. All uniform hazardous waste manifest sould be paired up and stored together to facilitate dispoasl documentation reviews. Recommend providing secondary containment pallets for all hazardous materials / waste is 55 gallon containers as discussed. Operator to begin using "EMPTY" labels on all empty containers 55 gallons or larger that

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previously held a hazardous material or waste as discussed. All "EMPTY" labels must include the date the container was emptied and what it previously contained.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-26-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: The hazardous materials inventory for this facility needs to be updated and submitted to CERS. Please report the following materials in CERS by 10/26/14: 1. Rando HD ISO46 (2 drums + 1000 gallons in equipment) 2. Laser Dust (1 drum) 3. Used Hydraulic Oil (2 drums) 4. Towerdraw Oil (4 drums) 5. Propane (20 cylinders) 6. Liquid Nitrogen (5 Duers) 7. Acetylene (1 cylinder) 8. Argon/Carbon Dioxide 98/2 (2 cylinders) 9. Helium/Argon/Carbon Dioxide (2 cylinders) 10. Argon/Carbon Dioxide 80/20 (10 cylinders) 11. Nitrogen (5 cylinders) 12. Argon (7 cylinders) 13. Oxygen (2 cylinders) 14. Liquid Oxygen (2 Duers) 15. Helium (6 cylinders) The business activities and owner/operator information has already been submitted and accepted in CERS for this facility.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 10-01-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Complete inspection report from 9/26/14 and discuss it with the operator.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-19-2022
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The hazardous wastes generated on-site include waste oil, waste oily solids, aqueous parts washing solution and waste laser metal. Reviewed the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. Reviewed the uniform and consolidate hazardous waste manifests for past three years. All hazardous waste manifests were accurate and complete. Shop towels are managed by Cintas which is a commercial laundry service. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. No violations observed this [Truncated]
Eval Division: Placer County Environmental Health

GREENHECK FAN CORP (Continued) **S105113391**

Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: All business plan documents have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 2/11/2017. All employees participate in safety meetings on emergency response and hazardous materials training at least annually and the training sessions are documented.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Enforcement Action:
Site ID: 34369
Site Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Site Address: 170 CYBER CT
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 02-11-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Site ID: 34369
Site Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Site Address: 170 CYBER CT
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 09-26-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Coordinates:
Site ID: 34369
Facility Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Env Int Type Code: SMSWIND
Program ID: 887670
Coord Name: Not reported
Ref Point Type Desc: Unknown,
Latitude: 38.822560
Longitude: -121.301430

Affiliation:
Affiliation Type Desc: Company Official

GREENHECK FAN CORP (Continued) **S105113391**

Entity Name:	Derek Boyd
Entity Title:	Global EHS Director
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	170 Cyber Court
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Legal Owner
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	P.O. Box 400
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	United States
Affiliation Zip:	54476-0000
Affiliation Phone:	(715) 359-6171,
Affiliation Type Desc:	Owner/Operator
Entity Name:	Greenheck Fan Corporation
Entity Title:	Operator
Affiliation Address:	PO Box 410
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	Not reported
Affiliation Zip:	54476
Affiliation Phone:	,
Affiliation Type Desc:	Identification Signer
Entity Name:	Jennifer Peplinski
Entity Title:	EHS Manager
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Operator
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

GREENHECK FAN CORP (Continued) **S105113391**

Affiliation Phone:	(715) 359-6171,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Property Owner
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	P.O. Box 410
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	United States
Affiliation Zip:	54476-0410
Affiliation Phone:	(715) 359-6171,
Affiliation Type Desc:	Parent Company
Entity Name:	GREENHECK FAN CORP
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Public Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	7153213398,
Affiliation Type Desc:	CUPA District
Entity Name:	Placer County Env Health
Entity Title:	Not reported
Affiliation Address:	3091 County Center Drive
Affiliation City:	Auburn
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95603
Affiliation Phone:	(530) 745-2300,
Affiliation Type Desc:	Document Preparer
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported

GREENHECK FAN CORP (Continued) **S105113391**

Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	1100 Greenheck Dr
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	Not reported
Affiliation Zip:	54476-0000
Affiliation Phone:	,
Affiliation Type Desc:	Technical Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	7153213398,
Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	34369
CERS ID:	9576WGRNHC17CYB
CERS Description:	Toxic Release Inventory

Violations:

Site ID:	34369
Site Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Violation Date:	09-26-2014
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	The hazardous materials inventory reported in the business plan on file does not accurately represent the inventory on site. Submit new chemical inventory pages for all hazardous materials in reportable quantities. Do this by 10/26/14.
Violation Division:	Placer County Environmental Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	34369
Site Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Violation Date:	02-11-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 03/11/2016. The layout of the shop area has

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changed significantly since the last CERS submittal was completed. Operator to update storage map as necessary and submit it to CERS by 3/12/2016.

Violation Division: Placer County Environmental Health
Violation Program: HMRRP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-19-2022
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically recertified in CERS on or before 2/10/2022. The operator completed a submittal to CERS while on-site to make a minor revision to the hazardous materials inventory. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the facility maps. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On site for a routine hazardous waste generator inspection. Reviewed all consolidated and uniform hazardous waste manifests for the past year. All hazardous waste disposal records were organized, accurate and complete. This facility is a Small Quantity Generator (SQG) of hazardous waste. All employees participate in safety meetings on emergency response and hazardous materials training at least annually and the training sessions are documented. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the EPA ID profile information in the hazardous waste tracking system. The information is accurate and the ID number is active. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-07-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The hazardous wastes generated on-site include waste oil, waste oily solids, aqueous parts washing solution and waste lazer metal. Shop rags are managed by Cintas which is a commercial laundry service. Hazardous materials and spill response training is provided to all

GREENHECK FAN CORP (Continued) **S105113391**

employees at least annually. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the uniform and consolidate hazardous waste manifests for past three years. All hazardous waste manifests were accurate and complete. Reviewed the information on the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. No violations observed this date.

Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-01-2020
Violations Found: No
Eval Type: Industrial Storm Water Compliance Evaluation
Eval Notes: On 1 December 2020, Central Valley Water Board staff (Staff) conducted an inspection of the Greenheck (Discharger) Greenheck Fan Corporation facility located at 170 Cyber Ct in Rocklin (see attached inspection report).
Eval Division: Water Boards
Eval Program: INDSTW
Eval Source: SMARTS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-07-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 1/29/2020. The operator completed a submittal to CERS while on-site to make a minor revision to the hazardous materials inventory. Operator to verify the total quantity of electrolyte in the forklift batteries and report the electrolyte in the facilities hazardous materials inventory if the total quantity is 55 gallons or more. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the completeness of the facility maps. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed [Truncated]
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-26-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: This facility is a small quantity generator (SQG) of hazardous waste. Wastes generated at this facility include used hydraulic oil, laser waste metal, used absorbent and universal waste. Reviewed all hazardous waste disposal receipts / manifests for 2014. Improve record keeping of the hazardous waste disposal receipts as discussed. All uniform hazardous waste manifest sould be paired up and stored

GREENHECK FAN CORP (Continued) **S105113391**

	together to facilitate dispoasl documentation reviews. Recommend providing secondary containment pallets for all hazardous materials / waste is 55 gallon containers as discussed. Operator to begin using "EMPTY" labels on all empty containers 55 gallons or larger that previously held a hazardous material or waste as discussed. All "EMPTY" labels must include the date the container was emptied and what it previously contained.
Eval Division:	Placer County Environmental Health
Eval Program:	HW
Eval Source:	CERS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	09-26-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	The hazardous materials inventory for this facility needs to be updated and submitted to CERS. Please report the following materials in CERS by 10/26/14: 1. Rando HD ISO46 (2 drums + 1000 gallons in equipment) 2. Laser Dust (1 drum) 3. Used Hydraulic Oil (2 drums) 4. Towerdraw Oil (4 drums) 5. Propane (20 cylinders) 6. Liquid Nitrogen (5 Duers) 7. Acetylene (1 cylinder) 8. Argon/Carbon Dioxide 98/2 (2 cylinders) 9. Helium/Argon/Carbon Dioxide (2 cylinders) 10. Argon/Carbon Dioxide 80/20 (10 cylinders) 11. Nitrogen (5 cylinders) 12. Argon (7 cylinders) 13. Oxygen (2 cylinders) 14. Liquid Oxygen (2 Duers) 15. Helium (6 cylinders) The business activities and owner/operator information has already been submitted and accepted in CERS for this facility.
Eval Division:	Placer County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS,
Eval General Type:	Other/Unknown
Eval Date:	10-01-2014
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Complete inspection report from 9/26/14 and discuss it with the operator.
Eval Division:	Placer County Environmental Health
Eval Program:	HW
Eval Source:	CERS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	01-19-2022
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The hazardous wastes generated on-site include waste oil, waste oily solids, aqueous parts washing solution and waste laser metal. Reviewed the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. Reviewed the uniform and consolidate hazardous waste manifests for past three years. All hazardous waste manifests were accurate and complete. Shop towels are managed by Cintas which is a commercial laundry service. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. The hazardous waste storage area is

GREENHECK FAN CORP (Continued) **S105113391**

inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. No violations observed this [Truncated]

Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: All business plan documents have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 2/11/2017. All employees participate in safety meetings on emergency response and hazardous materials training at least annually and the training sessions are documented.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Enforcement Action:
Site ID: 34369
Site Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Site Address: 170 CYBER CT
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 02-11-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Site ID: 34369
Site Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Site Address: 170 CYBER CT
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 09-26-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Coordinates:
Site ID: 34369
Facility Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Env Int Type Code: SMSWIND
Program ID: 887670
Coord Name: Not reported
Ref Point Type Desc: Unknown,
Latitude: 38.822560

GREENHECK FAN CORP (Continued) **S105113391**

Longitude: -121.301430

Affiliation:

Affiliation Type Desc:	Company Official
Entity Name:	Derek Boyd
Entity Title:	Global EHS Director
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	170 Cyber Court
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,

Affiliation Type Desc:	Legal Owner
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	P.O. Box 400
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	United States
Affiliation Zip:	54476-0000
Affiliation Phone:	(715) 359-6171,

Affiliation Type Desc:	Owner/Operator
Entity Name:	Greenheck Fan Corporation
Entity Title:	Operator
Affiliation Address:	PO Box 410
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	Not reported
Affiliation Zip:	54476
Affiliation Phone:	,

Affiliation Type Desc:	Identification Signer
Entity Name:	Jennifer Peplinski
Entity Title:	EHS Manager
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

Affiliation Type Desc:	Operator
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	Not reported

GREENHECK FAN CORP (Continued) **S105113391**

Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(715) 359-6171,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Property Owner
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	P.O. Box 410
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	United States
Affiliation Zip:	54476-0410
Affiliation Phone:	(715) 359-6171,
Affiliation Type Desc:	Parent Company
Entity Name:	GREENHECK FAN CORP
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Public Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	7153213398,
Affiliation Type Desc:	CUPA District
Entity Name:	Placer County Env Health
Entity Title:	Not reported
Affiliation Address:	3091 County Center Drive
Affiliation City:	Auburn
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95603
Affiliation Phone:	(530) 745-2300,
Affiliation Type Desc:	Document Preparer

GREENHECK FAN CORP (Continued) **S105113391**

Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	1100 Greenheck Dr
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	Not reported
Affiliation Zip:	54476-0000
Affiliation Phone:	,
Affiliation Type Desc:	Technical Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	7153213398,
Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Address:	170 CYBER CT
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	34369
CERS ID:	10205656
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	34369
Site Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Violation Date:	09-26-2014
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	The hazardous materials inventory reported in the business plan on file does not accurately represent the inventory on site. Submit new chemical inventory pages for all hazardous materials in reportable quantities. Do this by 10/26/14.
Violation Division:	Placer County Environmental Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	34369
Site Name:	GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Violation Date:	02-11-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter

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6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a site map with all required content.
Violation Notes: Returned to compliance on 03/11/2016. The layout of the shop area has changed significantly since the last CERS submittal was completed. Operator to update storage map as necessary and submit it to CERS by 3/12/2016.
Violation Division: Placer County Environmental Health
Violation Program: HMRRP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-19-2022
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically recertified in CERS on or before 2/10/2022. The operator completed a submittal to CERS while on-site to make a minor revision to the hazardous materials inventory. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the facility maps. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On site for a routine hazardous waste generator inspection. Reviewed all consolidated and uniform hazardous waste manifests for the past year. All hazardous waste disposal records were organized, accurate and complete. This facility is a Small Quantity Generator (SQG) of hazardous waste. All employees participate in safety meetings on emergency response and hazardous materials training at least annually and the training sessions are documented. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the EPA ID profile information in the hazardous waste tracking system. The information is accurate and the ID number is active. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-07-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The

GREENHECK FAN CORP (Continued) **S105113391**

hazardous wastes generated on-site include waste oil, waste oily solids, aqueous parts washing solution and waste lazer metal. Shop rags are managed by Cintas which is a commercial laundry service. Hazardous materials and spill response training is provided to all employees at least annually. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the uniform and consolidate hazardous waste manifests for past three years. All hazardous waste manifests were accurate and complete. Reviewed the information on the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. No violations observed this date.

Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-01-2020
Violations Found: No
Eval Type: Industrial Storm Water Compliance Evaluation
Eval Notes: On 1 December 2020, Central Valley Water Board staff (Staff) conducted an inspection of the Greenheck (Discharger) Greenheck Fan Corporation facility located at 170 Cyber Ct in Rocklin (see attached inspection report).
Eval Division: Water Boards
Eval Program: INDSTW
Eval Source: SMARTS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-07-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 1/29/2020. The operator completed a submittal to CERS while on-site to make a minor revision to the hazardous materials inventory. Operator to verify the total quantity of electrolyte in the forklift batteries and report the electrolyte in the facilities hazardous materials inventory if the total quantity is 55 gallons or more. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the completeness of the facility maps. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed [Truncated]
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-26-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: This facility is a small quantity generator (SQG) of hazardous waste. Wastes generated at this facility include used hydraulic oil, laser

GREENHECK FAN CORP (Continued) **S105113391**

waste metal, used absorbent and universal waste. Reviewed all hazardous waste disposal receipts / manifests for 2014. Improve record keeping of the hazardous waste disposal receipts as discussed. All uniform hazardous waste manifest sould be paired up and stored together to facilitate dispoasl documentation reviews. Recommend providing secondary containment pallets for all hazardous materials / waste is 55 gallon containers as discussed. Operator to begin using "EMPTY" labels on all empty containers 55 gallons or larger that previously held a hazardous material or waste as discussed. All "EMPTY" labels must include the date the container was emptied and what it previously contained.

Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-26-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: The hazardous materials inventory for this facility needs to be updated and submitted to CERS. Please report the following materials in CERS by 10/26/14: 1. Rando HD ISO46 (2 drums + 1000 gallons in equipment) 2. Laser Dust (1 drum) 3. Used Hydraulic Oil (2 drums) 4. Towerdraw Oil (4 drums) 5. Propane (20 cylinders) 6. Liquid Nitrogen (5 Duers) 7. Acetylene (1 cylinder) 8. Argon/Carbon Dioxide 98/2 (2 cylinders) 9. Helium/Argon/Carbon Dioxide (2 cylinders) 10. Argon/Carbon Dioxide 80/20 (10 cylinders) 11. Nitrogen (5 cylinders) 12. Argon (7 cylinders) 13. Oxygen (2 cylinders) 14. Liquid Oxygen (2 Duers) 15. Helium (6 cylinders) The business activities and owner/operator information has already been submitted and accepted in CERS for this facility.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 10-01-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Complete inspection report from 9/26/14 and discuss it with the operator.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-19-2022
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The hazardous wastes generated on-site include waste oil, waste oily solids, aqueous parts washing solution and waste laser metal. Reviewed the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. Reviewed the uniform and consolidate hazardous waste manifests for past three years. All hazardous waste manifests were

GREENHECK FAN CORP (Continued) **S105113391**

accurate and complete. Shop towels are managed by Cintas which is a commercial laundry service. All production employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. No violations observed this [Truncated]

Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: All business plan documents have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 2/11/2017. All employees participate in safety meetings on emergency response and hazardous materials training at least annually and the training sessions are documented.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Enforcement Action:
Site ID: 34369
Site Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Site Address: 170 CYBER CT
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 02-11-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Site ID: 34369
Site Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Site Address: 170 CYBER CT
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 09-26-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Coordinates:
Site ID: 34369
Facility Name: GREENHECK FAN CORPORATION - ROCKLIN CALIFORNIA
Env Int Type Code: SMSWIND

GREENHECK FAN CORP (Continued) **S105113391**

Program ID:	887670
Coord Name:	Not reported
Ref Point Type Desc:	Unknown,
Latitude:	38.822560
Longitude:	-121.301430

Affiliation:

Affiliation Type Desc:	Company Official
Entity Name:	Derek Boyd
Entity Title:	Global EHS Director
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	170 Cyber Court
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,

Affiliation Type Desc:	Legal Owner
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	P.O. Box 400
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	United States
Affiliation Zip:	54476-0000
Affiliation Phone:	(715) 359-6171,

Affiliation Type Desc:	Owner/Operator
Entity Name:	Greenheck Fan Corporation
Entity Title:	Operator
Affiliation Address:	PO Box 410
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	Not reported
Affiliation Zip:	54476
Affiliation Phone:	,

Affiliation Type Desc:	Identification Signer
Entity Name:	Jennifer Peplinski
Entity Title:	EHS Manager
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

GREENHECK FAN CORP (Continued) **S105113391**

Affiliation Type Desc:	Operator
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(715) 359-6171,

Affiliation Type Desc:	Parent Corporation
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

Affiliation Type Desc:	Property Owner
Entity Name:	Greenheck Fan Corporation
Entity Title:	Not reported
Affiliation Address:	P.O. Box 410
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	United States
Affiliation Zip:	54476-0410
Affiliation Phone:	(715) 359-6171,

Affiliation Type Desc:	Parent Company
Entity Name:	GREENHECK FAN CORP
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,

Affiliation Type Desc:	Public Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	7153213398,

Affiliation Type Desc:	CUPA District
Entity Name:	Placer County Env Health
Entity Title:	Not reported
Affiliation Address:	3091 County Center Drive
Affiliation City:	Auburn
Affiliation State:	CA
Affiliation Country:	Not reported

GREENHECK FAN CORP (Continued) **S105113391**

Affiliation Zip:	95603
Affiliation Phone:	(530) 745-2300,
Affiliation Type Desc:	Document Preparer
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	1100 Greenheck Dr
Affiliation City:	Schofield
Affiliation State:	WI
Affiliation Country:	Not reported
Affiliation Zip:	54476-0000
Affiliation Phone:	,
Affiliation Type Desc:	Technical Contact
Entity Name:	Jennifer Peplinski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	7153213398,

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6 **ANSEL PARK** **CA PLACER CO. MS** **S127088570**
NNE **1250 ORCHID DR** **CERS** **N/A**
1/8-1/4 **ROCKLIN, CA 95765**
0.202 mi.
1069 ft.

Relative:
Higher

Actual:
137 ft.

PLACER CO. MS:

Name:	ANSEL PARK INDEPENDENT LIVING
Address:	1250 ORCHID DR
City,State,Zip:	ROCKLIN, CA 95677
Facility ID:	FA0020905
Facility Status:	Active
Program Element Code:	2105
Program:	HAZMAT BUSINESS PLAN
Record Num:	PR0020955
District Code:	5
Decode for Fstatus:	Active

CERS:

Name:	ANSEL PARK
Address:	1250 ORCHID DR
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	570325

ANSEL PARK (Continued) **S127088570**

CERS ID: 10859368
CERS Description: Chemical Storage Facilities

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-05-2021
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents have been submitted to the California Environmental Reporting System (CERS) within the past year and a copy of the plan is maintained on-site. Verified the site map and the hazardous materials stored on-site. The current plan shall be electronically recertified in CERS on or before 12/2/2021. All maintenance personnel receive annual training on hazardous materials and emergency response. The training is documented and the records are maintained on-site. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Placer County Env Health
Entity Title: Not reported
Affiliation Address: 3091 County Center Drive
Affiliation City: Auburn
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 95603
Affiliation Phone: (530) 745-2300,

Affiliation Type Desc: Identification Signer
Entity Name: John Newton
Entity Title: Maintenance Director
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Operator
Entity Name: John Newton
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (916) 289-4498,

Affiliation Type Desc: Property Owner
Entity Name: Sagora Senior Living
Entity Title: Not reported
Affiliation Address: 1250 Orchid Dr
Affiliation City: Rocklin

ANSEL PARK (Continued) **S127088570**

Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	95765
Affiliation Phone:	(916) 407-5970,
Affiliation Type Desc:	Environmental Contact
Entity Name:	John Newton
Entity Title:	Not reported
Affiliation Address:	1250 Orchid Dr
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	1250 Orchid Dr
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Document Preparer
Entity Name:	John Newton
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Legal Owner
Entity Name:	Sagora Senior Living
Entity Title:	Not reported
Affiliation Address:	1250 Orchid Dr
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	95765
Affiliation Phone:	(916) 407-5970,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Ansel Park
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

C7 **SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS** **RCRA NonGen / NLR** **1024841875**
WSW **3746 PLACER CORPORATE DR** **CAL000391905**
1/8-1/4 **ROCKLIN, CA 95765**
0.220 mi.
1163 ft. **Site 1 of 2 in cluster C**

Relative:
Lower

Actual:
134 ft.

RCRA Listings:

Date Form Received by Agency:	20131211
Handler Name:	SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS
Handler Address:	3746 PLACER CORPORATE DR
Handler City,State,Zip:	ROCKLIN, CA 95765-1209
EPA ID:	CAL000391905
Contact Name:	BEN SALERNO JR
Contact Address:	3746 PLACER CORPORATE DR
Contact City,State,Zip:	ROCKLIN, CA 95765
Contact Telephone:	916-652-0496
Contact Fax:	916-652-3363
Contact Email:	SALERNOMOTORSPORTS@ATT.NET
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	3746 PLACER CORPORATE DR
Mailing City,State,Zip:	ROCKLIN, CA 95765-1209
Owner Name:	SALERNO MOTOR SPORTS INC
Owner Type:	Other
Operator Name:	BEN SALERNO JR
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **1024841875**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180906
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: BEN SALERNO JR	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3746 PLACER CORPORATE DR
Owner/Operator City,State,Zip:	ROCKLIN, CA 95765
Owner/Operator Telephone:	916-652-0496
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: SALERNO MOTOR SPORTS INC	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	3746 PLACER CORPORATE DR
Owner/Operator City,State,Zip:	ROCKLIN, CA 95765-1209
Owner/Operator Telephone:	916-652-0496
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **1024841875**

Historic Generators:
Receive Date: 20131211
Handler Name: SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 811111
NAICS Description: GENERAL AUTOMOTIVE REPAIR

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C8 **SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS** **CERS HAZ WASTE** **S116678774**
WSW **3746 PLACER CORPORATE DR** **HAZNET** **N/A**
1/8-1/4 **ROCKLIN, CA 95765** **CA PLACER CO. MS**
0.220 mi. **CERS**
1163 ft. **Site 2 of 2 in cluster C** **HWTS**

Relative:
Lower

Actual:
134 ft.

CERS HAZ WASTE:
Name: SALERNO MOTORSPORTS INC
Address: 3746 PLACER CORPORATE DR
City,State,Zip: ROCKLIN, CA 95765
Site ID: 68528
CERS ID: 10484005
CERS Description: Hazardous Waste Generator

HAZNET:
Name: SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS
Address: 3746 PLACER CORPORATE DR
Address 2: Not reported
City,State,Zip: ROCKLIN, CA 957651209
Contact: BEN SALERNO JR
Telephone: 9166520496
Mailing Name: Not reported
Mailing Address: 3746 PLACER CORPORATE DR

Year: 2020
Gepaid: CAL000391905
TSD EPA ID: CAD059494310
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Tons: 0.1

Year: 2019
Gepaid: CAL000391905
TSD EPA ID: CAD059494310
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.10000

Year: 2018
Gepaid: CAL000391905
TSD EPA ID: NED981723513
CA Waste Code: 212 - Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)
Disposal Method: H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons: 0.20000

Year: 2018
Gepaid: CAL000391905
TSD EPA ID: CAD059494310
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.20000

Year: 2017
Gepaid: CAL000391905
TSD EPA ID: CAD059494310
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.1

Detail Two:
Year: 2020
EM Manifest ID: 1131510
Shipment Date: 2/24/2020
Receipt Date: 3/6/2020
Manifest Number: 007291224SKS
Generator EPA ID: CAL000391905
Name: R&CA - SALERNO MOTORSPORTS
Address: 3746 PLACER CORPORATE DR
Address 2: Not reported
City: ROCKLIN
Zip: 95765
Telephone: 800-483-3718
Contact: Chuck Salerno
Contact Telephone: 916-652-0496
Transporter 1 EPA ID: TXR000081205
Transporter 1 Emergency Number: Not reported
Transporter 2 EPA ID: MAD039322250
Transporter 2 Emergency Number: Not reported
TSDF EPA ID: CAD059494310
TSDF Name: Clean Harbors San Jose LLC
TSDF Address 1: 1021 Berryessa Road
TSDF Address 2: Not reported

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

TSDF City:	San Jose
TSDF Zip:	95133
TSDF Telephone:	800-483-3718

State:

Year:	2020
EM Manifest ID:	1131510
Generator EPA ID:	CAL000391905
Shipment Date:	2020-02-24
Manifest Number:	007291224SKS
Line Number:	1
Method Code:	H141
Quantity Tons:	0.10000
Quantity Waste:	200.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Metal drums, barrels, kegs
Quantity Type:	Pounds
State Code:	223

Detail Two:

Year:	2019
EM Manifest ID:	547915
Shipment Date:	6/19/2019
Receipt Date:	6/24/2019
Manifest Number:	006995023SKS
Generator EPA ID:	CAL000391905
Name:	R&CA - SALERNO MOTORSPORTS
Address:	3746 PLACER CORPORATE DR
Address 2:	Not reported
City:	ROCKLIN
Zip:	95765
Telephone:	800-483-3718
Contact:	Chuck Salerno
Contact Telephone:	916-652-0496
Transporter 1 EPA ID:	TXR000081205
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	MAD039322250
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	CAD059494310
TSDF Name:	Clean Harbors San Jose LLC
TSDF Address 1:	1021 Berryessa Road
TSDF Address 2:	Not reported
TSDF City:	San Jose
TSDF Zip:	95133
TSDF Telephone:	800-483-3718

State:

Year:	2019
EM Manifest ID:	547915
Generator EPA ID:	CAL000391905
Shipment Date:	2019-06-19
Manifest Number:	006995023SKS
Line Number:	1
Method Code:	H141
Quantity Tons:	0.10000
Quantity Waste:	200.000000

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Quantity Unit:	P
Number of Containers:	1
Type of Container:	Metal drums, barrels, kegs
Quantity Type:	Pounds
State Code:	223

Detail Two:

Year:	2018
EM Manifest ID:	006169146SKS20170816_D_1
Shipment Date:	8/16/2017
Receipt Date:	8/28/2017
Manifest Number:	006169146SKS
Generator EPA ID:	CAL000391905
Name:	R&CA - SALERNO MOTORSPORTS
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	TXR000081205
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	MAD039322250
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	CAD059494310
TSDF Name:	CLEAN HARBORS SAN JOSE
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

State:

Year:	2018
EM Manifest ID:	006169146SKS20170816_D_1
Generator EPA ID:	CAL000391905
Shipment Date:	2017-08-16
Manifest Number:	006169146SKS
Line Number:	1
Method Code:	H141
Quantity Tons:	0.10000
Quantity Waste:	200.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	NULL
Quantity Type:	NULL
State Code:	223

Year:	2018
EM Manifest ID:	006465515SKS20180207_D_1
Shipment Date:	2/7/2018
Receipt Date:	2/19/2018
Manifest Number:	006465515SKS
Generator EPA ID:	CAL000391905

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Name:	R&CA - SALERNO MOTORSPORTS
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	TXR000081205
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	MAD039322250
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	CAD059494310
TSDF Name:	CLEAN HARBORS SAN JOSE
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

State:

Year:	2018
EM Manifest ID:	006465515SKS20180207_D_1
Generator EPA ID:	CAL000391905
Shipment Date:	2018-02-07
Manifest Number:	006465515SKS
Line Number:	1
Method Code:	H141
Quantity Tons:	0.10000
Quantity Waste:	200.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	NULL
Quantity Type:	NULL
State Code:	223

Year:	2018
EM Manifest ID:	006443110SKS20180216_D_1
Shipment Date:	2/16/2018
Receipt Date:	3/8/2018
Manifest Number:	006443110SKS
Generator EPA ID:	CAL000391905
Name:	R&CA - SALERNO MOTORSPORTS
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	TXR000081205
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	MOD095038998
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	NED981723513
TSDF Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES IN
TSDF Address 1:	Not reported

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

TSDF Address 2: Not reported
TSDF City: Not reported
TSDF Zip: Not reported
TSDF Telephone: Not reported

Federal:
Year: 2018
EM Manifest ID: 006443110SKS20180216_D_1
Generator EPA ID: CAL000391905
Shipment Date: 2018-02-16
Manifest Number: 006443110SKS
Line Number: 1
Method Code: H040
Quantity Tons: 0.20000
Quantity Waste: 400.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: NULL
Quantity Type: NULL
Federal Code: D001

Year: 2018
EM Manifest ID: 006443110SKS20180216_D_1
Generator EPA ID: CAL000391905
Shipment Date: 2018-02-16
Manifest Number: 006443110SKS
Line Number: 1
Method Code: H040
Quantity Tons: 0.20000
Quantity Waste: 400.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: NULL
Quantity Type: NULL
Federal Code: D018

State:
Year: 2018
EM Manifest ID: 006443110SKS20180216_D_1
Generator EPA ID: CAL000391905
Shipment Date: 2018-02-16
Manifest Number: 006443110SKS
Line Number: 1
Method Code: H040
Quantity Tons: 0.20000
Quantity Waste: 400.000000
Quantity Unit: P
Number of Containers: 1
Type of Container: NULL
Quantity Type: NULL
State Code: 212

Year: 2018
EM Manifest ID: 184428
Shipment Date: 10/24/2018
Receipt Date: 11/2/2018

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Manifest Number:	006663925SKS
Generator EPA ID:	CAL000391905
Name:	R&CA - SALERNO MOTORSPORTS
Address:	3746 PLACER CORPORATE DR
Address 2:	Not reported
City:	ROCKLIN
Zip:	95765
Telephone:	800-483-3718
Contact:	Chuck Salerno
Contact Telephone:	916-652-0496
Transporter 1 EPA ID:	TXR000081205
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	MAD039322250
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	CAD059494310
TSDF Name:	Clean Harbors San Jose LLC
TSDF Address 1:	1021 Berryessa Road
TSDF Address 2:	Not reported
TSDF City:	San Jose
TSDF Zip:	95133
TSDF Telephone:	800-483-3718

State:

Year:	2018
EM Manifest ID:	184428
Generator EPA ID:	CAL000391905
Shipment Date:	2018-10-24
Manifest Number:	006663925SKS
Line Number:	1
Method Code:	H141
Quantity Tons:	0.10000
Quantity Waste:	200.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Metal drums, barrels, kegs
Quantity Type:	Pounds
State Code:	223

Additional Info:

Year:	2017
Gen EPA ID:	CAL000391905
Shipment Date:	20170816
Creation Date:	6/13/2018 18:31:39
Receipt Date:	20170828
Manifest ID:	006169146SKS
Trans EPA ID:	TXR000081205
Trans Name:	SAFETY-KLEEN SYSTEMS INC
Trans 2 EPA ID:	MAD039322250
Trans 2 Name:	CLEAN HARBORS ENVIRONMENTAL SVC INC
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

PLACER CO. MS:

Name:	SALERNO MOTORSPORTS INC
Address:	3746 PLACER CORPORATE DR
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0019745
Facility Status:	Active
Program Element Code:	2105
Program:	HAZMAT BUSINESS PLAN
Record Num:	PR0016709
District Code:	18
Decode for Fstatus:	Active

Name:	SALERNO MOTORSPORTS INC
Address:	3746 PLACER CORPORATE DR
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0019745
Facility Status:	Active
Program Element Code:	2270
Program:	SMALL QUANTITY GENERATOR
Record Num:	PR0016711
District Code:	18
Decode for Fstatus:	Active

CERS:

Name:	SALERNO MOTORSPORTS INC
Address:	3746 PLACER CORPORATE DR
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	68528
CERS ID:	10484005
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	68528
Site Name:	Salerno Motorsports Inc
Violation Date:	09-30-2014
Citation:	HSC 6.95 25508.1(f) - California Health and Safety Code, Chapter 6.95, Section(s) 25508.1(f)
Violation Description:	Failure to electronically update the business plan within 30 days of a substantial change.
Violation Notes:	Returned to compliance on 10/31/2014. This business moved from 4322 Anthony Court Ste 8 to this location in July of 2014. Operator to submit a complete and accurate hazardous materials business plan to the California Environmental Reporting System (CERS) by 10/31/14.
Violation Division:	Placer County Environmental Health
Violation Program:	HMRRP
Violation Source:	CERS,

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Site ID:	68528
Site Name:	Salerno Motorsports Inc
Violation Date:	09-30-2014
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 10/31/2014. This business moved from 4322 Anthony Court Ste 8 to this location in July of 2014. Operator to submit new site and facility maps to (CERS) for this location by 10/31/1 4.
Violation Division:	Placer County Environmental Health
Violation Program:	HMRRP
Violation Source:	CERS,

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	09-30-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	A complete hazardous materials business plan is on file for this business at the previous location (4322 Anthony Court Ste 8). Operator to submit a complete and accurate hazardous materials business plan to CERS by 10/31/14 as described above. Operator to revise / update the Emergency Response and Contingency as necessary ans submit it to CERS as discussed. Operator to implement the new training record form provided for each employee as discussed to record the required annual hazardous materials training.
Eval Division:	Placer County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS,

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	01-17-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. Hazardous materials and spill response training is provided to all employees at least annually. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the uniform and consolidated hazardous waste manifests for past three years. All hazardous waste manifests were accurate and complete. Reviewed the information on the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. No violations observed this date.
Eval Division:	Placer County Environmental Health
Eval Program:	HW
Eval Source:	CERS,

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	02-04-2016
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	On site for a routine hazardous materials business plan inspection. All business plan documents are current, complete and have been

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

	submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 2/4/2017. All employees attend tailgate safety meeting on emergency response and hazardous materials at least annually and the training is documented. No violations observed this date.
Eval Division:	Placer County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS,
Eval General Type:	Other/Unknown
Eval Date:	10-01-2014
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Complete inspection report from 9/30/14 and discuss it with operator
Eval Division:	Placer County Environmental Health
Eval Program:	HW
Eval Source:	CERS,
Eval General Type:	Other/Unknown
Eval Date:	10-01-2014
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Complete inspection report from 9/30/14 and discuss it with operator.
Eval Division:	Placer County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	12-15-2021
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically recertified in CERS on or before 4/20/2022. A copy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the facility map. All employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed this date.
Eval Division:	Placer County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS,
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	02-04-2016
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	On site for a routine hazardous waste generator inspection. Reviewed all consolidated hazardous waste manifests for the past year. All hazardous waste containers were observed to be properly managed and are inspected weekly. All employees attend safety tailgate meetings on hazardous materials and emergency response at least annually and the training is documented. Reviewed the EPA ID profile for the facility. The information on the printout is accurate and the ID number is

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

active. No violations observed.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-30-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: This facility is a small quantity generator (SQG) of hazardous waste and has only been in operation at this location since July 2014. Wastes generated at the facility include used motor oil, used antifreeze, used drained oil filters, used solvent filters, used absorbent, universal waste and oily rags. Reviewed all consolidated manifests for used oil, used antifreeze and used drained oil filters for 2014. All hazardous waste accumulation containers were observed to be correctly labeled and managed. Label the mobile oil draining containers with the words "USED OIL - EMPTY DAILY" as discussed. Recommend secondary containment pallelts for all 55 gallon containers of hazardous materials / waste. Operator to begin using the hazardous waste disposal log form provided to record the disposal of all universal and hazardous waste generated at the facility.
Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-17-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents are current, complete and have been submitted to the California Environmental Reporting System (CERS) within the past year. The current plan must be electronically re-certified in CERS on or before 1/15/2020. A coy of the business plan was available for review on-site. Verified the quantities of hazardous materials stored on-site and the completeness of the facility map. All employees receive emergency response and hazardous materials training annually and the training records are maintained on-site. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-15-2021
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous waste generator (HWG) inspection. This facility is a small quantity generator (SQG) of hazardous waste. The hazardous wastes generated on-site include waste oil, waste antifreeze, waste break fluid, used oil filters, waste oily solids and spent lead acid batteries. The hazardous waste storage area is inspected weekly as required. All hazardous waste containers were observed to be properly labeled and managed. Reviewed the uniform and consolidated hazardous waste manifests for past three years. All hazardous waste manifests were accurate and complete. Reviewed the

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

information on the EPA ID profile for the facility in the Hazardous Waste Tracking System (HWTS). The site contact information is accurate and the ID number is active. Shop rags are managed by Aramark which is a commercial laundry service. Hazardous materials and spill response training is provided to all employees at least annually. No violations observed [Truncated]

Eval Division: Placer County Environmental Health
Eval Program: HW
Eval Source: CERS,

Enforcement Action:
Site ID: 68528
Site Name: Salerno Motorsports Inc
Site Address: 3746 PLACER CORPORATE DR
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 09-30-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Coordinates:
Site ID: 68528
Facility Name: Salerno Motorsports Inc
Env Int Type Code: HWG
Program ID: 10484005
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.,
Latitude: 38.819440
Longitude: -121.305590

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: Ben Salerno Jr
Entity Title: Not reported
Affiliation Address: 3746 Placer Corporate Dr
Affiliation City: Rocklin
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 95765
Affiliation Phone: ,

Affiliation Type Desc: Identification Signer
Entity Name: Janet Salerno
Entity Title: CFO
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Operator

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Entity Name:	Ben & Janet Salerno
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(916) 652-0496,
Affiliation Type Desc:	Legal Owner
Entity Name:	Salerno Motor Sports Inc
Entity Title:	Not reported
Affiliation Address:	3746 Placer Corporate Dr
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	95765
Affiliation Phone:	(916) 652-0496,
Affiliation Type Desc:	Parent Corporation
Entity Name:	SALERNO MOTORSPORTS, INC.
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	CUPA District
Entity Name:	Placer County Env Health
Entity Title:	Not reported
Affiliation Address:	3091 County Center Drive
Affiliation City:	Auburn
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95603
Affiliation Phone:	(530) 745-2300,
Affiliation Type Desc:	Document Preparer
Entity Name:	Janet Salerno
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	3746 Placer Corporate Dr
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765

SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS (Continued) **S116678774**

Affiliation Phone: ,

Affiliation Type Desc: Property Owner
Entity Name: Salerno Holdings Inc
Entity Title: Not reported
Affiliation Address: 3746 Placer Corporate Dr
Affiliation City: Rocklin
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 95765
Affiliation Phone: (916) 652-0496,

HWTS:
Name: SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS
Address: 3746 PLACER CORPORATE DR
Address 2: Not reported
City,State,Zip: ROCKLIN, CA 95765
EPA ID: CAL000391905
Inactive Date: Not reported
Create Date: 12/11/2013
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 3746 PLACER CORPORATE DR
Mailing Address 2: Not reported
Mailing City,State,Zip: ROCKLIN, CA 957651209
Owner Name: SALERNO MOTOR SPORTS INC
Owner Address: 3746 PLACER CORPORATE DR
Owner Address 2: Not reported
Owner City,State,Zip: ROCKLIN, CA 957651209
Contact Name: BEN SALERNO JR
Contact Address: 3746 PLACER CORPORATE DR
Contact Address 2: Not reported
City,State,Zip: ROCKLIN, CA 95765
Facility Status: Active
Facility Type: PERMANENT
Category: STATE
Latitude: 38.818908
Longitude: -121.3033815

NAICS:
EPA ID: CAL000391905
Create Date: 2013-12-11 08:37:39.447
NAICS Code: 811111
NAICS Description: General Automotive Repair
Issued EPA ID Date: 2013-12-11 08:37:39.38300
Inactive Date: Not reported
Facility Name: SALERNO MOTOR SPORTS INC DBA SALERNO MOTORSPORTS
Facility Address: 3746 PLACER CORPORATE DR
Facility Address 2: Not reported
Facility City: ROCKLIN
Facility County: Not reported
Facility State: CA
Facility Zip: 957651209

9
WSW
1/8-1/4
0.249 mi.
1314 ft.

SUNSET 76 SERVICE STATION
3710 PLACER CORPORATE DR
ROCKLIN, CA 95677

CA PLACER CO. MS

S105513083
N/A

Relative:
Higher

Actual:
136 ft.

PLACER CO. MS:

Name:	SUNSET 76 SERVICE STATION
Address:	3710 PLACER CORPORATE DR
City,State,Zip:	ROCKLIN, CA 95677
Facility ID:	FA0006969
Facility Status:	Closed
Program Element Code:	2303
Program:	UNDERGROUND STORAGE TANKS - 3 TANKS
Record Num:	PR0008738
District Code:	18
Decode for Fstatus:	Closed

Name:	SUNSET 76 SERVICE STATION
Address:	3710 PLACER CORPORATE DR
City,State,Zip:	ROCKLIN, CA 95677
Facility ID:	FA0006969
Facility Status:	Closed
Program Element Code:	2114
Program:	*DO NOT USE* AS/US HAZMAT-WITH WASTE=>20,000
Record Num:	PR0008739
District Code:	18
Decode for Fstatus:	Closed

Name:	SUNSET 76 SERVICE STATION
Address:	3710 PLACER CORPORATE DR
City,State,Zip:	ROCKLIN, CA 95677
Facility ID:	FA0006969
Facility Status:	Closed
Program Element Code:	2268
Program:	CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Record Num:	PR0008740
District Code:	18
Decode for Fstatus:	Closed

10
West
1/2-1
0.656 mi.
3466 ft.

HEWLETT-PACKARD
3625 CINCINNATI AVENUE
ROCKLIN, CA 95677

ENVIROSTOR
CA PLACER CO. MS

S105513027
N/A

Relative:
Lower

Actual:
129 ft.

ENVIROSTOR:

Name:	HEWLETT-PACKARD
Address:	3625 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Facility ID:	31360001
Status:	Refer: Other Agency
Status Date:	11/16/1994
Site Code:	Not reported
Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED

HEWLETT-PACKARD (Continued) **S105513027**

Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Cleanup Sacramento
Assembly: 06
Senate: 04
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 38.82105
Longitude: -121.3108
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: * UNSPECIFIED AQUEOUS SOLUTION * UNSPECIFIED SLUDGE WASTE
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CATO80014483
Alias Type: EPA Identification Number
Alias Name: 31360001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 09/23/1981
Comments: FACILITY IDENTIFIED CHAMBER OF COMMERCE DIRECTORY.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

PLACER CO. MS:
Name: HEWLETT PACKARD
Address: 3625 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA 95677
Facility ID: FA0003865
Facility Status: Closed
Program Element Code: 2303
Program: UNDERGROUND STORAGE TANKS - 3 TANKS
Record Num: PR0005807
District Code: 18
Decode for Fstatus: Closed

Name: HARRIS & BRUNO INTERNATIONAL
Address: 3625 CINCINNATI AVE STE C
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0006974
Facility Status: Closed
Program Element Code: 2105
Program: HAZMAT BUSINESS PLAN

HEWLETT-PACKARD (Continued) **S105513027**

Record Num:	PR0008746
District Code:	18
Decode for Fstatus:	Closed
Name:	HARRIS & BRUNO INTERNATIONAL
Address:	3625 CINCINNATI AVE STE C
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0006974
Facility Status:	Closed
Program Element Code:	2270
Program:	SMALL QUANTITY GENERATOR
Record Num:	PR0018924
District Code:	18
Decode for Fstatus:	Closed

11
ENE
1/2-1
0.663 mi.
3498 ft.

MARIA MONTESSORI SCHOOL PROPERTY **ENVIROSTOR** **S118757114**
SIOUX STREET **SCH** **N/A**
ROCKLIN, CA 95765

Relative: Higher

Actual: 182 ft.

ENVIROSTOR:

Name:	MARIA MONTESSORI SCHOOL PROPERTY
Address:	SIOUX STREET
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	60000388
Status:	No Action Required
Status Date:	11/13/2006
Site Code:	104552
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	3.5
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Yolanda Garza
Division Branch:	Northern California Schools & Santa Susana
Assembly:	06
Senate:	01
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	38.8237
Longitude:	-121.2839
APN:	017-081-035
Past Use:	NONE
Potential COC:	NONE SPECIFIED No Contaminants found
Confirmed COC:	31000-NO
Potential Description:	NMA
Alias Name:	017-081-035
Alias Type:	APN
Alias Name:	104552
Alias Type:	Project Code (Site Code)
Alias Name:	60000388
Alias Type:	Envirostor ID Number

MARIA MONTESSORI SCHOOL PROPERTY (Continued) **S118757114**

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/13/2006
Comments:	Following a review of additional information sent to the DTSC by the consultant, DTSC determined that non further investigation would be required for the site.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	11/15/2006
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	09/07/2006
Comments:	Not reported

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	MARIA MONTESSORI SCHOOL PROPERTY
Address:	SIOUX STREET
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	60000388
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	3.5
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Yolanda Garza
Division Branch:	Northern California Schools & Santa Susana
Site Code:	104552
Assembly:	06
Senate:	01
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	11/13/2006
Restricted Use:	NO
Funding:	School District

MARIA MONTESSORI SCHOOL PROPERTY (Continued) **S118757114**

Latitude:	38.8237
Longitude:	-121.2839
APN:	017-081-035
Past Use:	NONE
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	31000-NO
Potential Description:	NMA
Alias Name:	017-081-035
Alias Type:	APN
Alias Name:	104552
Alias Type:	Project Code (Site Code)
Alias Name:	60000388
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/13/2006
Comments:	Following a review of additional information sent to the DTSC by the consultant, DTSC determined that non further investigation would be required for the site.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	11/15/2006
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	09/07/2006
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

D12
WNW
1/2-1
0.715 mi.
3774 ft.

Relative:
Higher

Actual:
136 ft.

FORMICA CORP
3500 CINCINNATI AVE
SUNSET WHITNEY RANCH, CA 95677

Site 1 of 2 in cluster D

Database(s):
SEMS-ARCHIVE
CORRACTS
RCRA-TSDF
RCRA-SQG
ENVIROSTOR
LUST
CPS-SLIC
VCP
CERS HAZ WASTE
HIST UST
CHMIRS
Cortese
EMI
HAZNET
HIST CORTESE
CA PLACER CO. MS
NPDES
CIWQS
CERS
HWTS

EDR ID Number: **1000299404**
EPA ID Number: **CAD000415455**

SEMS Archive:

Site ID:	0903277
EPA ID:	CAD000415455
Name:	FORMICA CORP
Address:	3500 CINCINNATI AVE
Address 2:	Not reported
City,State,Zip:	SUNSET WHITNEY RANCH, CA 95677
Cong District:	14
FIPS Code:	06061
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region:	09
Site ID:	0903277
EPA ID:	CAD000415455
Site Name:	FORMICA CORP
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1990-04-04 04:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse

Region:	09
Site ID:	0903277
EPA ID:	CAD000415455
Site Name:	FORMICA CORP
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1

FORMICA CORP (Continued) **1000299404**

Start Date: Not reported
Finish Date: 1990-04-04 04:00:00
Qual: N
Current Action Lead: St Perf

Region: 09
Site ID: 0903277
EPA ID: CAD000415455
Site Name: FORMICA CORP
NPL: N
FF: N
OU: 00
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 1988-01-01 05:00:00
Finish Date: 1988-01-01 05:00:00
Qual: Not reported
Current Action Lead: St Perf

CORRACTS:
Name: FORMICA CORP
Address: 3500 CINCINNATI AVE
Address 2: Not reported
EPA ID: CAD000415455
Area Name: ENTIRE FACILITY
Corrective Action: CA PRIORITIZATION-LOW CA PRIORITY
Actual Date: 19900423
Air Release Indicator: Not reported
Groundwater Release Indicator: Not reported
Soil Release Indicator: Not reported
Surface Water Release Indicator: Not reported

RCRA Listings:
Date Form Received by Agency: 19960901
Handler Name: FORMICA CORP
Handler Address: 3500 CINCINNATI AVE
Handler City,State,Zip: SUNSET WHITNEY RANCH, CA 95677
EPA ID: CAD000415455
Contact Name: Not reported
Contact Address: Not reported
Contact City,State,Zip: Not reported
Contact Telephone: Not reported
Contact Fax: Not reported
Contact Email: Not reported
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Small Quantity Generator
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Handler Activities
State District Owner: CA
State District: 1

FORMICA CORP (Continued) **1000299404**

Mailing Address:		PO BOX 519
Mailing City,State,Zip:		SUNSET WHITNEY RANCH, CA 95677
Owner Name:	Not reported	
Owner Type:		Not reported
Operator Name:	FORMICA CORPORATION	
Operator Type:		Private
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		NN
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Storage
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Storage
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		Yes
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		Yes
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		Yes
Corrective Action Priority Ranking:		Low
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:		Not reported
Handler Date of Last Change:		20060905
Recognized Trader-Importer:		No
Recognized Trader-Exporter:		No
Importer of Spent Lead Acid Batteries:		No

FORMICA CORP (Continued) **1000299404**

Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: FORMICA CORPORATION	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	P O BOX 519
Owner/Operator City,State,Zip:	CITY NOT REPORTED, CA 99999
Owner/Operator Telephone:	916-645-3301
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: FORMICA CORPORATION	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	P O BOX 519
Owner/Operator City,State,Zip:	CITY NOT REPORTED, CA 99999
Owner/Operator Telephone:	916-645-3301
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: FORMICA CORPORATION	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	P O BOX 519
Owner/Operator City,State,Zip:	SUNSET WHITNEY RANCH, CA 95677
Owner/Operator Telephone:	916-645-3301
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	19960901
Handler Name: FORMICA CORP	
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

FORMICA CORP (Continued) **1000299404**

Receive Date: 19960901
Handler Name: FORMICA CORP
Federal Waste Generator Description: Small Quantity Generator
State District Owner: CA
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

Receive Date: 19800801
Handler Name: FORMICA CORP
Federal Waste Generator Description: Large Quantity Generator
State District Owner: CA
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: No
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

Receive Date: 19920225
Handler Name: FORMICA CORP
Federal Waste Generator Description: Large Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: No
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 325211
NAICS Description: PLASTICS MATERIAL AND RESIN MANUFACTURING

NAICS Code: 326113
NAICS Description: UNLAMINATED PLASTICS FILM AND SHEET (EXCEPT PACKAGING) MANUFACTURING

NAICS Code: 326199
NAICS Description: ALL OTHER PLASTICS PRODUCT MANUFACTURING

Facility Has Received Notices of Violation:
Found Violation: Yes
Agency Which Determined Violation: State
Violation Short Description: TSD - Financial Requirements
Date Violation was Determined: 19880804
Actual Return to Compliance Date: 19881205
Return to Compliance Qualifier: Observed

FORMICA CORP (Continued) **1000299404**

Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	19880120
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	WRITTEN INFORMAL
Enforcement Responsible Person:	R9
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	No
Agency Which Determined Violation:	Not reported
Violation Short Description:	Not reported
Date Violation was Determined:	Not reported
Actual Return to Compliance Date:	Not reported
Return to Compliance Qualifier:	Not reported
Violation Responsible Agency:	Not reported
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	Not reported
Date of Enforcement Action:	Not reported
Enforcement Responsible Agency:	Not reported
Enforcement Docket Number:	Not reported
Enforcement Attorney:	Not reported
Corrective Action Component:	Not reported
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	Not reported
Enforcement Responsible Person:	Not reported
Enforcement Responsible Sub-Organization:	Not reported

FORMICA CORP (Continued) **1000299404**

SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported
Found Violation:	No
Agency Which Determined Violation:	Not reported
Violation Short Description:	Not reported
Date Violation was Determined:	Not reported
Actual Return to Compliance Date:	Not reported
Return to Compliance Qualifier:	Not reported
Violation Responsible Agency:	Not reported
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	Not reported
Date of Enforcement Action:	Not reported
Enforcement Responsible Agency:	Not reported
Enforcement Docket Number:	Not reported
Enforcement Attorney:	Not reported
Corrective Action Component:	Not reported
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	Not reported
Enforcement Responsible Person:	Not reported
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported
Found Violation:	No
Agency Which Determined Violation:	Not reported
Violation Short Description:	Not reported
Date Violation was Determined:	Not reported
Actual Return to Compliance Date:	Not reported
Return to Compliance Qualifier:	Not reported

FORMICA CORP (Continued) **1000299404**

Violation Responsible Agency: Not reported
Scheduled Compliance Date: Not reported
Enforcement Identifier: Not reported
Date of Enforcement Action: Not reported
Enforcement Responsible Agency: Not reported
Enforcement Docket Number: Not reported
Enforcement Attorney: Not reported
Corrective Action Component: Not reported
Appeal Initiated Date: Not reported
Appeal Resolution Date: Not reported
Disposition Status Date: Not reported
Disposition Status: Not reported
Disposition Status Description: Not reported
Consent/Final Order Sequence Number: Not reported
Consent/Final Order Respondent Name: Not reported
Consent/Final Order Lead Agency: Not reported
Enforcement Type: Not reported
Enforcement Responsible Person: Not reported
Enforcement Responsible Sub-Organization: Not reported
SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Found Violation: No
Agency Which Determined Violation: Not reported
Violation Short Description: Not reported
Date Violation was Determined: Not reported
Actual Return to Compliance Date: Not reported
Return to Compliance Qualifier: Not reported
Violation Responsible Agency: Not reported
Scheduled Compliance Date: Not reported
Enforcement Identifier: Not reported
Date of Enforcement Action: Not reported
Enforcement Responsible Agency: Not reported
Enforcement Docket Number: Not reported
Enforcement Attorney: Not reported
Corrective Action Component: Not reported
Appeal Initiated Date: Not reported
Appeal Resolution Date: Not reported
Disposition Status Date: Not reported
Disposition Status: Not reported
Disposition Status Description: Not reported
Consent/Final Order Sequence Number: Not reported
Consent/Final Order Respondent Name: Not reported
Consent/Final Order Lead Agency: Not reported
Enforcement Type: Not reported
Enforcement Responsible Person: Not reported
Enforcement Responsible Sub-Organization: Not reported

FORMICA CORP (Continued) **1000299404**

SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Evaluation Action Summary:
Evaluation Date: 19880804
Evaluation Responsible Agency: State
Found Violation: Yes
Evaluation Type Description: FINANCIAL RECORD REVIEW
Evaluation Responsible Person Identifier: R9
Evaluation Responsible Sub-Organization: Not reported
Actual Return to Compliance Date: 19881205
Scheduled Compliance Date: Not reported
Date of Request: Not reported
Date Response Received: Not reported
Request Agency: Not reported
Former Citation: Not reported

Evaluation Date: 19861006
Evaluation Responsible Agency: State
Found Violation: No
Evaluation Type Description: FINANCIAL RECORD REVIEW
Evaluation Responsible Person Identifier: R9
Evaluation Responsible Sub-Organization: Not reported
Actual Return to Compliance Date: Not reported
Scheduled Compliance Date: Not reported
Date of Request: Not reported
Date Response Received: Not reported
Request Agency: Not reported
Former Citation: Not reported

Evaluation Date: 19880815
Evaluation Responsible Agency: State
Found Violation: No
Evaluation Type Description: COMPLIANCE EVALUATION INSPECTION ON-SITE
Evaluation Responsible Person Identifier: R9
Evaluation Responsible Sub-Organization: Not reported
Actual Return to Compliance Date: Not reported
Scheduled Compliance Date: Not reported
Date of Request: Not reported
Date Response Received: Not reported
Request Agency: Not reported
Former Citation: Not reported

Evaluation Date: 19850729
Evaluation Responsible Agency: State
Found Violation: No
Evaluation Type Description: FINANCIAL RECORD REVIEW

FORMICA CORP (Continued) **1000299404**

Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	Not reported
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	19851212
Evaluation Responsible Agency:	State
Found Violation:	No
Evaluation Type Description:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	Not reported
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

FORMICA CORP (Continued) **1000299404**

RCRA Listings:

Date Form Received by Agency:		19960901
Handler Name:	FORMICA CORP	
Handler Address:		3500 CINCINNATI AVE
Handler City,State,Zip:		SUNSET WHITNEY RANCH, CA 95677
EPA ID:		CAD000415455
Contact Name:		Not reported
Contact Address:		Not reported
Contact City,State,Zip:		Not reported
Contact Telephone:		Not reported
Contact Fax:		Not reported
Contact Email:		Not reported
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Small Quantity Generator
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		CA
State District:		1
Mailing Address:		PO BOX 519
Mailing City,State,Zip:		SUNSET WHITNEY RANCH, CA 95677
Owner Name:	Not reported	
Owner Type:		Not reported
Operator Name:	FORMICA CORPORATION	
Operator Type:		Private
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		NN
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Storage
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Storage
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported

FORMICA CORP (Continued) **1000299404**

202 GPRA Corrective Action Baseline:	Yes
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	Yes
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	Yes
Corrective Action Priority Ranking:	Low
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20060905
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: FORMICA CORPORATION	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	P O BOX 519
Owner/Operator City,State,Zip:	CITY NOT REPORTED, CA 99999
Owner/Operator Telephone:	916-645-3301
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: FORMICA CORPORATION	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	P O BOX 519
Owner/Operator City,State,Zip:	CITY NOT REPORTED, CA 99999
Owner/Operator Telephone:	916-645-3301
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name: FORMICA CORPORATION	
Legal Status:	Private
Date Became Current:	Not reported

FORMICA CORP (Continued) **1000299404**

Date Ended Current:	Not reported
Owner/Operator Address:	P O BOX 519
Owner/Operator City,State,Zip:	SUNSET WHITNEY RANCH, CA 95677
Owner/Operator Telephone:	916-645-3301
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	19960901
Handler Name: FORMICA CORP	
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	19960901
Handler Name: FORMICA CORP	
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	19800801
Handler Name: FORMICA CORP	
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	19920225
Handler Name: FORMICA CORP	
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No

FORMICA CORP (Continued) **1000299404**

Current Record: No
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 325211
NAICS Description: PLASTICS MATERIAL AND RESIN MANUFACTURING

NAICS Code: 326113
NAICS Description: UNLAMINATED PLASTICS FILM AND SHEET (EXCEPT PACKAGING) MANUFACTURING

NAICS Code: 326199
NAICS Description: ALL OTHER PLASTICS PRODUCT MANUFACTURING

Facility Has Received Notices of Violation:
Found Violation: Yes
Agency Which Determined Violation: State
Violation Short Description: TSD - Financial Requirements
Date Violation was Determined: 19880804
Actual Return to Compliance Date: 19881205
Return to Compliance Qualifier: Observed
Violation Responsible Agency: State
Scheduled Compliance Date: Not reported
Enforcement Identifier: 001
Date of Enforcement Action: 19880120
Enforcement Responsible Agency: State
Enforcement Docket Number: Not reported
Enforcement Attorney: R9
Corrective Action Component: No
Appeal Initiated Date: Not reported
Appeal Resolution Date: Not reported
Disposition Status Date: Not reported
Disposition Status: Not reported
Disposition Status Description: Not reported
Consent/Final Order Sequence Number: Not reported
Consent/Final Order Respondent Name: Not reported
Consent/Final Order Lead Agency: Not reported
Enforcement Type: WRITTEN INFORMAL
Enforcement Responsible Person: R9
Enforcement Responsible Sub-Organization: Not reported
SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Found Violation: No
Agency Which Determined Violation: Not reported
Violation Short Description: Not reported

FORMICA CORP (Continued) **1000299404**

Date Violation was Determined:	Not reported
Actual Return to Compliance Date:	Not reported
Return to Compliance Qualifier:	Not reported
Violation Responsible Agency:	Not reported
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	Not reported
Date of Enforcement Action:	Not reported
Enforcement Responsible Agency:	Not reported
Enforcement Docket Number:	Not reported
Enforcement Attorney:	Not reported
Corrective Action Component:	Not reported
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	Not reported
Enforcement Responsible Person:	Not reported
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	No
Agency Which Determined Violation:	Not reported
Violation Short Description:	Not reported
Date Violation was Determined:	Not reported
Actual Return to Compliance Date:	Not reported
Return to Compliance Qualifier:	Not reported
Violation Responsible Agency:	Not reported
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	Not reported
Date of Enforcement Action:	Not reported
Enforcement Responsible Agency:	Not reported
Enforcement Docket Number:	Not reported
Enforcement Attorney:	Not reported
Corrective Action Component:	Not reported
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported

FORMICA CORP (Continued) **1000299404**

Enforcement Type: Not reported
Enforcement Responsible Person: Not reported
Enforcement Responsible Sub-Organization: Not reported
SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Found Violation: No
Agency Which Determined Violation: Not reported
Violation Short Description: Not reported
Date Violation was Determined: Not reported
Actual Return to Compliance Date: Not reported
Return to Compliance Qualifier: Not reported
Violation Responsible Agency: Not reported
Scheduled Compliance Date: Not reported
Enforcement Identifier: Not reported
Date of Enforcement Action: Not reported
Enforcement Responsible Agency: Not reported
Enforcement Docket Number: Not reported
Enforcement Attorney: Not reported
Corrective Action Component: Not reported
Appeal Initiated Date: Not reported
Appeal Resolution Date: Not reported
Disposition Status Date: Not reported
Disposition Status: Not reported
Disposition Status Description: Not reported
Consent/Final Order Sequence Number: Not reported
Consent/Final Order Respondent Name: Not reported
Consent/Final Order Lead Agency: Not reported
Enforcement Type: Not reported
Enforcement Responsible Person: Not reported
Enforcement Responsible Sub-Organization: Not reported
SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Found Violation: No
Agency Which Determined Violation: Not reported
Violation Short Description: Not reported

FORMICA CORP (Continued) **1000299404**

Date Violation was Determined:	Not reported
Actual Return to Compliance Date:	Not reported
Return to Compliance Qualifier:	Not reported
Violation Responsible Agency:	Not reported
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	Not reported
Date of Enforcement Action:	Not reported
Enforcement Responsible Agency:	Not reported
Enforcement Docket Number:	Not reported
Enforcement Attorney:	Not reported
Corrective Action Component:	Not reported
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	Not reported
Enforcement Responsible Person:	Not reported
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Evaluation Action Summary:

Evaluation Date:	19880804
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	FINANCIAL RECORD REVIEW
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	19881205
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	19861006
Evaluation Responsible Agency:	State
Found Violation:	No
Evaluation Type Description:	FINANCIAL RECORD REVIEW
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	Not reported
Scheduled Compliance Date:	Not reported

FORMICA CORP (Continued) **1000299404**

Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported
Evaluation Date:	19880815
Evaluation Responsible Agency:	State
Found Violation:	No
Evaluation Type Description:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	Not reported
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported
Evaluation Date:	19850729
Evaluation Responsible Agency:	State
Found Violation:	No
Evaluation Type Description:	FINANCIAL RECORD REVIEW
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	Not reported
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported
Evaluation Date:	19851212
Evaluation Responsible Agency:	State
Found Violation:	No
Evaluation Type Description:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	Not reported
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

FORMICA CORP (Continued) **1000299404**

ENVIROSTOR:

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	SUNSET WHITNEY R, CA 95677
Facility ID:	31300003
Status:	Refer: RWQCB
Status Date:	09/15/1989
Site Code:	Not reported
Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	1
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Sacramento
Assembly:	06
Senate:	04
Special Program:	* CERC2
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Not reported
Latitude:	38.82190
Longitude:	-121.3133
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	* UNSPECIFIED SLUDGE WASTE
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CAD000415455
Alias Type:	EPA Identification Number
Alias Name:	SL0606103517
Alias Type:	GeoTracker Global ID
Alias Name:	T0606100141
Alias Type:	GeoTracker Global ID
Alias Name:	31300003
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Discovery
Completed Date:	09/18/1981
Comments:	Facility Identified: Chamber of Commerce Directory. Questionnaire sent.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	02/05/1987
Comments:	Site Screening Done: Abandoned Site Program (ASP) concerns need to be addressed.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Assessment Report

FORMICA CORP (Continued) **1000299404**

Completed Date: 09/15/1989
Comments: Preliminary Assessment submitted to EPA - NFA for EPA. Referral to RWQCB recommended.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Name: FORMICA CORP
Address: 3500 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA 957651296
Facility ID: 80001300
Status: No Further Action
Status Date: 09/29/2011
Site Code: Not reported
Site Type: Corrective Action
Site Type Detailed: Corrective Action
Acres: 0
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: WM
Program Manager: Not reported
Supervisor: * Unknown
Division Branch: Cleanup Sacramento
Assembly: 06
Senate: 04
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 38.82576
Longitude: -121.3106
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CAD000415455
Alias Type: EPA Identification Number
Alias Name: 31300003
Alias Type: Envirostor ID Number
Alias Name: 80001300
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 01/20/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE

FORMICA CORP (Continued) **1000299404**

Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 04/23/1990
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 09/01/1989
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Name: ROCKLIN FORMICA
Address: 3500 CINCINNATI AVENUE
City,State,Zip: ROCKLIN, CA 95765
Facility ID: 60001397
Status: No Further Action
Status Date: 09/29/2011
Site Code: 102111
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Agreement
Acres: 211.8
NPL: NO
Regulatory Agencies: SMBRP, PLACER COUNTY
Lead Agency: SMBRP
Program Manager: Dean Wright
Supervisor: Steven Becker
Division Branch: Cleanup San Joaquin
Assembly: 06
Senate: 04
Special Program: Voluntary Agreement - Standard Voluntary Agreement
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 38.82503
Longitude: -121.3106
APN: NONE SPECIFIED
Past Use: ABOVE GROUND STORAGE TANKS, MANUFACTURING - OTHER
Potential COC: TPH-diesel TPH-gas TPH-MOTOR OIL 1,2-Dichloroethane (EDC 1,2-Dichloroethylene (cis Formaldehyde Phenol
Confirmed COC: 30024-NO 30025-NO 30295-NO 30193-NO 30195-NO 3002502-NO 30451-NO
Potential Description: SOIL
Alias Name: 102111
Alias Type: Project Code (Site Code)
Alias Name: 60001397
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE

FORMICA CORP (Continued) **1000299404**

Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 06/08/2011
Comments: Work plan approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 05/25/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/28/2011
Comments: Report accepted with no comments. No Further Action letter sent on 9/28/2011.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 06/07/2011
Comments: Final VCA Amendment 1 completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: No Further Action Letter
Completed Date: 09/28/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 05/19/2011
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

LUST:
Name: FORMICA CORP.
Address: 3500 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA 95677
Lead Agency: PLACER COUNTY
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606100141
Global Id: T0606100141
Latitude: 38.82356
Longitude: -121.312245
Status: Completed - Case Closed

FORMICA CORP (Continued) **1000299404**

Status Date: 04/15/1996
Case Worker: Not reported
RB Case Number: 310173
Local Agency: PLACER COUNTY
File Location: Not reported
Local Case Number: Not reported
Potential Media Affect: Soil
Potential Contaminants of Concern: Diesel
Site History: Not reported

LUST:
Global Id: T0606100141
Contact Type: Regional Board Caseworker
Contact Name: PAUL SANDERS
Organization Name: CENTRAL VALLEY RWQCB (REGION 5S)
Address: 11020 SUN CENTER DRIVE #200
City: RANCHO CORDOVA
Email: psanders@waterboards.ca.gov
Phone Number: Not reported

Global Id: T0606100141
Contact Type: Local Agency Caseworker
Contact Name: WEST BOURGAULT
Organization Name: PLACER COUNTY
Address: 3091 County Center Drive, Suite 180
City: AUBURN
Email: wbourgau@placer.ca.gov
Phone Number: Not reported

LUST:
Global Id: T0606100141
Action Type: Other
Date: 12/20/1991
Action: Leak Reported

LUST:
Global Id: T0606100141
Status: Open - Case Begin Date
Status Date: 12/20/1991

Global Id: T0606100141
Status: Completed - Case Closed
Status Date: 04/15/1996

LUST REG 5:
Name: FORMICA CORP.
Address: 3500 CINCINNATI AVE
City: ROCKLIN
Region: 5
Status: Case Closed
Case Number: 310173
Case Type: Soil only
Substance: DIESEL
Staff Initials: PRS
Lead Agency: Local

FORMICA CORP (Continued) **1000299404**

Program: LUST
MTBE Code: N/A

CPS-SLIC:

Name:	FORMICA MANUFACTURING FACILITY (FORMER)
Address:	3500 CINCINNATI AVE
City,State,Zip:	ROCKLIN, CA
Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	09/22/2009
Global Id:	SL0606103517
Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5S)
Lead Agency Case Number:	Not reported
Latitude:	38.821923
Longitude:	-121.313576
Case Type:	Cleanup Program Site
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	Not reported
File Location:	Not reported
Potential Media Affected:	Soil
Potential Contaminants of Concern:	* Volatile Organic Compounds (VOC), * Metals
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

VCP:

Name:	ROCKLIN FORMICA
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	60001397
Site Type:	Voluntary Cleanup
Site Type Detail:	Voluntary Agreement
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	211.8
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP, PLACER COUNTY
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Dean Wright
Supervisor:	Steven Becker
Division Branch:	Cleanup San Joaquin
Site Code:	102111
Assembly:	06
Senate:	04
Special Programs Code:	Voluntary Agreement - Standard Voluntary Agreement
Status:	No Further Action
Status Date:	09/29/2011
Restricted Use:	NO
Funding:	Responsible Party
Lat/Long:	38.82503 / -121.3106
APN:	NONE SPECIFIED
Past Use:	ABOVE GROUND STORAGE TANKS, MANUFACTURING - OTHER
Potential COC:	30024, 30025, 3002502, 30193, 30195, 30295, 30451
Confirmed COC:	30024-NO,30025-NO,30295-NO,30193-NO,30195-NO,3002502-NO,30451-NO
Potential Description:	SOIL

FORMICA CORP (Continued) **1000299404**

Alias Name: 102111
Alias Type: Project Code (Site Code)
Alias Name: 60001397
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 06/08/2011
Comments: Work plan approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 05/25/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/28/2011
Comments: Report accepted with no comments. No Further Action letter sent on 9/28/2011.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 06/07/2011
Comments: Final VCA Amendment 1 completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: No Further Action Letter
Completed Date: 09/28/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 05/19/2011
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

CERS HAZ WASTE:
Name: LAKESIDE MARINE LLC
Address: 3500 CINCINNATI AVE STE 200A
City,State,Zip: ROCKLIN, CA 95765

FORMICA CORP (Continued) **1000299404**

Site ID: 363750
CERS ID: 10657057
CERS Description: Hazardous Waste Generator

HIST UST:
Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVE
City,State,Zip: SUNSET/WHITNEY RANCH, CA 95677
File Number: 0001F153
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F153.pdf
Region: STATE
Facility ID: 00000000846
Facility Type: Other
Other Type: MANUFACTURING
Contact Name: EDWARD J. MORRA-PLANT MGR.
Telephone: 9166453301
Owner Name: AMERICAN CYANAMID COMPANY
Owner Address: ONE CYANAMID PLAZA
Owner City,St,Zip: WAYNE, NJ 07470
Total Tanks: 0005

Tank Num: 001
Container Num: 1
Year Installed: 1965
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: 0.250
Leak Detection: None

Tank Num: 002
Container Num: 2
Year Installed: 1965
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: 0.250
Leak Detection: None

Tank Num: 003
Container Num: 3
Year Installed: Not reported
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: 0.250
Leak Detection: None

Tank Num: 004
Container Num: 4
Year Installed: 1973
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: 0.250
Leak Detection: None

FORMICA CORP (Continued) **1000299404**

Tank Num:	005
Container Num:	5
Year Installed:	1974
Tank Capacity:	00050000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0.375
Leak Detection:	None

Click here for Geo Tracker PDF:

CHMIRS:

Name:	Not reported
Address:	3500 CINCINNATI AVE
City,State,Zip:	ROCKLIN, CA 95765
OES Incident Number:	2-6488
OES notification:	11/27/2002
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Unknown
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2002
Agency:	NRC
Incident Date:	10/25/200212:00:00 AM

FORMICA CORP (Continued) **1000299404**

Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Unknown
Site Type:	Other
E Date:	Not reported
Substance:	PCB
Gallons:	0.000000
Unknown:	2
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	HISTORIC SPILL: per NRC; The caller stated that PCB capacitors are missing.

CORTESE:

Name:	FORMICA CORP.
Address:	3500 CINCINNATI AVE
City,State,Zip:	ROCKLIN, CA 95677
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606100141
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

EMI:

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI
City,State,Zip:	ROCKLIN, CA 95677

FORMICA CORP (Continued) **1000299404**

Year:	1990
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	283
Reactive Organic Gases Tons/Yr:	282
Carbon Monoxide Emissions Tons/Yr:	2
NOX - Oxides of Nitrogen Tons/Yr:	22
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	5
Part. Matter 10 Micrometers and Smllr Tons/Yr:	4

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	1993
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	678
Reactive Organic Gases Tons/Yr:	678
Carbon Monoxide Emissions Tons/Yr:	5
NOX - Oxides of Nitrogen Tons/Yr:	41
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	7
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	1995
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	678
Reactive Organic Gases Tons/Yr:	678
Carbon Monoxide Emissions Tons/Yr:	5
NOX - Oxides of Nitrogen Tons/Yr:	41
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	7
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

FORMICA CORP (Continued) **1000299404**

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	1996
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	678
Reactive Organic Gases Tons/Yr:	678
Carbon Monoxide Emissions Tons/Yr:	5
NOX - Oxides of Nitrogen Tons/Yr:	41
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	7
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	1997
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	678
Reactive Organic Gases Tons/Yr:	678
Carbon Monoxide Emissions Tons/Yr:	5
NOX - Oxides of Nitrogen Tons/Yr:	41
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	7
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	1998
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	678
Reactive Organic Gases Tons/Yr:	678
Carbon Monoxide Emissions Tons/Yr:	5
NOX - Oxides of Nitrogen Tons/Yr:	41
SOX - Oxides of Sulphur Tons/Yr:	0

FORMICA CORP (Continued) **1000299404**

Particulate Matter Tons/Yr:	7
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	1999
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	3
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	3
NOX - Oxides of Nitrogen Tons/Yr:	57
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	9
Part. Matter 10 Micrometers and Smllr Tons/Yr:	9

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	2000
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	3
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	3
NOX - Oxides of Nitrogen Tons/Yr:	57
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	9
Part. Matter 10 Micrometers and Smllr Tons/Yr:	9

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	2001
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	3
Reactive Organic Gases Tons/Yr:	2

FORMICA CORP (Continued) **1000299404**

Carbon Monoxide Emissions Tons/Yr:	3
NOX - Oxides of Nitrogen Tons/Yr:	57
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	9
Part. Matter 10 Micrometers and Smllr Tons/Yr:	9

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	2002
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	3
NOX - Oxides of Nitrogen Tons/Yr:	61
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	9
Part. Matter 10 Micrometers and Smllr Tons/Yr:	9

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	2003
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	3
NOX - Oxides of Nitrogen Tons/Yr:	57
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	9
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95677
Year:	2004
County Code:	31
Air Basin:	SV
Facility ID:	5
Air District Name:	PLA
SIC Code:	3083
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported

FORMICA CORP (Continued) **1000299404**

Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 1.6592227
Reactive Organic Gases Tons/Yr: 1.3435433
Carbon Monoxide Emissions Tons/Yr: 2.326677
NOX - Oxides of Nitrogen Tons/Yr: 53.7551807
SOX - Oxides of Sulphur Tons/Yr: 0.0649306
Particulate Matter Tons/Yr: 8.7758348
Part. Matter 10 Micrometers and Smllr Tons/Yr: 7.1002614

Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVENUE
City,State,Zip: ROCKLIN, CA 95677
Year: 2005
County Code: 31
Air Basin: SV
Facility ID: 5
Air District Name: PLA
SIC Code: 3083
Air District Name: PLACER COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 1.3112227
Reactive Organic Gases Tons/Yr: .9207164
Carbon Monoxide Emissions Tons/Yr: 2.5710207
NOX - Oxides of Nitrogen Tons/Yr: 66.4161162
SOX - Oxides of Sulphur Tons/Yr: .0761102
Particulate Matter Tons/Yr: 9.771
Part. Matter 10 Micrometers and Smllr Tons/Yr: 8.2744419

HAZNET:
Name: JD2 INC
Address: 3500 CINCINNATI AVE
Address 2: Not reported
City,State,Zip: ROCKLIN, CA 95765
Contact: DOROTHY ORMSBY
Telephone: 5303085888
Mailing Name: Not reported
Mailing Address: 450 NEVADA ST

Year: 2021
Gepaid: CAL000453543
TSD EPA ID: CAT080014079
CA Waste Code: 181 - Other inorganic solid waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 3.6

Year: 2020
Gepaid: CAL000453543
TSD EPA ID: CAT080014079
CA Waste Code: 181 - Other inorganic solid waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 2.85

Year: 2018
Gepaid: CAC002955462

FORMICA CORP (Continued) **1000299404**

TSD EPA ID:	CAD982042475
CA Waste Code:	151 - Asbestos containing waste
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.92000
Year:	2015
Gepaid:	CAC002802438
TSD EPA ID:	NVT330010000
CA Waste Code:	261 - Polychlorinated biphenyls and material containing PCBs
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	1.599

Detail Two:

Year:	2018
EM Manifest ID:	013030439JJK20180404_D_1
Shipment Date:	4/5/2018
Receipt Date:	4/6/2018
Manifest Number:	013030439JJK
Generator EPA ID:	CAC002955462
Name:	CP 3500 CINCINNATI AVE LLC
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	CAL000349298
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAR000037283
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	CAD982042475
TSDF Name:	RECOLOGY HAY ROAD LANDFILL
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

State:

Year:	2018
EM Manifest ID:	013030439JJK20180404_D_1
Generator EPA ID:	CAC002955462
Shipment Date:	2018-04-05
Manifest Number:	013030439JJK
Line Number:	1
Method Code:	H132
Quantity Tons:	0.92000
Quantity Waste:	4.000000
Quantity Unit:	Y
Number of Containers:	42
Type of Container:	NULL
Quantity Type:	NULL
State Code:	151

FORMICA CORP (Continued) **1000299404**

Additional Info:

Year:	2015
Gen EPA ID:	CAC002802438
Shipment Date:	20150227
Creation Date:	8/5/2015 22:15:33
Receipt Date:	20150303
Manifest ID:	013452676JJK
Trans EPA ID:	CAR000171017
Trans Name:	FREMOUW ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	261 - Not reported
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	1.599
Waste Quantity:	1451
Quantity Unit:	K
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HIST CORTESE:

edr_fname:	FORMICA CORP.
edr_fadd1:	3500 CINCINNATI
City,State,Zip:	ROCKLIN, CA 95677
Region:	CORTESE
Facility County Code:	31
Reg By:	LTNKA
Reg Id:	310173

PLACER CO. MS:

Name:	24 HOUR RECREATIONAL STORAGE LLC
Address:	3500 CINCINNATI AVE STE 200
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0001936
Facility Status:	Closed
Program Element Code:	2302
Program:	UNDERGROUND STORAGE TANKS - 2 TANKS
Record Num:	PR0002714
District Code:	18
Decode for Fstatus:	Closed
Name:	24 HOUR RECREATIONAL STORAGE LLC
Address:	3500 CINCINNATI AVE STE 200
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0001936
Facility Status:	Closed
Program Element Code:	2106

FORMICA CORP (Continued) **1000299404**

Program: **DO NOT USE**HAZMAT- ABOVE GROUND WITH WASTE
Record Num: PR0002715
District Code: 18
Decode for Fstatus: Closed

Name: 24 HOUR RECREATIONAL STORAGE LLC
Address: 3500 CINCINNATI AVE STE 200
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0001936
Facility Status: Closed
Program Element Code: 2350
Program: SITE CLEAN-UP - MITIGATION - HOURLY
Record Num: PR0004268
District Code: 18
Decode for Fstatus: Closed

Name: 24 HOUR RECREATIONAL STORAGE LLC
Address: 3500 CINCINNATI AVE STE 200
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0001936
Facility Status: Closed
Program Element Code: 2275
Program: LARGE QUANTITY GENERATOR
Record Num: PR0006782
District Code: 18
Decode for Fstatus: Closed

Name: 24 HOUR RECREATIONAL STORAGE LLC
Address: 3500 CINCINNATI AVE STE 200
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0001936
Facility Status: Active
Program Element Code: 2105
Program: HAZMAT BUSINESS PLAN
Record Num: PR0017736
District Code: 18
Decode for Fstatus: Active

Name: LAKESIDE MARINE LLC
Address: 3500 CINCINNATI AVE STE 200A
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0020535
Facility Status: Active
Program Element Code: 2268
Program: CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Record Num: PR0018175
District Code: 18
Decode for Fstatus: Active

Name: JD2 INC
Address: 3500 CINCINNATI AVE 100
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0020956
Facility Status: Active
Program Element Code: 2105
Program: HAZMAT BUSINESS PLAN
Record Num: PR0018936

FORMICA CORP (Continued) **1000299404**

District Code: 18
Decode for Fstatus: Active

Name: JD2 INC
Address: 3500 CINCINNATI AVE 100
City,State,Zip: ROCKLIN, CA 95765
Facility ID: FA0020956
Facility Status: Active
Program Element Code: 2270
Program: SMALL QUANTITY GENERATOR
Record Num: PR0020642
District Code: 18
Decode for Fstatus: Active

NPDES:
Name: RV STORAGE
Address: 3500 CINCINNATI AVENUE
City,State,Zip: ROCKLIN, CA 95765
Facility Status: Not reported
NPDES Number: Not reported
Region: Not reported
Agency Number: Not reported
Regulatory Measure ID: Not reported
Place ID: Not reported
Order Number: Not reported
WDID: Not reported
Regulatory Measure Type: Construction
Program Type: Not reported
Adoption Date Of Regulatory Measure: Not reported
Effective Date Of Regulatory Measure: Not reported
Termination Date Of Regulatory Measure: Not reported
Expiration Date Of Regulatory Measure: Not reported
Discharge Address: Not reported
Discharge Name: Not reported
Discharge City: Not reported
Discharge State: Not reported
Discharge Zip: Not reported
Status: Returned
Status Date: 02/15/2020
Operator Name: Coastal Partners LLC CP 3500 Cincinnati LLC
Operator Address: 3500 Cincinnati Ave
Operator City: Rocklin
Operator State: California
Operator Zip: 95765

Name: PLACER INSPECTION CENTER
Address: 3500 CINCINNATI AVENUE
City,State,Zip: ROCKLIN, CA 95765
Facility Status: Active
NPDES Number: CAS000002
Region: 5S
Agency Number: 0
Regulatory Measure ID: 527751
Place ID: Not reported
Order Number: 2009-0009-DWQ
WDID: 5S31C393074
Regulatory Measure Type: Enrollee

FORMICA CORP (Continued) **1000299404**

Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	03/08/2021
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	1930 W Rio Salado Pkwy
Discharge Name:	Carvana
Discharge City:	Tempe
Discharge State:	Arizona
Discharge Zip:	85281
Status:	Not reported
Status Date:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported

Name:	PLACER INSPECTION CENTER
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95765
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	5S31C393074
Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Active
Status Date:	03/08/2021
Operator Name:	Carvana
Operator Address:	1930 W Rio Salado Pkwy
Operator City:	Tempe
Operator State:	Arizona
Operator Zip:	85281

CIWQS:

Name:	PLACER INSPECTION CENTER
Address:	3500 CINCINNATI AVENUE
City,State,Zip:	ROCKLIN, CA 95765
Agency:	Carvana
Agency Address:	1930 W Rio Salado Pkwy, Tempe, AZ 85281
Place/Project Type:	Construction - Commercial
SIC/NAICS:	Not reported
Region:	5S

FORMICA CORP (Continued) **1000299404**

Program:	CONSTW
Regulatory Measure Status:	Active
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	5S31C393074
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	03/08/2021
Termination Date:	Not reported
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	38.82635
Longitude:	-121.31044

CERS:

Name:	24 HOUR RECREATIONAL STORAGE LLC
Address:	3500 CINCINNATI AVE STE 200
City,State,Zip:	ROCKLIN, CA 95765
Site ID:	383827
CERS ID:	10637401
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	383827
Site Name:	24 HOUR RECREATIONAL STORAGE LLC
Violation Date:	11-12-2015
Citation:	HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description:	Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes:	Returned to compliance on 01/08/2016. Operator has not completed the required employee training and documented the training as required. Provided operator with an training documentation form to comply with the training requirement. Provide the required training and email a copy od the completed training form to mcaso@placer.ca.gov by 12/12/2015.
Violation Division:	Placer County Environmental Health
Violation Program:	HMRRP
Violation Source:	CERS,

Site ID:	383827
Site Name:	24 HOUR RECREATIONAL STORAGE LLC
Violation Date:	11-12-2015
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 01/07/2016. Operator has not submitted a site map as required to CERS. Prepare a site map with the required content and submit it to CERS by 12/12/2015

FORMICA CORP (Continued) **1000299404**

Violation Division: Placer County Environmental Health
Violation Program: HMRRP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-12-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: On site for a routine hazardous materials business plan inspection. All elements of the business plan have been submitted to the California Environmental Reporting System (CERS) except for the site map. Operator to provide a completed site map to be submitted to CERS by 12/12/2015. The last CERS submitted for the facility was completed 7/22/2015 Operator to complete the required training on the training documentation form at least annually and maintain these training records for a minimum of 3 years. Operator to insure the property owner has been notified in writing of the requirement to prepare a hazardous materials business and that the business has complied with this requirement.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-06-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents have been submitted to the California Environmental Reporting System (CERS) within the past year and a copy is maintained on site or electronically accessible. The current plan must be electronically re-certified in CERS on or before 4/6/2019. Verified the facility / site maps and the quantity of hazardous materials stored on site. All production employees receive hazardous materials and emergency response training during in-houses safety/tailgate meetings at least annually. The training records are maintained on-site and were available for review. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-21-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: On-site for a routine hazardous materials business plan (HMBP) inspection. All business plan documents have been submitted to the California Environmental Reporting System (CERS) within the past year and a copy of the plan is maintained on-site. The current plan must be electronically recertified in CERS on or before 1/9/2021. Verified the facility / site maps and the quantity of hazardous materials stored on-site. All employees attend in-houses safety/tailgate meetings on hazardous materials and emergency response at least annually. The training records are maintained on-site and were available for review. No violations observed this date.

FORMICA CORP (Continued) **1000299404**

Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-13-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: A complete hazardous materials business plan was submitted to and approved in the California Environmental Reporting System (CERS) this date. All business plan documents are current, accurate and complete. No violations observed this date.
Eval Division: Placer County Environmental Health
Eval Program: HMRRP
Eval Source: CERS,

Enforcement Action:
Site ID: 383827
Site Name: 24 HOUR RECREATIONAL STORAGE LLC
Site Address: 3500 CINCINNATI AVE STE 200
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 11-12-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Placer County Environmental Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Placer County Env Health
Entity Title: Not reported
Affiliation Address: 3091 County Center Drive
Affiliation City: Auburn
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 95603
Affiliation Phone: (530) 745-2300,

Affiliation Type Desc: Operator
Entity Name: Raymond Andrade
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (916) 257-3160,

Affiliation Type Desc: Parent Corporation
Entity Name: 24 HOUR RECREATIONAL STORAGE LLC
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported

FORMICA CORP (Continued) **1000299404**

Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Property Owner
Entity Name:	Coastal Partners LLC.
Entity Title:	Not reported
Affiliation Address:	3500 Cincinnati Ave Ste 325
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	95765
Affiliation Phone:	(916) 773-0550,
Affiliation Type Desc:	Legal Owner
Entity Name:	Cary Johnston
Entity Title:	Not reported
Affiliation Address:	3500 Cincinnati Ave Ste 200
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	95765
Affiliation Phone:	(916) 257-3137,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Raymond Andrade
Entity Title:	Not reported
Affiliation Address:	3500 Cincinnati Ave Ste 200
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	3500 Cincinnati Ave, Suite 200
Affiliation City:	Rocklin
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95765
Affiliation Phone:	,
Affiliation Type Desc:	Document Preparer
Entity Name:	Raymond Andrade
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Identification Signer
Entity Name:	Raymond Andrade

FORMICA CORP (Continued) **1000299404**

Entity Title: General Manager
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Name: PLACER INSPECTION CENTER
Address: 3500 CINCINNATI AVENUE
City,State,Zip: ROCKLIN, CA 95765
Site ID: 587195
CERS ID: 890606
CERS Description: Construction Storm Water

Affiliation:
Affiliation Type Desc: Owner/Operator
Entity Name: Carvana
Entity Title: Operator
Affiliation Address: 1930 W Rio Salado Pkwy
Affiliation City: Tempe
Affiliation State: AZ
Affiliation Country: Not reported
Affiliation Zip: 85281
Affiliation Phone: ,

Name: FORMICA CORP.
Address: 3500 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA 95677
Site ID: 237993
CERS ID: T0606100141
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: West Bourgault - PLACER COUNTY
Entity Title: Not reported
Affiliation Address: 3091 County Center Drive, Suite 180
Affiliation City: AUBURN
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Regional Board Caseworker
Entity Name: PAUL SANDERS - CENTRAL VALLEY RWQCB (REGION 5S)
Entity Title: Not reported
Affiliation Address: 11020 SUN CENTER DRIVE #200
Affiliation City: RANCHO CORDOVA
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Name: FORMICA CORP

FORMICA CORP (Continued) **1000299404**

Address: 3500 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA 957651296
Site ID: 607444
CERS ID: 80001300
CERS Description: Corrective Action

Affiliation:
Affiliation Type Desc: Facility Owner
Entity Name: FORMICA CORPORATION
Entity Title: Not reported
Affiliation Address: 10155 READING ROAD
Affiliation City: CINCINNATI
Affiliation State: OH
Affiliation Country: Not reported
Affiliation Zip: 452410000
Affiliation Phone: 5137863400,

Affiliation Type Desc: Facility Contact
Entity Name: M CATHERINE VERNON
Entity Title: Not reported
Affiliation Address: 10155 READING RD
Affiliation City: CINCINNATI
Affiliation State: OH
Affiliation Country: Not reported
Affiliation Zip: 452413109
Affiliation Phone: 5137863255,

Affiliation Type Desc: Supervisor
Entity Name: * Unknown
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Name: FORMICA CORP
Address: 3500 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA 957651296
Site ID: 607444
CERS ID: CAD000415455
CERS Description: Hazardous Waste

Affiliation:
Affiliation Type Desc: Facility Owner
Entity Name: FORMICA CORPORATION
Entity Title: Not reported
Affiliation Address: 10155 READING ROAD
Affiliation City: CINCINNATI
Affiliation State: OH
Affiliation Country: Not reported
Affiliation Zip: 452410000
Affiliation Phone: 5137863400,

Affiliation Type Desc: Facility Contact
Entity Name: M CATHERINE VERNON

FORMICA CORP (Continued) **1000299404**

Entity Title: Not reported
Affiliation Address: 10155 READING RD
Affiliation City: CINCINNATI
Affiliation State: OH
Affiliation Country: Not reported
Affiliation Zip: 452413109
Affiliation Phone: 5137863255,

Affiliation Type Desc: Supervisor
Entity Name: * Unknown
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVENUE
City,State,Zip: ROCKLIN, CA 95765-1201
Site ID: 494219
CERS ID: 110000861498
CERS Description: US EPA Air Emission Inventory System (EIS)

Affiliation:
Affiliation Type Desc: Public Contact
Entity Name: JOHN FOGED
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Local Agency Caseworker
Entity Name: WEST BOURGAULT PLACER CNTY
Entity Title: Not reported
Affiliation Address: 3091 COUNTY CENTER DRIVENA SUITE 180
Affiliation City: AUBURN
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

Affiliation Type Desc: Regional Board Caseworker
Entity Name: PAUL SANDERS CTRL VLY RWQCB REGN 5S
Entity Title: Not reported
Affiliation Address: 11020 SUN CENTER DRIVE 200
Affiliation City: RANCHOCORDOVA
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

FORMICA CORP (Continued) **1000299404**

Name: FORMICA MANUFACTURING FACILITY (FORMER)
Address: 3500 CINCINNATI AVE
City,State,Zip: ROCKLIN, CA
Site ID: 216972
CERS ID: SL0606103517
CERS Description: Cleanup Program Site

HWTS:
Name: JD2 INC
Address: 3500 CINCINNATI AVE
Address 2: Not reported
City,State,Zip: ROCKLIN, CA 95765
EPA ID: CAL000453543
Inactive Date: Not reported
Create Date: 03/13/2020
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 450 NEVADA ST
Mailing Address 2: Not reported
Mailing City,State,Zip: AUBURN, CA 95603
Owner Name: JD2 INC
Owner Address: 450 NEVADA ST
Owner Address 2: Not reported
Owner City,State,Zip: AUBURN, CA 95603
Contact Name: DOROTHY ORMSBY
Contact Address: 450 NEVADA ST
Contact Address 2: Not reported
City,State,Zip: AUBURN, CA 95603
Facility Status: Active
Facility Type: PERMANENT
Category: STATE
Latitude: 38.822904
Longitude: -121.312008

NAICS:
EPA ID: CAL000453543
Create Date: 2020-03-13 14:57:22.453
NAICS Code: 238310
NAICS Description: Drywall and Insulation Contractors
Issued EPA ID Date: 2020-03-13 14:57:22.45300
Inactive Date: Not reported
Facility Name: JD2 INC
Facility Address: 3500 CINCINNATI AVE
Facility Address 2: Not reported
Facility City: ROCKLIN
Facility County: Not reported
Facility State: CA
Facility Zip: 95765

EPA ID: CAL000453543
Create Date: 2020-03-13 14:57:22.453
NAICS Code: 238310
NAICS Description: Drywall and Insulation Contractors
Issued EPA ID Date: 2020-03-13 14:57:22.45300
Inactive Date: Not reported
Facility Name: JD2 INC
Facility Address: 3500 CINCINNATI AVE

FORMICA CORP (Continued) **1000299404**

Facility Address 2:	Not reported
Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	95765

Name:	CP 3500 CINCINNATI, LLC
Address:	3500 CINCINNATI AVE
Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 95765
EPA ID:	CAC002802438
Inactive Date:	05/04/2015
Create Date:	02/02/2015
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	3500 CINCINNATI AVE
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ROCKLIN, CA 957651201
Owner Name:	CP 3500 CINCINNATI, LLC
Owner Address:	3500 CINCINNATI AVE
Owner Address 2:	Not reported
Owner City,State,Zip:	ROCKLIN, CA 957651201
Contact Name:	JEFF DEWEESE
Contact Address:	3500 CINCINNATI AVE
Contact Address 2:	Not reported
City,State,Zip:	ROCKLIN, CA 957651201
Facility Status:	Inactive
Facility Type:	TEMPORARY
Category:	STATE
Latitude:	38.822721
Longitude:	-121.31198

D13 **FORMICA CORP** **SWEEPS UST** **S101589719**
WNW **3500 CINCINNATI AVE** **CA FID UST** **N/A**
1/2-1 **ROCKLIN, CA 95765** **ENF**
0.715 mi. **HAZNET**
3774 ft. **Site 2 of 2 in cluster D** **HWP**
CA PLACER CO. MS
Relative: **CIWQS**
Higher **CERS**
Actual: **HWTS**
136 ft.

SWEEPS UST:

Name:	FORMICA CORPORATION
Address:	3500 CINCINNATI AVE
City:	ROCKLIN
Status:	Active
Comp Number:	846
Number:	9
Board Of Equalization:	Not reported
Referral Date:	02-24-93
Action Date:	02-24-93
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	31-000-000846-000001
Tank Status:	A
Capacity:	12000

FORMICA CORP (Continued) **S101589719**

Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 5

Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVE
City: ROCKLIN
Status: Active
Comp Number: 846
Number: 9
Board Of Equalization: Not reported
Referral Date: 02-24-93
Action Date: 02-24-93
Created Date: 02-29-88
Owner Tank Id: 2
SWRCB Tank Id: 31-000-000846-000002
Tank Status: A
Capacity: 12000
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVE
City: ROCKLIN
Status: Active
Comp Number: 846
Number: 9
Board Of Equalization: Not reported
Referral Date: 02-24-93
Action Date: 02-24-93
Created Date: 02-29-88
Owner Tank Id: 3
SWRCB Tank Id: 31-000-000846-000003
Tank Status: A
Capacity: 12000
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVE
City: ROCKLIN
Status: Active
Comp Number: 846
Number: 9
Board Of Equalization: Not reported
Referral Date: 02-24-93
Action Date: 02-24-93
Created Date: 02-29-88
Owner Tank Id: 4

FORMICA CORP (Continued) **S101589719**

SWRCB Tank Id: 31-000-000846-000004
Tank Status: A
Capacity: 12000
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: FORMICA CORPORATION
Address: 3500 CINCINNATI AVE
City: ROCKLIN
Status: Active
Comp Number: 846
Number: 9
Board Of Equalization: Not reported
Referral Date: 02-24-93
Action Date: 02-24-93
Created Date: 02-29-88
Owner Tank Id: 5
SWRCB Tank Id: 31-000-000846-000005
Tank Status: A
Capacity: 50000
Active Date: 07-01-85
Tank Use: UNKNOWN
STG: P
Content: Not reported
Number Of Tanks: Not reported

CA FID UST:
Facility ID: 31000138
Regulated By: UTNKA
Regulated ID: 00000846
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 9166453301
Mail To: Not reported
Mailing Address: P O BOX
Mailing Address 2: Not reported
Mailing City,St,Zip: ROCKLIN 95677
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

ENF:
Name: SIERRA PLANT
Address: 3500 CINCINNATI
City,State,Zip: ROCKLIN, CA 95765
Region: Not reported
Facility Id: 256968
Agency Name: Formica Corporation
Place Type: Facility

FORMICA CORP (Continued) **S101589719**

Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	38.825258
Place Longitude:	-121.311966
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	1
Threat To Water Quality:	1
Complexity:	B
Pretreatment:	N - POTW does not have EPA approved pretreatment prog.
Facility Waste Type:	Cooling water: Noncontact
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	NPDESWW
Program Category1:	NPDESWW
Program Category2:	NPDESWW
# Of Programs:	1
WDID:	5A312001001
Reg Measure Id:	303307
Reg Measure Type:	NPDES Permits
Region:	Not reported
Order #:	R5-2005-0055
Npdes# CA#:	CA0004057
Major-Minor:	Minor
Npdes Type:	OTH
Reclamation:	N - No
Dredge Fill Fee:	Not reported
301H:	N
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	09/13/2017
Effective Date:	04/29/2005
Expiration/Review Date:	04/29/2010
Termination Date:	04/23/2009
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	4/24/2009
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I

FORMICA CORP (Continued) **S101589719**

Fee Code:	66 - NPDES Based on Flow
Direction/Voice:	Passive
Enforcement Id(EID):	364731
Region:	Not reported
Order / Resolution Number:	Not reported
Enforcement Action Type:	Notice of Violation
Effective Date:	10/31/2008
Adoption/Issuance Date:	10/31/2008
Achieve Date:	Not reported
Termination Date:	10/31/2008
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	NOV 10/31/2008 for Formica Corp, Sierra Plant
Description:	NOV issued because several progress reports required by the NPDES permit and CDO were not submitted. Formica closed the facility and permanently ceased discharging to surface water 6/5/07 and therefore the NPDES Permit and CDO are no longer necessary.
Program:	NPDESWW
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

Name:	SIERRA PLANT
Address:	3500 CINCINNATI
City,State,Zip:	ROCKLIN, CA 95765
Region:	Not reported
Facility Id:	256968
Agency Name:	Formica Corporation
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	38.825258
Place Longitude:	-121.311966
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas

FORMICA CORP (Continued) **S101589719**

Design Flow:	1
Threat To Water Quality:	1
Complexity:	B
Pretreatment:	N - POTW does not have EPA approved pretreatment prog.
Facility Waste Type:	Cooling water: Noncontact
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	NPDESWW
Program Category1:	NPDESWW
Program Category2:	NPDESWW
# Of Programs:	1
WDID:	5A312001001
Reg Measure Id:	303307
Reg Measure Type:	NPDES Permits
Region:	Not reported
Order #:	R5-2005-0055
Npdes# CA#:	CA0004057
Major-Minor:	Minor
Npdes Type:	OTH
Reclamation:	N - No
Dredge Fill Fee:	Not reported
301H:	N
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	09/13/2017
Effective Date:	04/29/2005
Expiration/Review Date:	04/29/2010
Termination Date:	04/23/2009
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	4/24/2009
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	66 - NPDES Based on Flow
Direction/Voice:	Passive
Enforcement Id(EID):	344799
Region:	Not reported
Order / Resolution Number:	R5-2008-0520
Enforcement Action Type:	Admin Civil Liability
Effective Date:	05/05/2008
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	05/28/2008
ACL Issuance Date:	05/05/2008
EPL Issuance Date:	Not reported
Status:	Historical
Title:	MMP Complaint R5-2008-0520 for Formica Corp, Sierra Plant
Description:	MMP Complaint issued in the amount of $6,000. The discharger committed 6 Group I serious, 20 non-serious (8 subject to MMP) effluent violations from 1/1/00 to 12/31/07. MMP amount $42,000 however discharger claims protection from MMPs for viols that accured before bankruptcy was entered on 6/10/04. Thus, discharger

FORMICA CORP (Continued) **S101589719**

	assessed MMPs for 2 violations.
Program:	NPDESWW
Latest Milestone Completion Date:	5/28/2008
# Of Programs1:	1
Total Assessment Amount:	6000
Initial Assessed Amount:	6000
Liability $ Amount:	6000
Project $ Amount:	0
Liability $ Paid:	6000
Project $ Completed:	0
Total $ Paid/Completed Amount:	6000
Name:	SIERRA PLANT
Address:	3500 CINCINNATI
City,State,Zip:	ROCKLIN, CA 95765
Region:	Not reported
Facility Id:	256968
Agency Name:	Formica Corporation
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	38.825258
Place Longitude:	-121.311966
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	1
Threat To Water Quality:	1
Complexity:	B
Pretreatment:	N - POTW does not have EPA approved pretreatment prog.
Facility Waste Type:	Cooling water: Noncontact
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	NPDESWW
Program Category1:	NPDESWW
Program Category2:	NPDESWW
# Of Programs:	1
WDID:	5A312001001
Reg Measure Id:	303307
Reg Measure Type:	NPDES Permits
Region:	Not reported
Order #:	R5-2005-0055
Npdes# CA#:	CA0004057

FORMICA CORP (Continued) **S101589719**

Major-Minor:	Minor
Npdes Type:	OTH
Reclamation:	N - No
Dredge Fill Fee:	Not reported
301H:	N
Application Fee Amt Received:	Not reported
Status:	Historical
Status Date:	09/13/2017
Effective Date:	04/29/2005
Expiration/Review Date:	04/29/2010
Termination Date:	04/23/2009
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	4/24/2009
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	66 - NPDES Based on Flow
Direction/Voice:	Passive
Enforcement Id(EID):	307990
Region:	Not reported
Order / Resolution Number:	R5-2005-0056
Enforcement Action Type:	Cease and Desist Order
Effective Date:	04/29/2005
Adoption/Issuance Date:	04/29/2005
Achieve Date:	Not reported
Termination Date:	04/24/2009
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	CDO R5-2005-0056 for FORMICA CORPORATION
Description:	Compliance with CDO exempts Discharger from mandatory minimum penalties for violations of tl chlorine residual Effluent Limitation through 8/1/05, aluminum, iron, total trihalomethanes, persistent chlorinated hydrocarbon pesticides, naphthalene, and manganese Effluent Limitations through 6/1/07, or through 4/29/10 if regulatory requirements or unexpected equipment issues require maintenance of the discharge beyond 6/1/07, in accordance with California Water Code (CWC) Section 13385 (j)(3).
Program:	NPDESWW
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

HAZNET:

Name:	FORMICA CORP
Address:	3500 CINCINNATI AVE
Address 2:	Not reported

FORMICA CORP (Continued) **S101589719**

City,State,Zip: ROCKLIN, CA 957651296
Contact: M CATHERINE VERNON
Telephone: 5137863255
Mailing Name: Not reported
Mailing Address: 10155 READING RD

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD059494310
CA Waste Code: 352 - Other organic solids
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.175

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD059494310
CA Waste Code: 512 - Other empty containers 30 gallons or more
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.075

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD059494310
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 2.502

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAT000646117
CA Waste Code: 352 - Other organic solids
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 21.07

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD980887418
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 20.016

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD982042475
CA Waste Code: 151 - Asbestos containing waste
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 0.4

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD980675276

FORMICA CORP (Continued) **S101589719**

CA Waste Code: 352 - Other organic solids
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 2

Year: 2008
Gepaid: CAD000415455
TSD EPA ID: CAD980887418
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H135 - Discharge To Sewer/Potw Or Npdes(With Prior Storage--With Or Without Treatment)
Tons: 22.8933

Year: 2007
Gepaid: CAD000415455
TSD EPA ID: TXD077603371
CA Waste Code: 121 - Alkaline solution (pH >= 12.5) with metals
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.63

Year: 2007
Gepaid: CAD000415455
TSD EPA ID: TXD077603371
CA Waste Code: 741 - Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method: H061 - Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0.0125

Click this hyperlink while viewing on your computer to access
141 additional CA HAZNET: record(s) in the EDR Site Report.

Additional Info:
Year: 2008
Gen EPA ID: CAD000415455

Shipment Date: 20080311
Creation Date: 5/21/2008 18:30:07
Receipt Date: 20080321
Manifest ID: 001002340FLE
Trans EPA ID: MAD039322250
Trans Name: CLEAN HARBORS ENVIRONMENTAL
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
TSDF EPA ID: CAD059494310
Trans Name: CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 512 - Other empty containers 30 gallons or more
RCRA Code: Not reported
Meth Code: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons: 0.075
Waste Quantity: 150
Quantity Unit: P
Additional Code 1: Not reported
Additional Code 2: Not reported

FORMICA CORP (Continued) **S101589719**

Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080311
Creation Date:	5/21/2008 18:30:07
Receipt Date:	20080321
Manifest ID:	001002341FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	1.668
Waste Quantity:	400
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080311
Creation Date:	5/21/2008 18:30:07
Receipt Date:	20080321
Manifest ID:	001002340FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.834
Waste Quantity:	200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080305
Creation Date:	4/22/2008 18:30:30
Receipt Date:	20080306

FORMICA CORP (Continued) **S101589719**

Manifest ID:	000227135JJK
Trans EPA ID:	CAD009466392
Trans Name:	ECOLOGY CONTROL INDUSTRIES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000646117
Trans Name:	CHEMICAL WASTE MANAGEMENT
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.07
Waste Quantity:	25
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080304
Creation Date:	5/30/2008 18:30:08
Receipt Date:	20080319
Manifest ID:	001090715FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980675276
Trans Name:	CLEAN HARBORS BUTTONWILLOW LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	2
Waste Quantity:	4000
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080303
Creation Date:	5/5/2008 18:30:07
Receipt Date:	20080312
Manifest ID:	001002339FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC

FORMICA CORP (Continued) **S101589719**

TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080303
Creation Date:	5/5/2008 18:30:07
Receipt Date:	20080312
Manifest ID:	001002339FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD059494310
Trans Name:	CLEAN HARBORS SAN JOSE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.075
Waste Quantity:	150
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080303
Creation Date:	4/22/2008 18:30:23
Receipt Date:	20080303
Manifest ID:	003307699JJK
Trans EPA ID:	CAD982413262
Trans Name:	EVERGREEN ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980887418
Trans Name:	EVERGREEN OIL INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H135 - Discharge To Sewer/Potw Or Npdes(With Prior Storage--With Or Without Treatment)
Quantity Tons:	13.7193

FORMICA CORP (Continued) **S101589719**

Waste Quantity:	3290
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080303
Creation Date:	5/5/2008 18:30:23
Receipt Date:	20080303
Manifest ID:	001002336FLE
Trans EPA ID:	CAD982030173
Trans Name:	ECOLOGY CONTROL INDUSTRIES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980887418
Trans Name:	EVERGREEN OIL INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	20.016
Waste Quantity:	4800
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20080229
Creation Date:	5/5/2008 18:30:23
Receipt Date:	20080303
Manifest ID:	001002333FLE
Trans EPA ID:	CAD982030173
Trans Name:	ECOLOGY CONTROL INDUSTRIES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980887418
Trans Name:	EVERGREEN OIL INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H135 - Discharge To Sewer/Potw Or Npdes(With Prior Storage--With Or Without Treatment)
Quantity Tons:	9.174
Waste Quantity:	2200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

FORMICA CORP (Continued) **S101589719**

Additional Info:

Year:	2007
Gen EPA ID:	CAD000415455
Shipment Date:	20071205
Creation Date:	2/29/2008 18:30:58
Receipt Date:	20071205
Manifest ID:	003196007JJK
Trans EPA ID:	CAL000315353
Trans Name:	TWO RIVERS DEMOILTION
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982042475
Trans Name:	HAY ROAD LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	2
Waste Quantity:	5
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20071024
Creation Date:	1/8/2008 18:30:22
Receipt Date:	20071025
Manifest ID:	003342621JJK
Trans EPA ID:	CAD982413262
Trans Name:	EVERGREEN ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982446874
Trans Name:	EVERGREEN ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	1.71
Waste Quantity:	450
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20071004
Creation Date:	3/18/2008 18:30:12
Receipt Date:	20071010

FORMICA CORP (Continued) **S101589719**

Manifest ID:	000639495SKS
Trans EPA ID:	TXR000050930
Trans Name:	SAFETY-KLEEN SYSTEMS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	8
Waste Quantity:	16000
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20070928
Creation Date:	8/21/2012 22:15:08
Receipt Date:	Not reported
Manifest ID:	003176545JJK
Trans EPA ID:	CAR000147025
Trans Name:	FUTURE ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZ0000337360
Trans Name:	VEOLIA ES TECHNICAL SOLUTIONS LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	261 - Not reported
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.2204
Waste Quantity:	200
Quantity Unit:	K
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20070928
Creation Date:	12/28/2007 18:31:22
Receipt Date:	20071001
Manifest ID:	003176541JJK
Trans EPA ID:	CAR000147025
Trans Name:	FUTURE ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000646117
Trans Name:	CHEMICAL WASTE MANAGMENT
TSDF Alt EPA ID:	Not reported

FORMICA CORP (Continued) **S101589719**

TSDF Alt Name:	Not reported
Waste Code Description:	181 - Other inorganic solid waste Organics
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.6
Waste Quantity:	1200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20070914
Creation Date:	12/28/2007 18:30:46
Receipt Date:	20070921
Manifest ID:	003176533JJK
Trans EPA ID:	CAR000147025
Trans Name:	FUTURE ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000646117
Trans Name:	CHEMICAL WASTE MANAGEMENT
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	181 - Other inorganic solid waste Organics
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.15
Waste Quantity:	300
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20070914
Creation Date:	7/16/2008 18:30:21
Receipt Date:	20071009
Manifest ID:	003176532JJK
Trans EPA ID:	CAR000147025
Trans Name:	FUTURE ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	NJD080631369
Trans 2 Name:	VEOLIA ES TECHNICAL SOLUTIONS LLC
TSDF EPA ID:	AZ0000337360
Trans Name:	VEOLIA ES TECHNICAL SOLUTIONS LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	261 - Not reported
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.4959
Waste Quantity:	450
Quantity Unit:	K

FORMICA CORP (Continued) **S101589719**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20070907
Creation Date:	3/4/2008 18:30:55
Receipt Date:	20070917
Manifest ID:	000606219SKS
Trans EPA ID:	TXR000050930
Trans Name:	SAFETY-KLEEN SYSTEMS INC
Trans 2 EPA ID:	OKD981588791
Trans 2 Name:	TRIAD TRANSPORT
TSDF EPA ID:	TXD077603371
Trans Name:	SAFETY-KLEEN SYSTEMS INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.15
Waste Quantity:	300
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20070828
Creation Date:	3/4/2008 18:30:34
Receipt Date:	20070907
Manifest ID:	000612613SKS
Trans EPA ID:	TXR000050930
Trans Name:	SAFETY-KLEEN SYSTEMS INC
Trans 2 EPA ID:	OKD981588791
Trans 2 Name:	TRIAD TRANSPORT
TSDF EPA ID:	TXD077603371
Trans Name:	SAFETY-KLEEN SYSTEMS INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	741 - Liquids with halogenated organic compounds > 1000 mg/l
RCRA Code:	F002
Meth Code:	H061 - Fuel Blending Prior To Energy Recovery At Another Site
Quantity Tons:	0.0125
Waste Quantity:	25
Quantity Unit:	P
Additional Code 1:	F001
Additional Code 2:	D039
Additional Code 3:	D001
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20070827
Creation Date:	1/8/2008 18:30:36

FORMICA CORP (Continued) **S101589719**

Receipt Date:	20070827
Manifest ID:	000230988JJK
Trans EPA ID:	CAR000147025
Trans Name:	FUTURE ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982042475
Trans Name:	NWS HAY ROAD LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	8.4
Waste Quantity:	21
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2006
Gen EPA ID:	CAD000415455
Shipment Date:	20061010
Creation Date:	3/30/2007 13:31:46
Receipt Date:	20061010
Manifest ID:	000824555JJK
Trans EPA ID:	TXR000050930
Trans Name:	SAFETY-KLEEN SYSTEMS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CA0000084517
Trans Name:	SAFETY-KLEEN SYSTEMS INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.168
Waste Quantity:	40
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20060721
Creation Date:	9/8/2006 18:33:59
Receipt Date:	20060722
Manifest ID:	25025103
Trans EPA ID:	TXR000050930

FORMICA CORP (Continued) **S101589719**

Trans Name:	SAFETY KLEEN SYSTEMS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CA0000084517
Trans Name:	SAFETY KLEEN SYSTEMS INC
TSDF Alt EPA ID:	CA0000084517
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1344
Waste Quantity:	32
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2005
Gen EPA ID:	CAD000415455
Shipment Date:	20051227
Creation Date:	3/22/2006 18:32:18
Receipt Date:	20060110
Manifest ID:	20993988
Trans EPA ID:	CAR000037283
Trans Name:	WORLD ENVIRONMENTAL & ENERGY INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982042475
Trans Name:	NWS HAY ROAD LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	2.5284
Waste Quantity:	3
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20050309
Creation Date:	6/2/2005 18:30:59
Receipt Date:	20050311
Manifest ID:	20993937
Trans EPA ID:	CAL000160765
Trans Name:	CONSOLIDATED WESTERN CONT INC
Trans 2 EPA ID:	CAR000037283
Trans 2 Name:	WORLD ENVIRON & ENERGY INC
TSDF EPA ID:	CAD982042475
Trans Name:	NWS HAY ROAD LANDFILL

FORMICA CORP (Continued) **S101589719**

TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 151 - Asbestos-containing waste
RCRA Code: Not reported
Meth Code: D80 - Disposal, Land Fill
Quantity Tons: 4.214
Waste Quantity: 5
Quantity Unit: Y
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

Additional Info:
Year: 2004
Gen EPA ID: CAD000415455

Shipment Date: Not reported
Creation Date: Not reported
Receipt Date: Not reported
Manifest ID: 20933933
Trans EPA ID: CAD983582701
Trans Name: RAH ENVIRONMENTAL INC
Trans 2 EPA ID: CAR000088732
Trans 2 Name: POLLUTION CONTROL INDUSTRIES
TSDF EPA ID: IND000646943
Trans Name: POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 331 - Off-specification, aged, or surplus organics
RCRA Code: D001
Meth Code: R01 - Recycler
Quantity Tons: 0.1275
Waste Quantity: 255
Quantity Unit: P
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

Shipment Date: Not reported
Creation Date: Not reported
Receipt Date: Not reported
Manifest ID: 20933933
Trans EPA ID: CAD983582701
Trans Name: RAH ENVIRONMENTAL INC
Trans 2 EPA ID: CAR000088732
Trans 2 Name: POLLUTION CONTROL INDUSTRIES
TSDF EPA ID: IND000646943
Trans Name: POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 222 - Oil/water separation sludge
RCRA Code: Not reported
Meth Code: D80 - Disposal, Land Fill

FORMICA CORP (Continued) **S101589719**

Quantity Tons:	0.3336
Waste Quantity:	80
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	Not reported
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	20933933
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.075
Waste Quantity:	150
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	Not reported
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	20933933
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	R01 - Recycler
Quantity Tons:	0.0165
Waste Quantity:	5
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

FORMICA CORP (Continued) **S101589719**

Shipment Date:	Not reported
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	20933933
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.3753
Waste Quantity:	90
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	Not reported
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	20933933
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.3
Waste Quantity:	600
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	Not reported
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	20933933
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943

FORMICA CORP (Continued) **S101589719**

Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.025
Waste Quantity:	50
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20040811
Creation Date:	1/4/2005 18:33:27
Receipt Date:	20040820
Manifest ID:	20993915
Trans EPA ID:	CAL000160765
Trans Name:	CONSOLIDATED WESTERN CONT INC
Trans 2 EPA ID:	CAR000037283
Trans 2 Name:	WORLD ENVIRONMENTAL & ENERGY INC
TSDF EPA ID:	CAD982042475
Trans Name:	NWS HAY RD LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	2.5284
Waste Quantity:	3
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20040312
Creation Date:	8/23/2004 8:25:08
Receipt Date:	20040312
Manifest ID:	22737557
Trans EPA ID:	CAL000218587
Trans Name:	FREMOUW ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD044003556
Trans Name:	RAMOS ENVIRONMENTAL
TSDF Alt EPA ID:	CAD044003556
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	Not reported
Waste Quantity:	55
Quantity Unit:	Not reported

FORMICA CORP (Continued) **S101589719**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20040312
Creation Date:	8/23/2004 8:25:08
Receipt Date:	20040312
Manifest ID:	22737557
Trans EPA ID:	CAL000218587
Trans Name:	FREMOUW ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD044003556
Trans Name:	RAMOS ENVIRONMENTAL
TSDF Alt EPA ID:	CAD044003556
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	1.251
Waste Quantity:	300
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2003
Gen EPA ID:	CAD000415455
Shipment Date:	20031229
Creation Date:	8/20/2004 9:41:48
Receipt Date:	20040116
Manifest ID:	20933915
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL IND
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.15
Waste Quantity:	300
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

FORMICA CORP (Continued) **S101589719**

Shipment Date:	20031229
Creation Date:	8/20/2004 9:41:48
Receipt Date:	20040116
Manifest ID:	20933915
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL IND
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	751 - Solids or sludge with halogenated organic comp. > 1000 mg/kg
RCRA Code:	U080
Meth Code:	R01 - Recycler
Quantity Tons:	0.015
Waste Quantity:	30
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20031229
Creation Date:	8/20/2004 9:41:48
Receipt Date:	20040116
Manifest ID:	20933915
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL IND
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	122 - Alkaline solution without metals (pH > 12.5
RCRA Code:	D002
Meth Code:	T03 - Treatment, Incineration
Quantity Tons:	0.02502
Waste Quantity:	6
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20031229
Creation Date:	8/20/2004 9:41:48
Receipt Date:	20040116
Manifest ID:	20933915
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL IND
TSDF EPA ID:	IND000646943

FORMICA CORP (Continued) **S101589719**

Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.06
Waste Quantity:	120
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031106
Creation Date:	8/9/2004 8:47:21
Receipt Date:	20031126
Manifest ID:	20933901
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.2085
Waste Quantity:	50
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031106
Creation Date:	8/9/2004 8:47:21
Receipt Date:	20031126
Manifest ID:	20933901
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.5
Waste Quantity:	1000
Quantity Unit:	P

FORMICA CORP (Continued) **S101589719**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031106
Creation Date:	8/9/2004 8:47:21
Receipt Date:	20031126
Manifest ID:	20933901
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.834
Waste Quantity:	200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031106
Creation Date:	8/9/2004 8:47:21
Receipt Date:	20031126
Manifest ID:	20933901
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	1.6263
Waste Quantity:	390
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031014
Creation Date:	8/5/2004 10:13:32
Receipt Date:	20031023

FORMICA CORP (Continued) **S101589719**

Manifest ID:	20933897
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.3753
Waste Quantity:	90
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20031014
Creation Date:	8/5/2004 10:13:32
Receipt Date:	20031023
Manifest ID:	20933897
Trans EPA ID:	CAD983582701
Trans Name:	RAH ENVIRONMENTAL INC
Trans 2 EPA ID:	CAR000088732
Trans 2 Name:	POLLUTION CONTROL INDUSTRIES
TSDF EPA ID:	IND000646943
Trans Name:	POLLUTION CONTROL INDUSTRIES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.025
Waste Quantity:	50
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2002
Gen EPA ID:	CAD000415455

Shipment Date:	20021227
Creation Date:	3/27/2003 18:31:27
Receipt Date:	20021227
Manifest ID:	20933827
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported

FORMICA CORP (Continued) **S101589719**

TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	491 - Unspecified sludge waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.18765
Waste Quantity:	45
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20021227
Creation Date:	3/27/2003 18:31:27
Receipt Date:	20021227
Manifest ID:	20933827
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.1668
Waste Quantity:	40
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20021204
Creation Date:	3/27/2003 18:31:27
Receipt Date:	20021204
Manifest ID:	20933828
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	1.43865
Waste Quantity:	345

FORMICA CORP (Continued) **S101589719**

Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20021204
Creation Date:	3/27/2003 18:31:27
Receipt Date:	20021204
Manifest ID:	20933828
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	491 - Unspecified sludge waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.6255
Waste Quantity:	150
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20021204
Creation Date:	3/27/2003 18:31:27
Receipt Date:	20021204
Manifest ID:	20933828
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	D001
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.834
Waste Quantity:	200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20020912
Creation Date:	1/28/2003 18:32:43

FORMICA CORP (Continued) **S101589719**

Receipt Date:	20020913
Manifest ID:	20933803
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D001
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.01251
Waste Quantity:	3
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20020912
Creation Date:	1/28/2003 18:32:43
Receipt Date:	20020913
Manifest ID:	20933803
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20020912
Creation Date:	1/28/2003 18:32:43
Receipt Date:	20020913
Manifest ID:	20933803
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported

FORMICA CORP (Continued) **S101589719**

TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.0875
Waste Quantity:	175
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20020912
Creation Date:	1/28/2003 18:32:43
Receipt Date:	20020913
Manifest ID:	20933803
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.22935
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20020625
Creation Date:	1/14/2003 18:31:21
Receipt Date:	20020625
Manifest ID:	20933735
Trans EPA ID:	CAD004778742
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000646117
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	571 - Fly ash, bottom ash, and retort ash
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	12.642
Waste Quantity:	15
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported

FORMICA CORP (Continued) **S101589719**

Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2001
Gen EPA ID:	CAD000415455
Shipment Date:	20010924
Creation Date:	1/16/2002 0:00:00
Receipt Date:	20010925
Manifest ID:	20933661
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	- Not reported
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.417
Waste Quantity:	100
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010924
Creation Date:	1/16/2002 0:00:00
Receipt Date:	20010925
Manifest ID:	20933661
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.15
Waste Quantity:	300
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010924

FORMICA CORP (Continued) **S101589719**

Creation Date:	1/16/2002 0:00:00
Receipt Date:	20010925
Manifest ID:	20933661
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D022
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.0208
Waste Quantity:	5
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20010921
Creation Date:	11/1/2001 0:00:00
Receipt Date:	Not reported
Manifest ID:	20933657
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.417
Waste Quantity:	100
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20010921
Creation Date:	11/1/2001 0:00:00
Receipt Date:	Not reported
Manifest ID:	20933657
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported

FORMICA CORP (Continued) **S101589719**

TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010711
Creation Date:	8/24/2001 0:00:00
Receipt Date:	20010712
Manifest ID:	21136156
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CA0000084517
Trans Name:	Not reported
TSDF Alt EPA ID:	CA0000084517
TSDF Alt Name:	Not reported
Waste Code Description:	741 - Liquids with halogenated organic compounds > 1000 mg/l
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1334
Waste Quantity:	32
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010605
Creation Date:	7/30/2001 0:00:00
Receipt Date:	20010606
Manifest ID:	20933608
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.417
Waste Quantity:	100
Quantity Unit:	G
Additional Code 1:	Not reported

FORMICA CORP (Continued) **S101589719**

Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010605
Creation Date:	7/30/2001 0:00:00
Receipt Date:	20010606
Manifest ID:	20933608
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.2
Waste Quantity:	400
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010605
Creation Date:	7/30/2001 0:00:00
Receipt Date:	20010606
Manifest ID:	20933608
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	D99 - Disposal, Other
Quantity Tons:	0.6255
Waste Quantity:	150
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010419
Creation Date:	6/20/2001 0:00:00
Receipt Date:	20010420
Manifest ID:	20623852

FORMICA CORP (Continued) **S101589719**

Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CA0000084517
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	741 - Liquids with halogenated organic compounds > 1000 mg/l
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1251
Waste Quantity:	30
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2000
Gen EPA ID:	CAD000415455
Shipment Date:	20001215
Creation Date:	3/5/2001 0:00:00
Receipt Date:	20001218
Manifest ID:	98377827
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	1.0008
Waste Quantity:	240
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20001215
Creation Date:	3/5/2001 0:00:00
Receipt Date:	20001218
Manifest ID:	98377827
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD980884183

FORMICA CORP (Continued) **S101589719**

Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	1.668
Waste Quantity:	400
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20001127
Creation Date:	1/12/2001 0:00:00
Receipt Date:	20001129
Manifest ID:	98377814
Trans EPA ID:	CAL913534912
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD044003556
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD044003556
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.76
Waste Quantity:	200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20001116
Creation Date:	2/1/2001 0:00:00
Receipt Date:	20001201
Manifest ID:	98377810
Trans EPA ID:	CAR000002774
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	TND000772186
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.5
Waste Quantity:	1000
Quantity Unit:	P

FORMICA CORP (Continued) **S101589719**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20001116
Creation Date:	2/1/2001 0:00:00
Receipt Date:	20001201
Manifest ID:	98377810
Trans EPA ID:	CAR000002774
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	TND000772186
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.0125
Waste Quantity:	3
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20001116
Creation Date:	2/1/2001 0:00:00
Receipt Date:	20001201
Manifest ID:	98377810
Trans EPA ID:	CAR000002774
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	TND000772186
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.6255
Waste Quantity:	150
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20001030
Creation Date:	1/9/2001 0:00:00
Receipt Date:	20001031

FORMICA CORP (Continued) **S101589719**

Manifest ID:	20573211
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CA0000084517
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	741 - Liquids with halogenated organic compounds > 1000 mg/l
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1167
Waste Quantity:	28
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20000719
Creation Date:	8/16/2000 0:00:00
Receipt Date:	Not reported
Manifest ID:	96413092
Trans EPA ID:	CAD009661844
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	TND000772186
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	491 - Unspecified sludge waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.2085
Waste Quantity:	50
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20000719
Creation Date:	8/16/2000 0:00:00
Receipt Date:	Not reported
Manifest ID:	96413092
Trans EPA ID:	CAD009661844
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	TND000772186
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported

FORMICA CORP (Continued) **S101589719**

Waste Code Description:	272 - Polymeric resin waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.417
Waste Quantity:	100
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20000719
Creation Date:	8/16/2000 0:00:00
Receipt Date:	Not reported
Manifest ID:	96413092
Trans EPA ID:	CAD009661844
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	TND000772186
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.125
Waste Quantity:	250
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1999
Gen EPA ID:	CAD000415455
Shipment Date:	19991206
Creation Date:	2/15/2000 0:00:00
Receipt Date:	19991208
Manifest ID:	96413158
Trans EPA ID:	CAD983582701
Trans Name:	Not reported
Trans 2 EPA ID:	CAD982524480
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1716
Waste Quantity:	52

FORMICA CORP (Continued) **S101589719**

Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19990512
Creation Date:	7/7/1999 0:00:00
Receipt Date:	19990518
Manifest ID:	98042699
Trans EPA ID:	CAR000017657
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD981382732
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD981382732
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	1.6856
Waste Quantity:	2
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWP:

EPA ID:	CAD000415455
Name:	FORMICA CORP
Address:	3500 CINCINNATI AVE
Cleanup Status:	CLOSED
Latitude:	38.82576
Longitude:	-121.3106
Facility Type:	Historical - Non-Operating
Facility Size:	Not reported
Supervisor:	Not reported
Site Code:	Not reported
Senate District:	04
Assembly District:	06
Public Information Officer:	Not reported
Commercial Offsite Facility Types:	Not reported
Quarterly Update:	Not reported
Project Manager Lead:	Not reported
Project Manager:	Not reported
Permit Type:	Not reported
Permit Effective Date:	Not reported
Permit Expiration Date:	Not reported
Calenviroscreen Score:	21-25%
Total Planned Hours:	Not reported
Total Planned Amount:	Not reported
Total Actual Hours:	Not reported

FORMICA CORP (Continued) **S101589719**

Activities:

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - APPLICATION PART A RECEIVED
Actual Date:	11/19/1980

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - PERMIT TERMINATED - TERMINATION RECEIVED
Actual Date:	07/20/1988

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - TECHNICAL COMPLETE LETTER
Actual Date:	04/04/1983

FORMICA CORP (Continued) **S101589719**

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - PERMIT TERMINATED - TERMINATION APPROVED
Actual Date:	09/23/1988

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - CALL-IN LETTER ISSUED
Actual Date:	06/14/1988

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - APPLICATION PART B RECEIVED
Actual Date:	12/09/1982

FORMICA CORP (Continued) **S101589719**

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Approved Request, Approved Request
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - FINAL PERMIT
Actual Date:	09/12/1983

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - PUBLIC COMMENT (BEGIN)
Actual Date:	05/01/1983

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Status:	CLOSED
Activity Type:	New Operating Permit
Permit Being Renewed:	Not reported
Permit Being Modified:	Not reported
Final Date:	1983-09-12 00:00:00
Type:	Not reported
Title Description:	Imported 12/2011:PERMIT1
Due Date:	Not reported
Comments:	Approved Request, Approved Request
Unit Names:	CONTAIN1
Event Description:	New Operating Permit - FINAL PERMIT (EXPIRES)
Actual Date:	09/12/1988

FORMICA CORP (Continued) **S101589719**

Closure:

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Size:	Not reported
Facility Status:	CLOSED
Activity Type:	Closure Final
Final Date:	Not reported
Type:	Not reported
Title Description:	Closure
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	Closure Final - ISSUE CLOSURE VERIFICATION
Actual Date:	12/05/1988

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Facility Size:	Not reported
Facility Status:	CLOSED
Activity Type:	Closure Final
Final Date:	Not reported
Type:	Not reported
Title Description:	Closure
Due Date:	Not reported
Comments:	Not reported
Unit Names:	CONTAIN1
Event Description:	Closure Final - RECEIVE CLOSURE CERTIFICATION
Actual Date:	09/21/1988

Alias:

EPA ID:	CAD000415455
Facility Type:	Historical - Non-Operating
Facility Name:	FORMICA CORP
Facility Status:	CLOSED
Project Manager:	Not reported
Project Manager Lead:	Not reported
Supervisor:	Not reported
Alias Type:	Envirostor ID Number
Alias:	31300003

PLACER CO. MS:

Name:	AMERICAN RV SERVICE CENTER
Address:	3500 CINCINNATI AVE 625
City,State,Zip:	ROCKLIN, CA 95765
Facility ID:	FA0022886
Facility Status:	Active
Program Element Code:	2268

FORMICA CORP (Continued) **S101589719**

Program: CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Record Num: PR0021668
District Code: 18
Decode for Fstatus: Active

CIWQS:
Name: SIERRA PLANT
Address: 3500 CINCINNATI
City,State,Zip: ROCKLIN, CA 95765
Agency: Formica Corporation
Agency Address: 3500 Cincinnati Avenue, Rocklin, CA 95765
Place/Project Type: Other
SIC/NAICS: Not reported
Region: 5S
Program: NPDESWW
Regulatory Measure Status: Historical
Regulatory Measure Type: NPDES Permit
Order Number: R5-2005-0055
WDID: 5A312001001
NPDES Number: CA0004057
Adoption Date: 04/29/2005
Effective Date: 04/29/2005
Termination Date: 04/23/2009
Expiration/Review Date: 04/29/2010
Design Flow: 1
Major/Minor: Minor
Complexity: B
TTWQ: 1
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: 38.825258
Longitude: -121.311966

CERS:
Name: SIERRA PLANT
Address: 3500 CINCINNATI
City,State,Zip: ROCKLIN, CA 95765
Site ID: 353243
CERS ID: 256968
CERS Description: NPDES Wastewater and Stormwater

Violations:
Site ID: 353243
Site Name: Sierra Plant
Violation Date: 06-19-2008
Citation: California Water Code
Violation Description: Not reported
Violation Notes: several progress reports were not submitted, in violation of the NPDES permit, Provision G.2, and the Cease and Desist Order.
Violation Division: Water Boards
Violation Program: NPDESWW
Violation Source: CIWQS,

Site ID: 353243
Site Name: Sierra Plant
Violation Date: 02-16-2000
Citation: California Water Code

FORMICA CORP (Continued) **S101589719**

Violation Description:	Not reported
Violation Notes:	July 1999 DMR errors include: maximum pH for July 1999 reported as 7.72 (actually 9.07) minimum pH for July 1999 reported as 7.05 (actually 6.80)
Violation Division:	Water Boards
Violation Program:	NPDESWW
Violation Source:	CIWQS,
Site ID:	353243
Site Name:	Sierra Plant
Violation Date:	02-16-2000
Citation:	California Water Code
Violation Description:	Not reported
Violation Notes:	Discharger reported pH of 9.07 for 27 July 1999. Effluent limitations require 6.5 <= pH <= 8.5.
Violation Division:	Water Boards
Violation Program:	NPDESWW
Violation Source:	CIWQS,
Site ID:	353243
Site Name:	Sierra Plant
Violation Date:	07-19-2004
Citation:	California Water Code
Violation Description:	Not reported
Violation Notes:	On 4/14/2004, Effluent pH recorded at 8.60 exceeding the maximum of 8.5 ***Discharger filed bankruptcy - violation is exempted from MMP penalty***
Violation Division:	Water Boards
Violation Program:	NPDESWW
Violation Source:	CIWQS,
Site ID:	353243
Site Name:	Sierra Plant
Violation Date:	07-19-2004
Citation:	California Water Code
Violation Description:	Not reported
Violation Notes:	On 4/15/2004, Effluent pH recorded at 8.64 exceeding the maximum of 8.5 ***Discharger filed bankruptcy - violation is exempted from MMP penalty***
Violation Division:	Water Boards
Violation Program:	NPDESWW
Violation Source:	CIWQS,
Site ID:	353243
Site Name:	Sierra Plant
Violation Date:	02-16-2000
Citation:	California Water Code
Violation Description:	Not reported
Violation Notes:	Discharger reported a sheen during weekly observation of receiving water 13 July 1999.
Violation Division:	Water Boards
Violation Program:	NPDESWW
Violation Source:	CIWQS,
Site ID:	353243
Site Name:	Sierra Plant
Violation Date:	06-03-1999

FORMICA CORP (Continued) **S101589719**

Citation: California Water Code
Violation Description: Not reported
Violation Notes: VIOLATIONS OF EFFLUENT AND RECEIVING WATER LIMITS FOR PHENOL, COD SUSPENDED MATTERS, PH, AND DO.
Violation Division: Water Boards
Violation Program: NPDESWW
Violation Source: CIWQS,

Enforcement Action:
Site ID: 353243
Site Name: Sierra Plant
Site Address: 3500 CINCINNATI
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 04-29-2005
Enf Action Type: Cease and Desist Order
Enf Action Description: Cease and Desist Order
Enf Action Notes: Not reported
Enf Action Division: Water Boards
Enf Action Program: UNSPEC
Enf Action Source: CIWQS,

Site ID: 353243
Site Name: Sierra Plant
Site Address: 3500 CINCINNATI
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 05-05-2008
Enf Action Type: Administrative Enforcement with Penality
Enf Action Description: Administrative Enforcement with Civil Liability (Penality)
Enf Action Notes: Not reported
Enf Action Division: Water Boards
Enf Action Program: UNSPEC
Enf Action Source: CIWQS,

Site ID: 353243
Site Name: Sierra Plant
Site Address: 3500 CINCINNATI
Site City: ROCKLIN
Site Zip: 95765
Enf Action Date: 10-31-2008
Enf Action Type: Notice of Violation (Water)
Enf Action Description: Notice of Violation Letter (Informal)
Enf Action Notes: Not reported
Enf Action Division: Water Boards
Enf Action Program: UNSPEC
Enf Action Source: CIWQS,

HWTS:
Name: FORMICA CORP
Address: 3500 CINCINNATI AVE
Address 2: Not reported
City,State,Zip: ROCKLIN, CA 95765
EPA ID: CAD000415455
Inactive Date: 08/11/2009

FORMICA CORP (Continued) **S101589719**

Create Date:	07/23/1982
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	10155 READING RD
Mailing Address 2:	Not reported
Mailing City,State,Zip:	CINCINNATI, OH 452413109
Owner Name:	FORMICA CORPORATION
Owner Address:	10155 READING ROAD
Owner Address 2:	Not reported
Owner City,State,Zip:	CINCINNATI, OH 452410000
Contact Name:	M CATHERINE VERNON
Contact Address:	10155 READING RD
Contact Address 2:	Not reported
City,State,Zip:	CINCINNATI, OH 452413109
Facility Status:	Inactive
Facility Type:	PERMANENT
Category:	FEDERAL
Latitude:	38.825373
Longitude:	-121.311968

NAICS:

EPA ID:	CAD000415455
Create Date:	2002-03-14 16:36:26.000
NAICS Code:	3261
NAICS Description:	Plastics Product Manufacturing
Issued EPA ID Date:	1982-07-23 00:00:00
Inactive Date:	2009-08-11 00:00:00
Facility Name:	FORMICA CORP
Facility Address:	3500 CINCINNATI AVE
Facility Address 2:	Not reported
Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	957651296

EPA ID:	CAD000415455
Create Date:	2003-10-23 15:27:19.000
NAICS Code:	326199
NAICS Description:	All Other Plastics Product Manufacturing
Issued EPA ID Date:	1982-07-23 00:00:00
Inactive Date:	2009-08-11 00:00:00
Facility Name:	FORMICA CORP
Facility Address:	3500 CINCINNATI AVE
Facility Address 2:	Not reported
Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	957651296

EPA ID:	CAD000415455
Create Date:	2003-10-23 15:27:19.000
NAICS Code:	326199
NAICS Description:	All Other Plastics Product Manufacturing
Issued EPA ID Date:	1982-07-23 00:00:00
Inactive Date:	2009-08-11 00:00:00
Facility Name:	FORMICA CORP
Facility Address:	3500 CINCINNATI AVE
Facility Address 2:	Not reported

FORMICA CORP (Continued) **S101589719**

Facility City:	ROCKLIN
Facility County:	Not reported
Facility State:	CA
Facility Zip:	957651296

Count: 4 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
LINCOLN	1007211144	THUNDER MOUNTAIN TRAIN WRECK SITE	NEAR TO INDUSTRIAL AVE		SEMS
ROCKLIN	S106230349	FOREST PRODUCTS MANUFACTURING ?	PACIFIC ST, INDUSTRIAL PARK, L		CPS-SLIC
ROSEVILLE	S128885711	C-80 ELEMENTARY SCHOOL	NORTH OF BLUE OAKS BOULEVARD A	95678	ENVIROSTOR, SCH
ROSEVILLE	S106842898	SOUTHERN PACIFIC PIPELINES- ROSEVI	PACIFIC AND SUNSET		CPS-SLIC

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/19/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 71

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 06/01/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 08/12/2022
Date Data Arrived at EDR: 08/16/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 12/10/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 76

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 11

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 69

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 59

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 68

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/25/2022
Date Data Arrived at EDR: 07/01/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 05/20/2022
Date Data Arrived at EDR: 05/20/2022
Date Made Active in Reports: 08/09/2022
Number of Days to Update: 81

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/16/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/12/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 73

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 10/03/2022
Number of Days to Update: 74

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/09/2022
Date Data Arrived at EDR: 08/10/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/05/2022
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/10/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/16/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/29/2022
Date Data Arrived at EDR: 06/29/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 22

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 09/02/2022
Number of Days to Update: 79

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 07/20/2022
Date Data Arrived at EDR: 07/20/2022
Date Made Active in Reports: 10/03/2022
Number of Days to Update: 75

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/20/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/13/2022
Date Data Arrived at EDR: 07/14/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 77

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/07/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 76

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/11/2022
Date Data Arrived at EDR: 07/11/2022
Date Made Active in Reports: 09/23/2022
Number of Days to Update: 74

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/07/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/15/2022
Number of Days to Update: 86

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 03/22/2022
Date Data Arrived at EDR: 06/24/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 76

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/22/2022
Date Data Arrived at EDR: 07/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 73

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/21/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 3

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/03/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 78

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/01/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 6

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 07/05/2022
Number of Days to Update: 5

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/26/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 04/29/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 6

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/12/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 6

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 75

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/27/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 76

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/13/2022
Date Data Arrived at EDR: 07/14/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/22/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 76
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 84
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36
Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

WILLIAM JESSUP APARTMENTS PH I ESA
NOT REPORTED
ROCKLIN, CA 95765

TARGET PROPERTY COORDINATES

Latitude (North):	38.820683 - 38ˆ 49' 14.46''
Longitude (West):	121.297731 - 121ˆ 17' 51.83''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	647782.2
UTM Y (Meters):	4298047.0
Elevation:	135 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12021643 ROSEVILLE, CA
Version Date:	2018

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

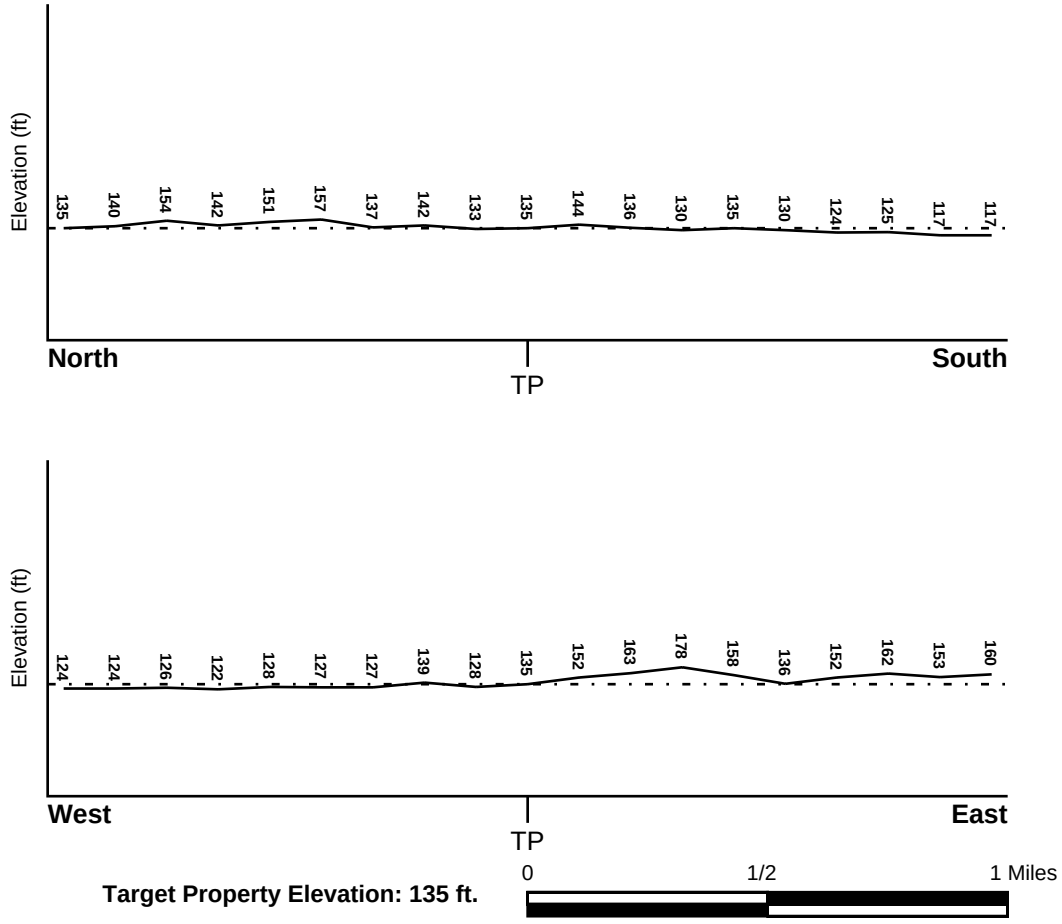
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
0602390413C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
0602390411C	FEMA Q3 Flood data
0602420005C	FEMA Q3 Flood data
0602430006D	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ROSEVILLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

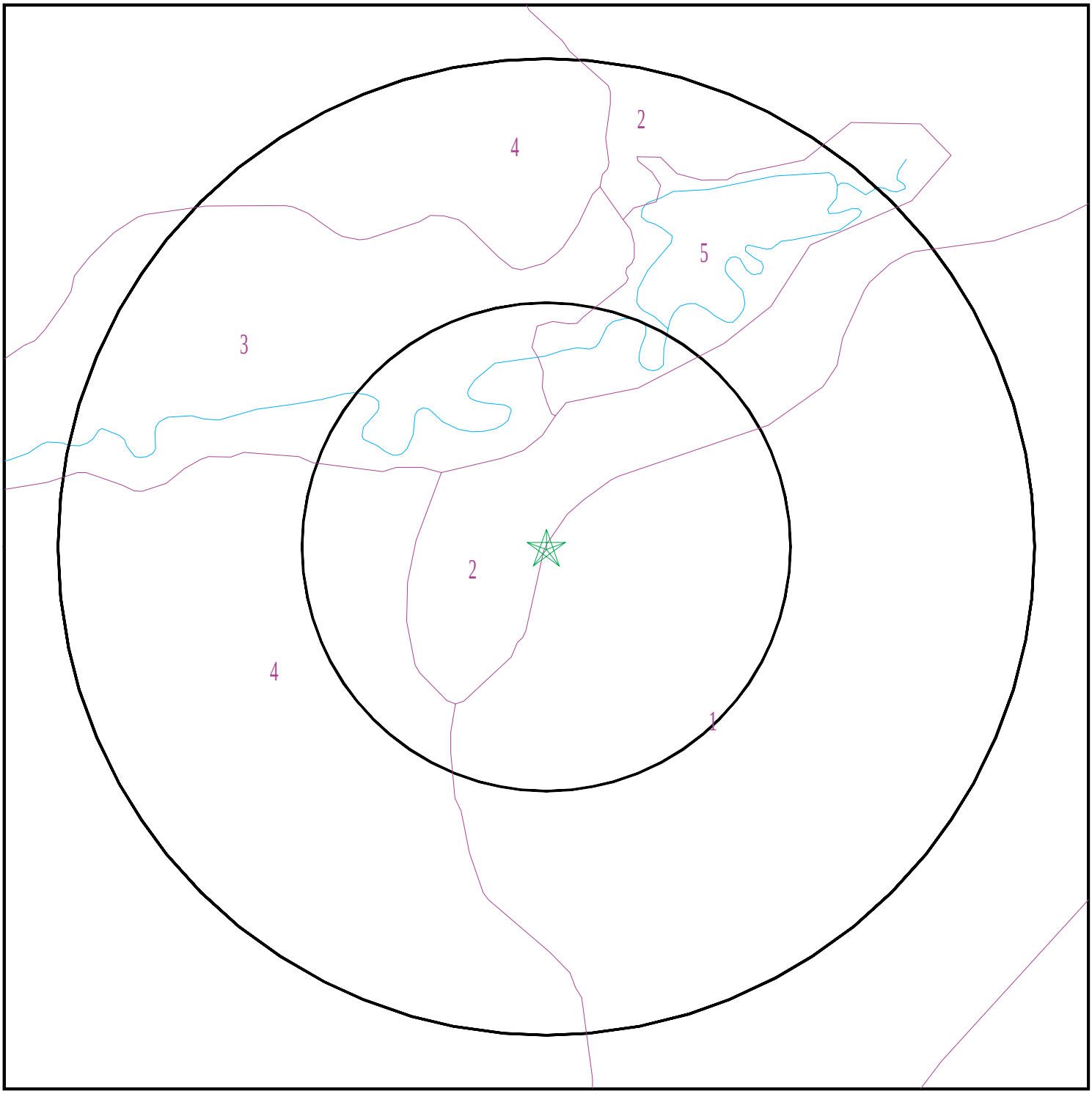
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7143448.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	William Jessup Apartments Ph I ESA	CLIENT:	Geocon Consultants, Inc.
ADDRESS:	Not Reported ROCKLIN CA 95765	CONTACT:	Austin Perry
LAT/LONG:	38.820683 / 121.297731	INQUIRY #:	7143448.2s
		DATE:	October 10, 2022 6:32 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: EXCHEQUER

Soil Surface Texture: very stony loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 28 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	very stony loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 141 Min: 0.07	Max: Min:
2	11 inches	14 inches	unweathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 141 Min: 0.07	Max: Min:

Soil Map ID: 2

Soil Component Name: INKS

Soil Surface Texture: cobbly loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 28 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	cobbly loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	5 inches	18 inches	very cobbly loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	18 inches	22 inches	unweathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 3

Soil Component Name: ALAMO

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:
2	9 inches	37 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:
3	37 inches	40 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 4

Soil Component Name: FIDDYMENT

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	11 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	27 inches	35 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
4	35 inches	38 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 5

Soil Component Name: Water

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A6	USGS40000190366	1/2 - 1 Mile WSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

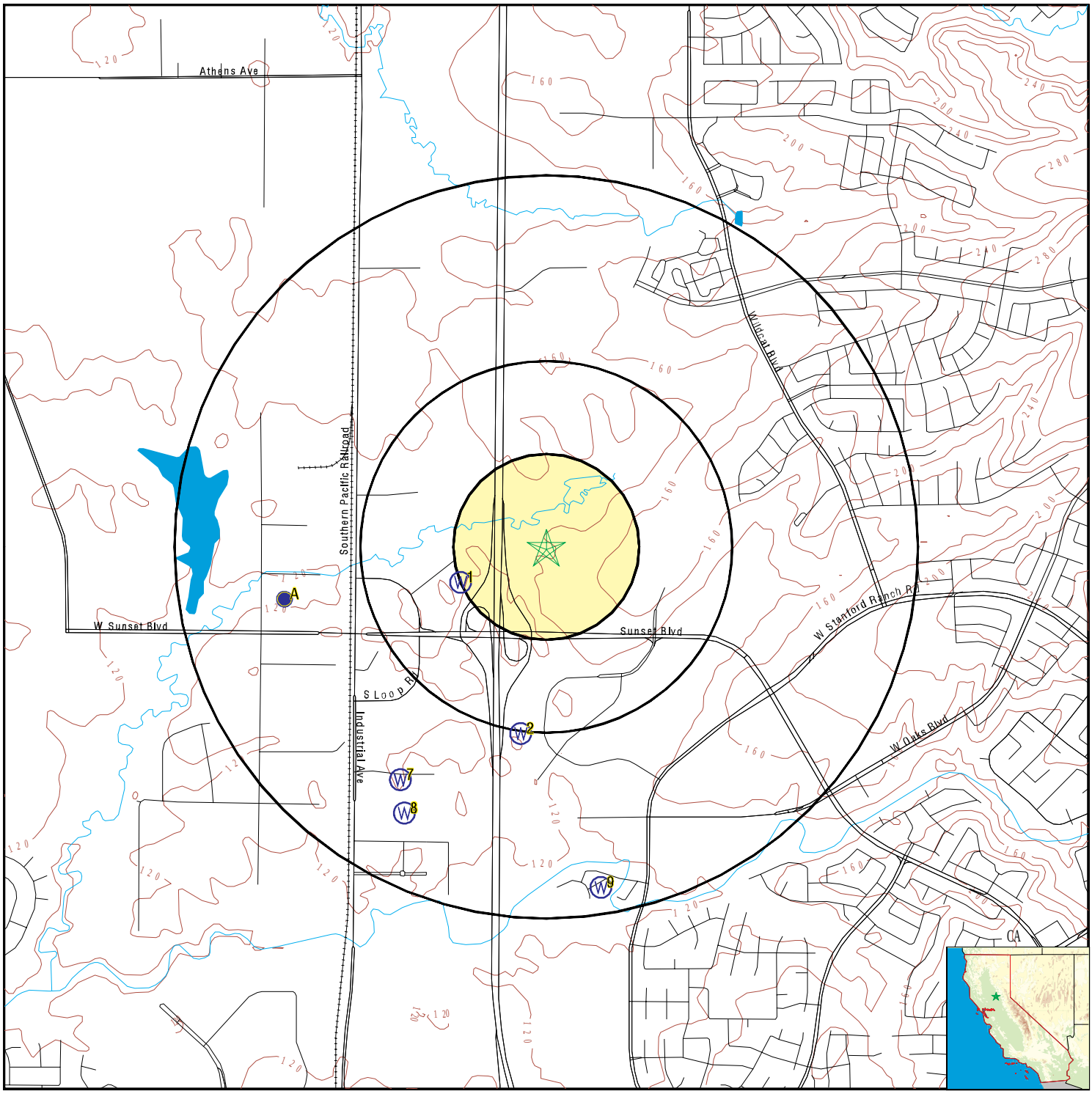
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADWR0000031579	1/8 - 1/4 Mile WSW
2	CADWR9000040578	1/2 - 1 Mile South
A3	CADDW0000013844	1/2 - 1 Mile West
A4	10371	1/2 - 1 Mile West
A5	CAUSGSN00003651	1/2 - 1 Mile WSW
7	CADWR9000040575	1/2 - 1 Mile SSW
8	CADDW0000005947	1/2 - 1 Mile SSW
9	CADWR9000040558	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 7143448.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	William Jessup Apartments Ph I ESA	CLIENT:	Geocon Consultants, Inc.
ADDRESS:	Not Reported ROCKLIN CA 95765	CONTACT:	Austin Perry
		INQUIRY #:	7143448.2s
LAT/LONG:	38.820683 / 121.297731	DATE:	October 10, 2022 6:32 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
WSW
1/8 - 1/4 Mile
Higher

CA WELLS **CADWR0000031579**

Well ID:	11N06E09H001M	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	11N06E09H001M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=11N06E09H001M&store_num=		
GeoTracker Data:	Not Reported		

2
South
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000040578**

State Well #:	11N06E10P001M	Station ID:	11917
Well Name:	Not Reported	Basin Name:	North American
Well Use:	Stockwatering	Well Type:	Unknown
Well Depth:	410	Well Completion Rpt #:	Not Reported

A3
West
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000013844**

Well ID:	3110025-005	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	SUNSET INDUSTRIAL WELL - RAW		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3110025-005&store_num=		
GeoTracker Data:	Not Reported		

A4
West
1/2 - 1 Mile
Lower

CA WELLS **10371**

Seq:	10371	Prim sta c:	11N/06E-09H01 M
Frds no:	3110025005	County:	31
District:	09	User id:	TEN
System no:	3110025	Water type:	G
Source nam:	SUNSET INDUSTRIAL WELL - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	384908.0	Longitude:	1211836.0
Precision:	3	Status:	IU
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3110025	System nam:	Placer Cwa - Foothill
Hqname:	PLACER COUNTY WATER AGENCY	Address:	P.O. Box 6570

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

City:	Auburn	State:	CA
Zip:	95604	Zip ext:	Not Reported
Pop serv:	30500	Connection:	14450
Area serve:	LOOMIS-ROCKLIN-PENRYN		
Sample date:	22-AUG-17	Finding:	4.
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	22-AUG-17	Finding:	77.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	22-AUG-17	Finding:	17.2
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	22-AUG-17	Finding:	8.2
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	22-AUG-17	Finding:	45.1
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	21-AUG-17	Finding:	4.4
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	21-AUG-17	Finding:	4.2
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	03-AUG-16	Finding:	268.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	0.25
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	03-AUG-16	Finding:	2.8
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	03-AUG-16	Finding:	2.
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	03-AUG-16	Finding:	453.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	7.25
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	82.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	82.

Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	2.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	03-AUG-16	Finding:	0.51
Chemical:	TOTAL ORGANIC CARBON (TOC)	Report units:	MG/L
Dlr:	0.3		
Sample date:	03-AUG-16	Finding:	78.2
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	17.9
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	8.13
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	42.3
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	1.78
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	50.1
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	03-AUG-16	Finding:	14.1
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	03-AUG-16	Finding:	0.48
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	03-AUG-16	Finding:	77.7
Chemical:	SILICA	Report units:	MG/L
Dlr:	0.		
Sample date:	19-APR-16	Finding:	2.7
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	18-APR-16	Finding:	208.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	18-APR-16	Finding:	7.14
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	18-APR-16	Finding:	80.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	18-APR-16	Finding:	80.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	2.4
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	18-APR-16	Finding:	96.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	14.4
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	8.1
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	317.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	3.4
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	49.8
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	14.3
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	18-APR-16	Finding:	0.35
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	18-APR-16	Finding:	350.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	18-APR-16	Finding:	0.58
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	18-APR-16	Finding:	2.14
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	24-MAR-15	Finding:	0.942
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	24-MAR-15	Finding:	0.316
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	24-MAR-15	Finding:	1.35
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L

Dlr:	0.		
Sample date:	24-MAR-15	Finding:	0.908
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-DEC-14	Finding:	1.44
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-DEC-14	Finding:	1.25
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-DEC-14	Finding:	0.974
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-DEC-14	Finding:	4.2
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	29-DEC-14	Finding:	0.506
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	34.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	2.3
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	48.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	11.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	25-SEP-14	Finding:	0.44
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	25-SEP-14	Finding:	3.3
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	25-SEP-14	Finding:	300.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	0.3
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	25-SEP-14	Finding:	2500.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	25-SEP-14	Finding:	380.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	1.23
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	4.4e-002
Chemical:	RADIUM 228	Report units:	PCI/L
Dlr:	1.		
Sample date:	25-SEP-14	Finding:	0.553
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	2.06
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	0.2
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	8.4
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	17.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	92.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	77.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	77.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	7.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	25-SEP-14	Finding:	380.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	17-JUL-14	Finding:	22.
Chemical:	SILICA	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	270.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.71
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU

Dlr:	0.1		
Sample date:	14-APR-14	Finding:	2800.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	14-APR-14	Finding:	360.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	14-APR-14	Finding:	4.37
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	14-APR-14	Finding:	1.48
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	5.11
Chemical:	GROSS BETA	Report units:	PCI/L
Dlr:	4.		
Sample date:	14-APR-14	Finding:	1.44
Chemical:	GROSS BETA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	130.
Chemical:	TRITIUM	Report units:	PCI/L
Dlr:	1000.		
Sample date:	14-APR-14	Finding:	264.
Chemical:	TRITIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	8.e-002
Chemical:	RADIUM 228	Report units:	PCI/L
Dlr:	1.		
Sample date:	14-APR-14	Finding:	0.569
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.411
Chemical:	STRONTIUM - 90 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.487
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.937
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.3
Chemical:	URANIUM MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.2
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	14-APR-14	Finding:	1.19
Chemical:	GROSS BETA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.606
Chemical:	STRONTIUM - 90 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	434.
Chemical:	TRITIUM MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.212
Chemical:	RA-226 OR TOTAL RA BY 903.0 C.E.	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	0.363
Chemical:	RADIUM, TOTAL, MDA95-NTNC ONLY, BY 903.0		
Report units:	PCI/L	Dlr:	0.
Sample date:	14-APR-14	Finding:	3.
Chemical:	COLOR	Report units:	UNITS
Dlr:	0.		
Sample date:	14-APR-14	Finding:	370.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	14-APR-14	Finding:	7.
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	14-APR-14	Finding:	77.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	77.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	78.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	18.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	8.3
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	33.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	2.2
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	14-APR-14	Finding:	57.
Chemical:	CHLORIDE	Report units:	MG/L

Dlr:	0.		
Sample date:	14-APR-14	Finding:	13.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	14-APR-14	Finding:	0.47
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	14-APR-14	Finding:	2.3
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		

A5
WSW **CA WELLS** **CAUSGSN00003651**
1/2 - 1 Mile
Lower

Well ID:	USGS-384907121183601	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-384907121183601	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-384907121183601&store_num=		
GeoTracker Data:	Not Reported		

A6
WSW **FED USGS** **USGS40000190366**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	011N006E09G001M	Type:	Well
Description:	Not Reported	HUC:	18020109
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19630816	Well Depth:	164
Well Depth Units:	ft	Well Hole Depth:	198
Well Hole Depth Units:	ft		

Ground water levels,Number of Measurements:	1	Level reading date:	1963-08-01
Feet below surface:	78.00	Feet to sea level:	Not Reported
Note:	Not Reported		

7
SSW **CA WELLS** **CADWR9000040575**
1/2 - 1 Mile
Higher

State Well #:	Not Reported	Station ID:	51290
Well Name:	Tinker MW	Basin Name:	North American
Well Use:	Observation	Well Type:	Single Well
Well Depth:	177	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

8
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000005947**

Well ID:	3110025-014	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	TINKER ROAD WELL - RAW	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3110025-014&store_num=		
GeoTracker Data:	Not Reported		

9
South
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000040558**

State Well #:	11N06E15C004M	Station ID:	31769
Well Name:	Not Reported	Basin Name:	North American
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	98	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95765	18	2

Federal EPA Radon Zone for PLACER County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for PLACER COUNTY, CA

Number of sites tested: 68

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.466 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.500 pCi/L	100%	0%	0%
Basement	3.043 pCi/L	71%	29%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D

William Jessup Apartments Ph I ESA

Not Reported

ROCKLIN, CA 95765

Inquiry Number: 7143448.8

October 11, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/11/22

Site Name:

William Jessup Apartments Ph
Not Reported
ROCKLIN, CA 95765
EDR Inquiry # 7143448.8

Client Name:

Geocon Consultants, Inc.
3160 Gold Valley Drive Suite 800
Rancho Cordova, CA 95742
Contact: Austin Perry

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1998	1"=500'	Acquisition Date: January 01, 1998	USGS/DOQQ
1993	1"=500'	Acquisition Date: May 23, 1993	USGS/DOQQ
1984	1"=500'	Flight Date: June 08, 1984	USDA
1975	1"=500'	Flight Date: August 25, 1975	USGS
1966	1"=500'	Flight Date: August 04, 1966	USGS
1962	1"=500'	Flight Date: July 28, 1962	USGS
1952	1"=500'	Flight Date: July 18, 1952	USDA
1947	1"=500'	Flight Date: July 28, 1947	USGS
1938	1"=500'	Flight Date: September 10, 1938	USDA

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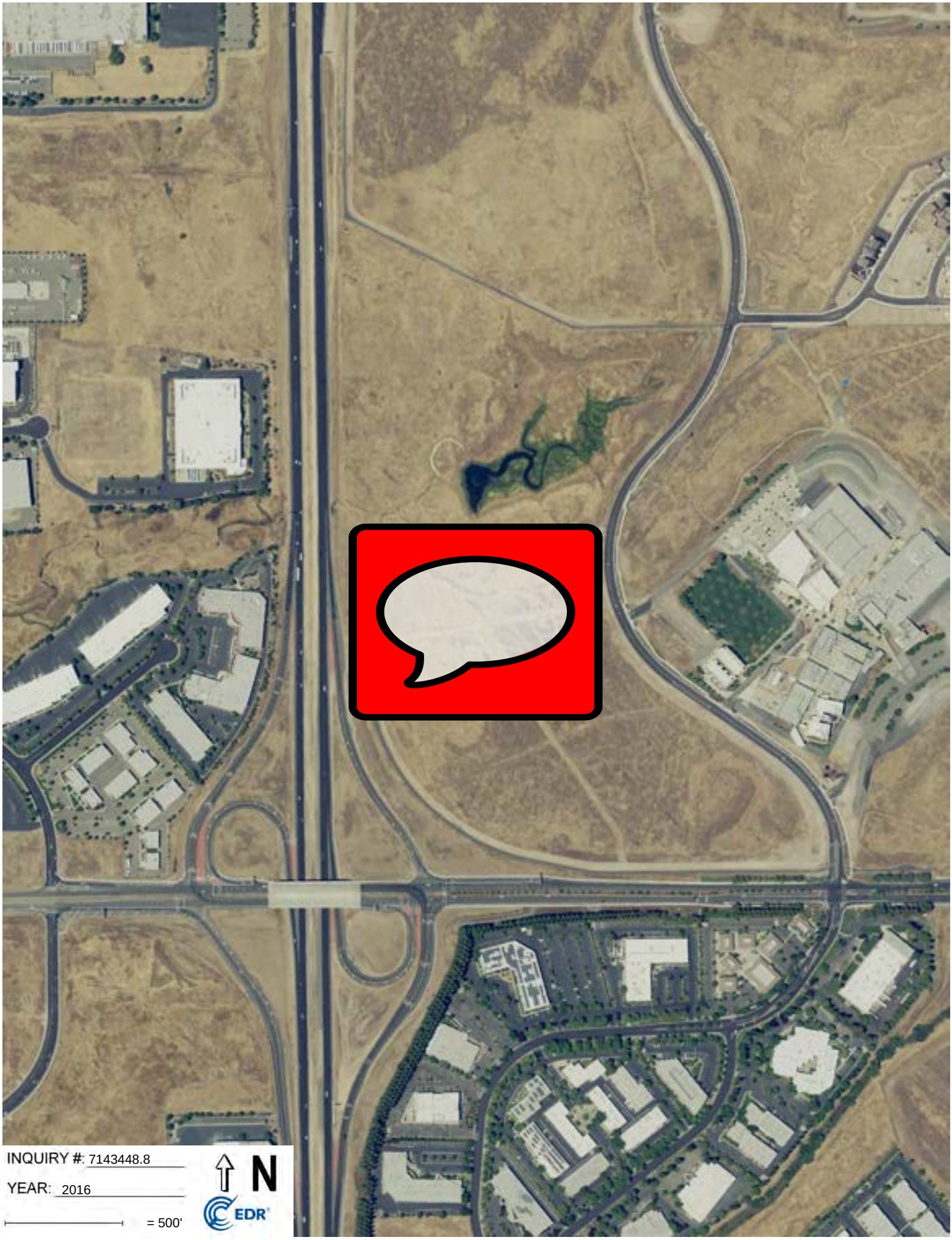

INQUIRY #: 7143448.8

YEAR: 2016

= 500'

N

EDR

INQUIRY #: 7143448.8

YEAR: 2012

= 500'

N

EDR

INQUIRY #: 7143448.8

YEAR: 2009

= 500'

N

EDR

INQUIRY #: 7143448.8

YEAR: 2006

= 500'

N

EDR

INQUIRY #: 7143448.8

YEAR: 1998

= 500'

N

EDR

INQUIRY #: 7143448.8
YEAR: 1993
= 500'
N
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INQUIRY #: 7143448.8

YEAR: 1984

= 500'

N

EDR

INQUIRY #: 7143448.8

YEAR: 1975

= 500'

N

EDR

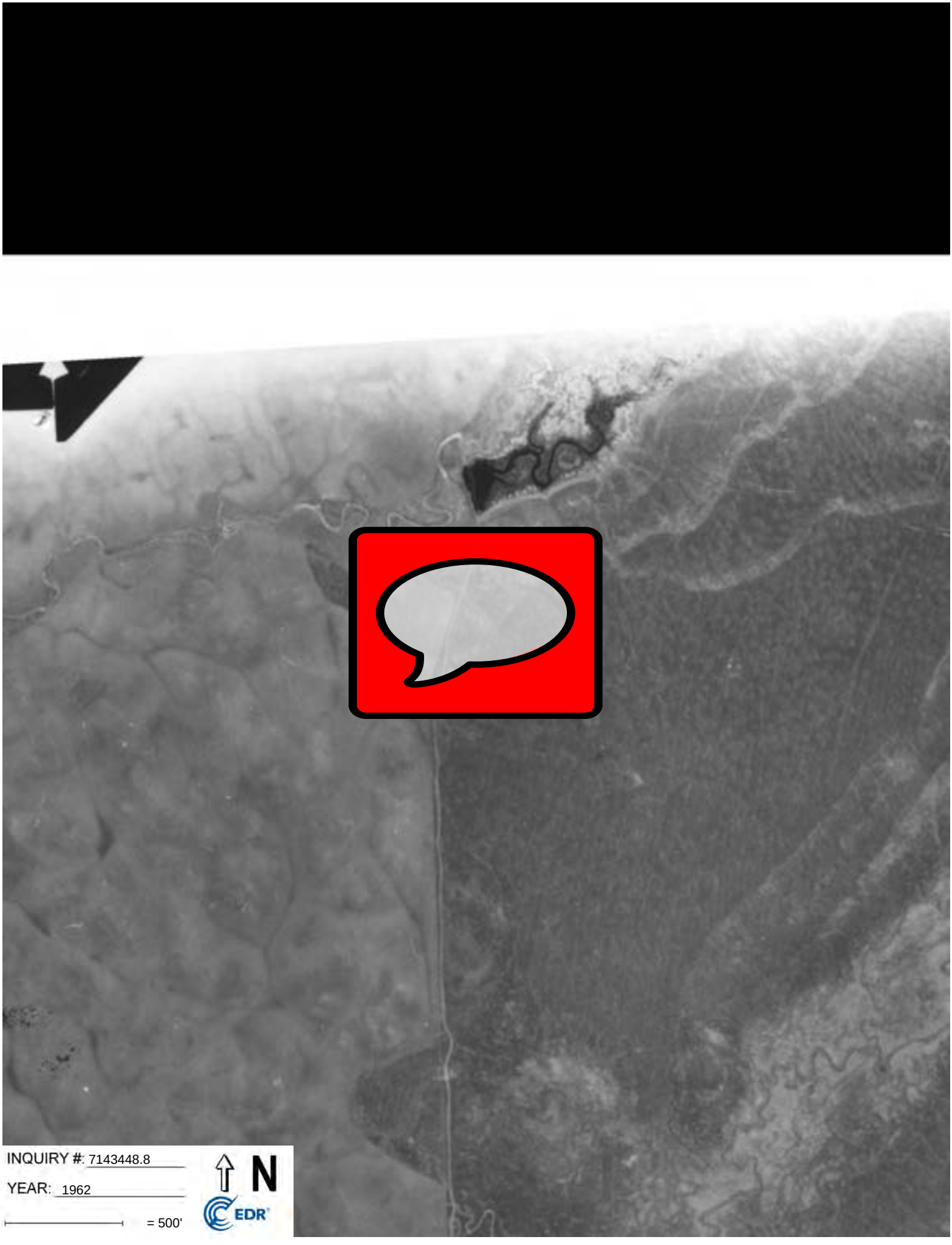
INQUIRY #: 7143448.8

YEAR: 1966

= 500'

N

EDR



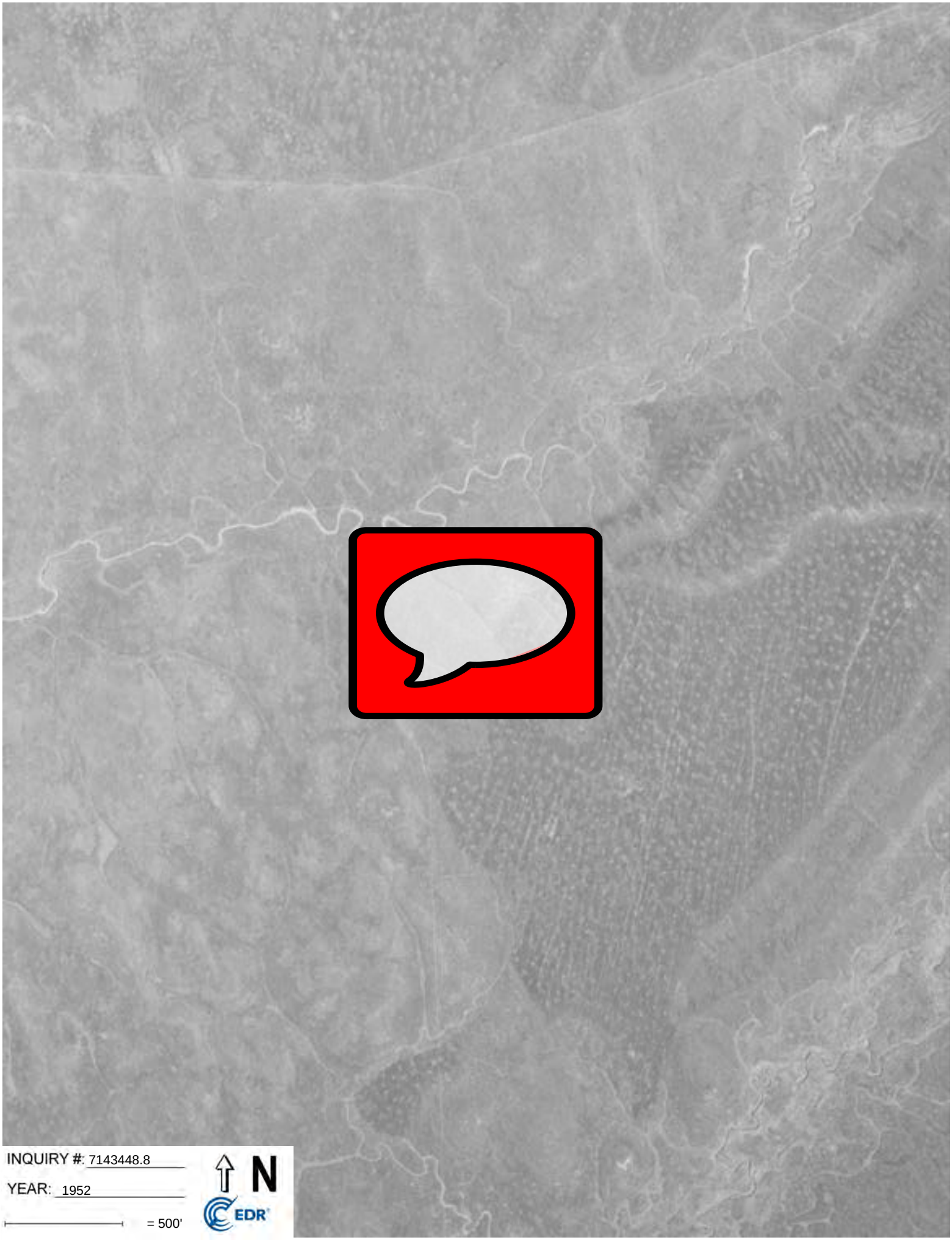
INQUIRY #: 7143448.8

YEAR: 1962

= 500'

N

EDR



INQUIRY #: 7143448.8

YEAR: 1952

= 500'

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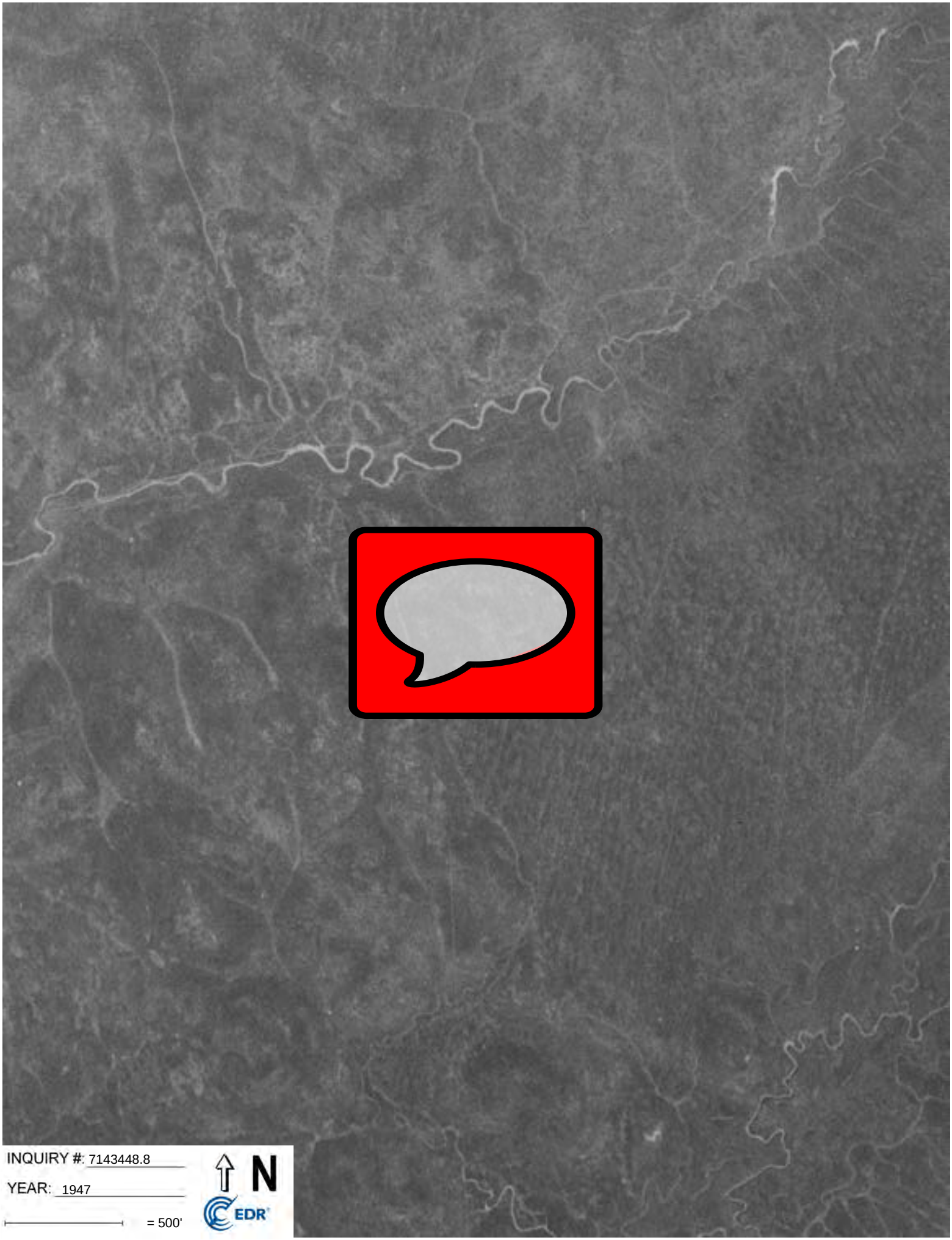
EDR



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YEAR: 1947

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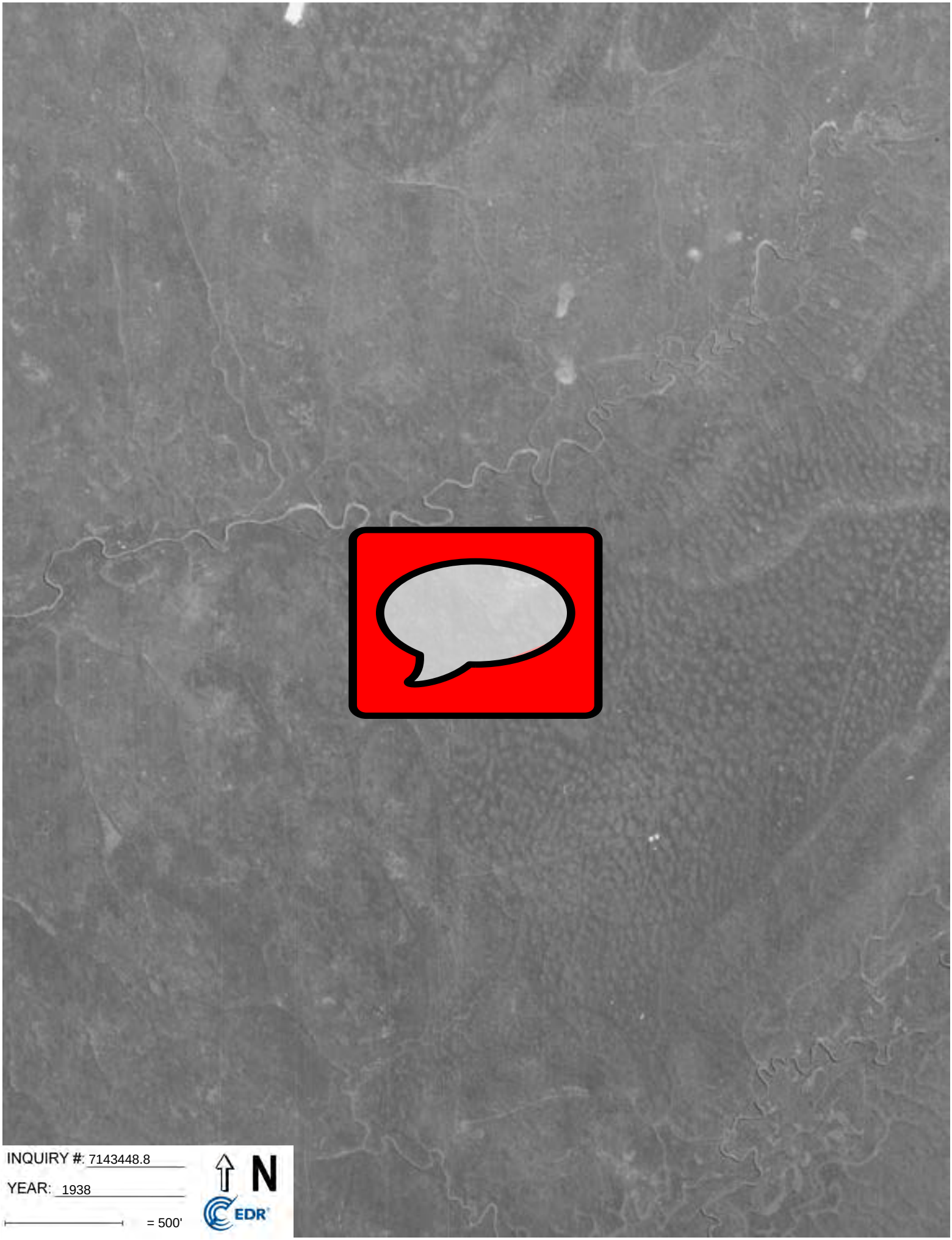
EDR



INQUIRY #: 7143448.8

YEAR: 1938

= 500'

N

EDR

APPENDIX E

William Jessup Apartments Ph I ESA

Not Reported

ROCKLIN, CA 95765

Inquiry Number: 7143448.4

October 10, 2022

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/10/22

Site Name:

William Jessup Apartments Ph
Not Reported
ROCKLIN, CA 95765
EDR Inquiry # 7143448.4

Client Name:

Geocon Consultants, Inc.
3160 Gold Valley Drive Suite 800
Rancho Cordova, CA 95742
Contact: Austin Perry

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Geocon Consultants, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# S2486-05-01

Project: William Jessup Apartments Ph

Coordinates:

Latitude:	38.820683 38° 49' 14" North
Longitude:	-121.297731 -121° 17' 52" West
UTM Zone:	Zone 10 North
UTM X Meters:	647778.49
UTM Y Meters:	4298254.29
Elevation:	135.51' above sea level

Maps Provided:

2018	1942
2015	1941
2012	1910
1992	1893
1981	1892
1975	1891
1967	
1953	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets

Roseville
2018
7.5-minute, 24000

2015 Source Sheets

Roseville
2015
7.5-minute, 24000

2012 Source Sheets

Roseville
2012
7.5-minute, 24000

1992 Source Sheets

Roseville
1992
7.5-minute, 24000
Aerial Photo Revised 1992

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1981 Source Sheets

Roseville
1981
7.5-minute, 24000
Aerial Photo Revised 1978

1975 Source Sheets

Roseville
1975
7.5-minute, 24000
Aerial Photo Revised 1975

1967 Source Sheets

Roseville
1967
7.5-minute, 24000
Aerial Photo Revised 1966

1953 Source Sheets

Roseville
1953
7.5-minute, 24000
Aerial Photo Revised 1949

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1942 Source Sheets

Markham Ravine
1942
15-minute, 62500
Aerial Photo Revised 1939

1941 Source Sheets

MARKHAM RAVINE
1941
15-minute, 62500

1910 Source Sheets

Roseville
1910
7.5-minute, 31680

1893 Source Sheets

Sacramento
1893
30-minute, 125000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1892 Source Sheets

Sacramento
1892
30-minute, 125000

1891 Source Sheets

Sacramento
1891
30-minute, 125000

Historical Topo Map

2018

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

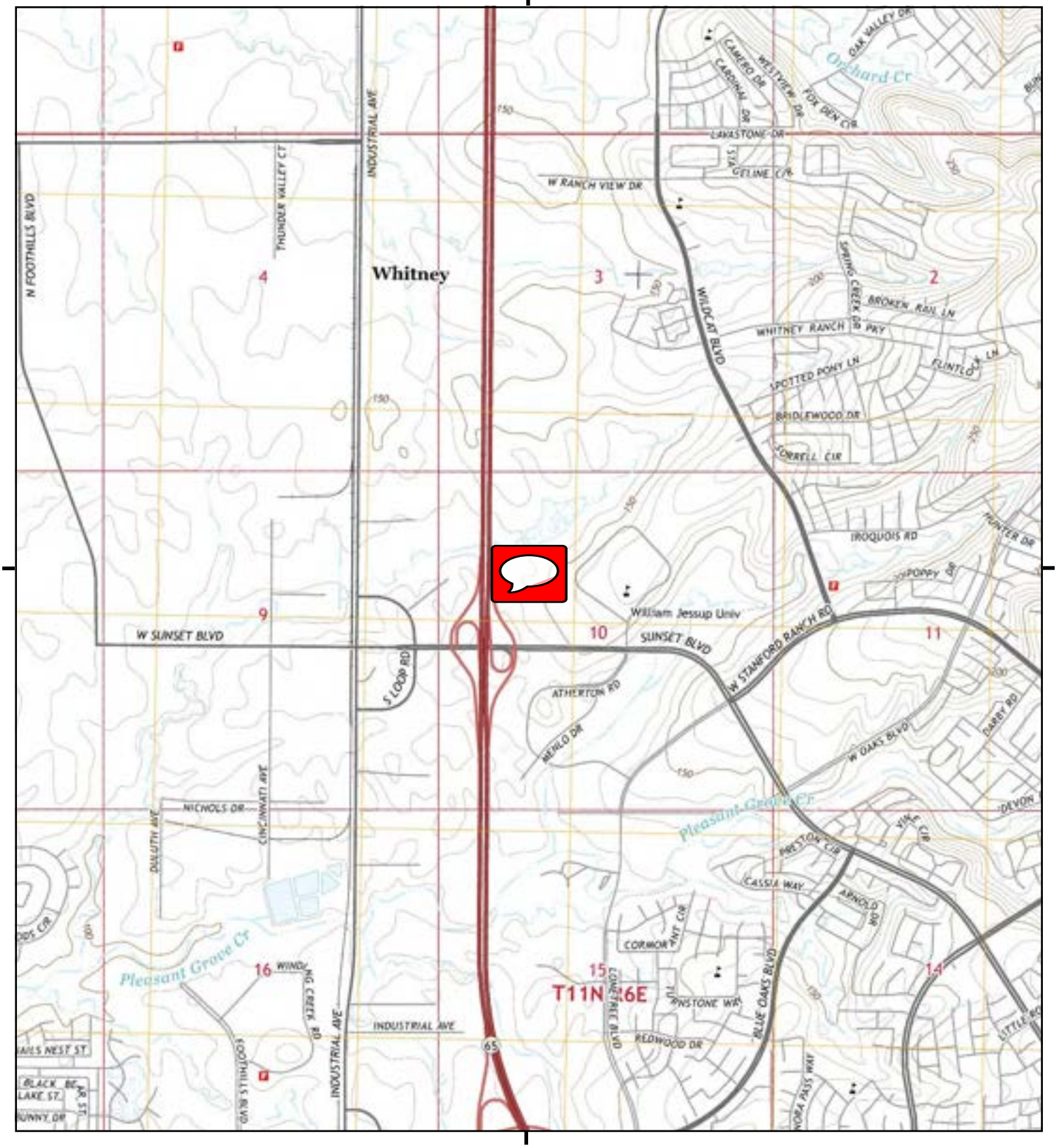
TP, Roseville, 2018, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

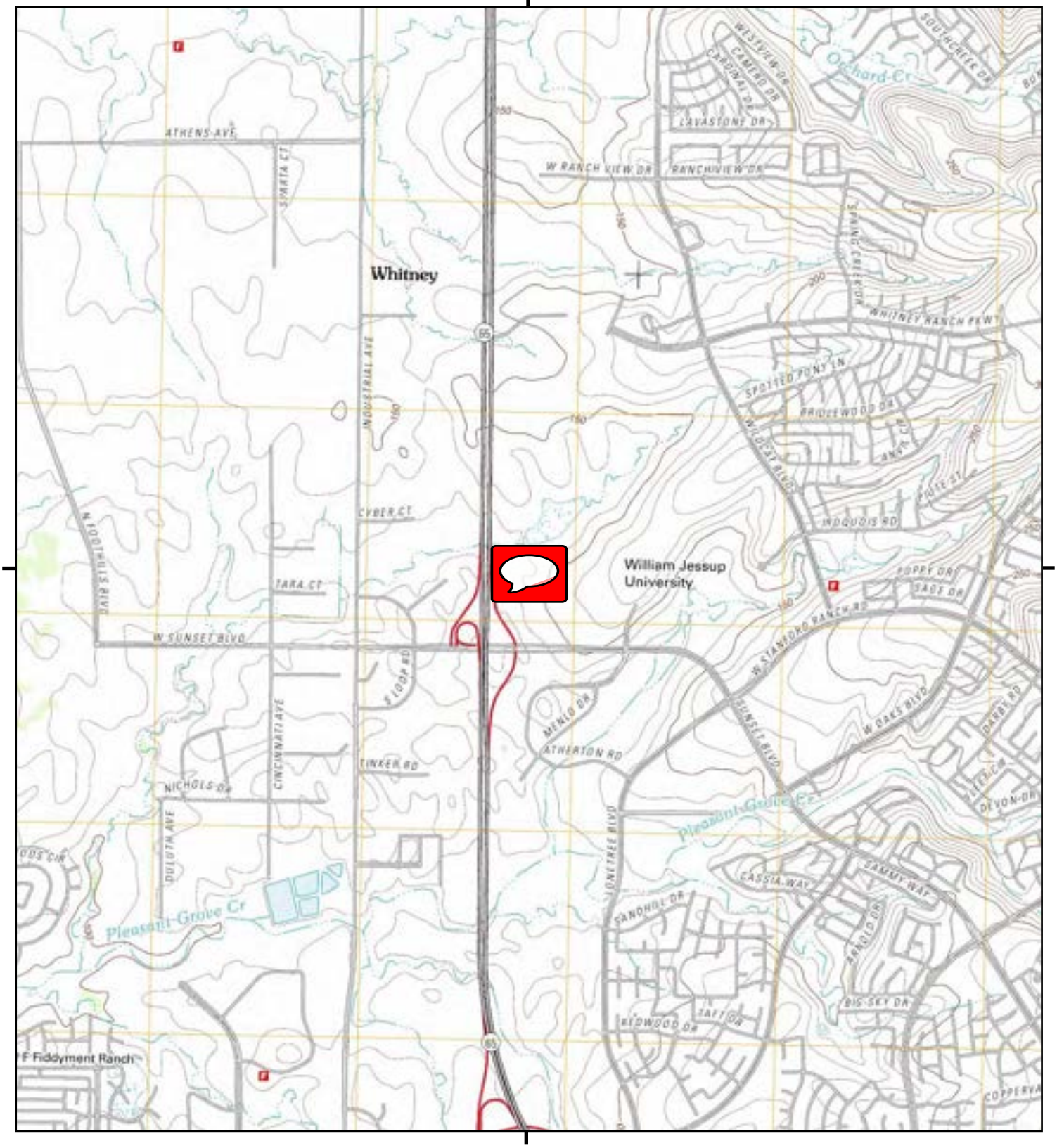
TP, Roseville, 2015, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

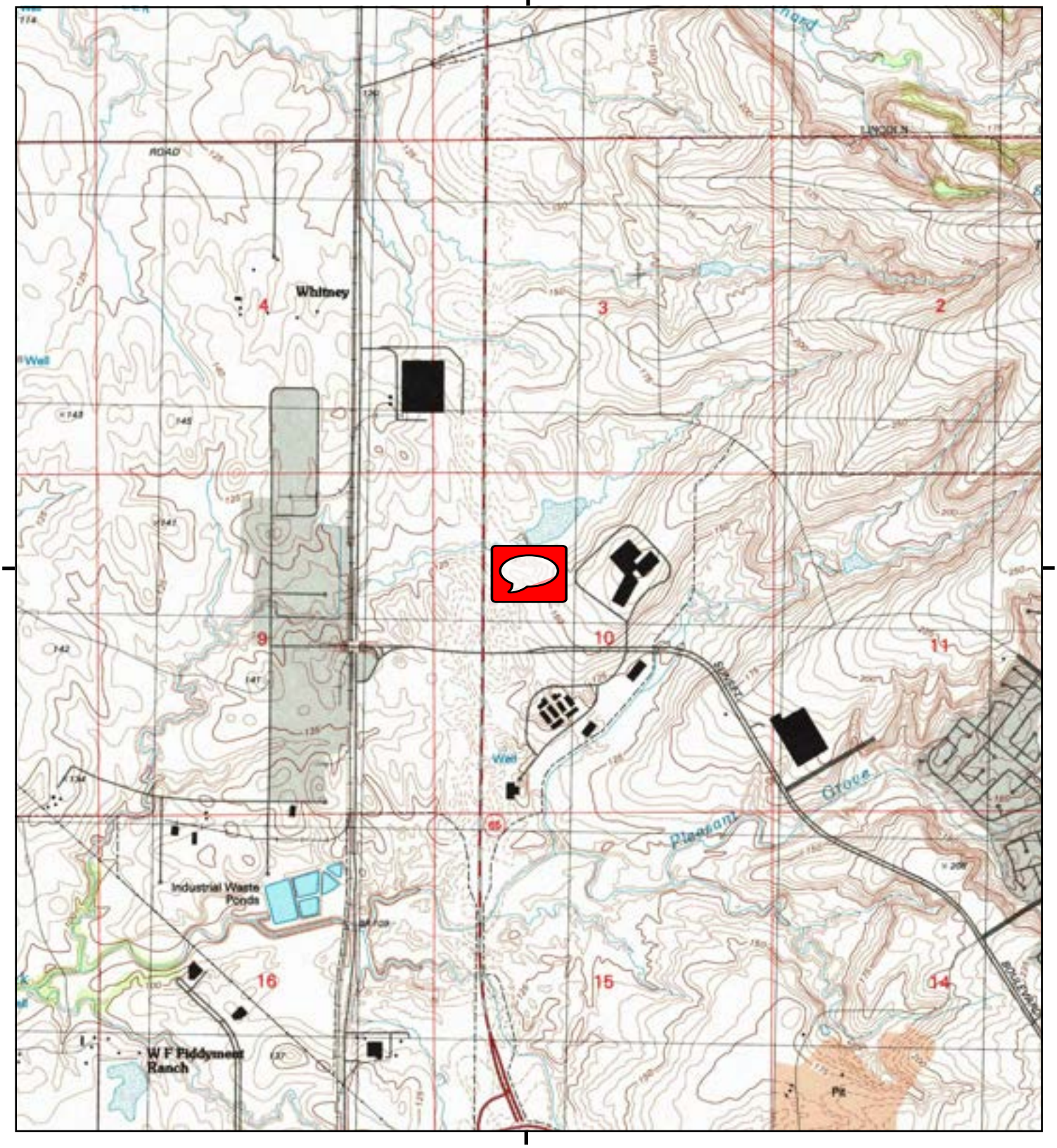
TP, Roseville, 2012, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N

Historical Topo Map

1992



This report includes information from the following map sheet(s).

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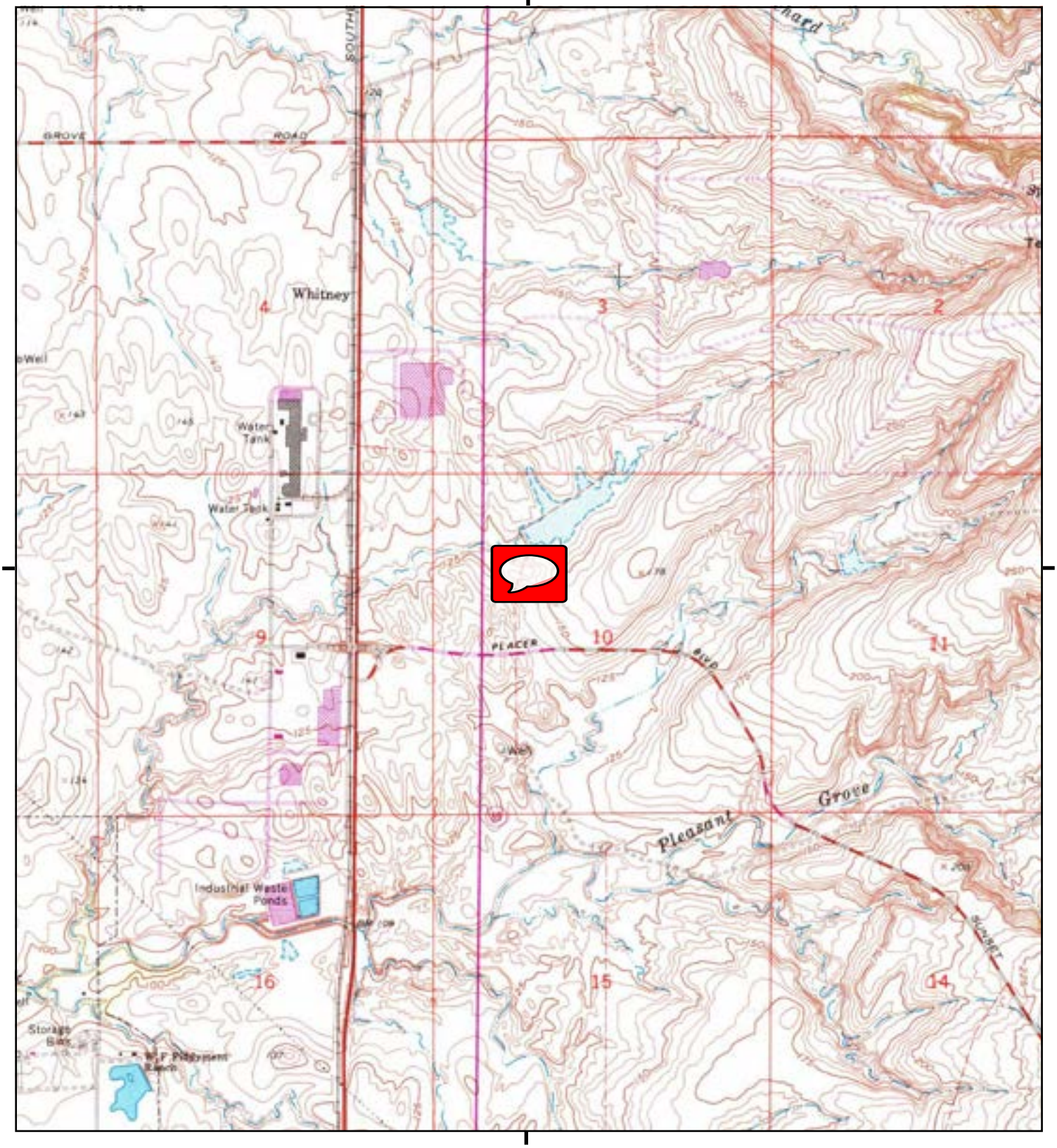
NW N NE
W E
SW S SE

TP, Roseville, 1992, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



This report includes information from the following map sheet(s).

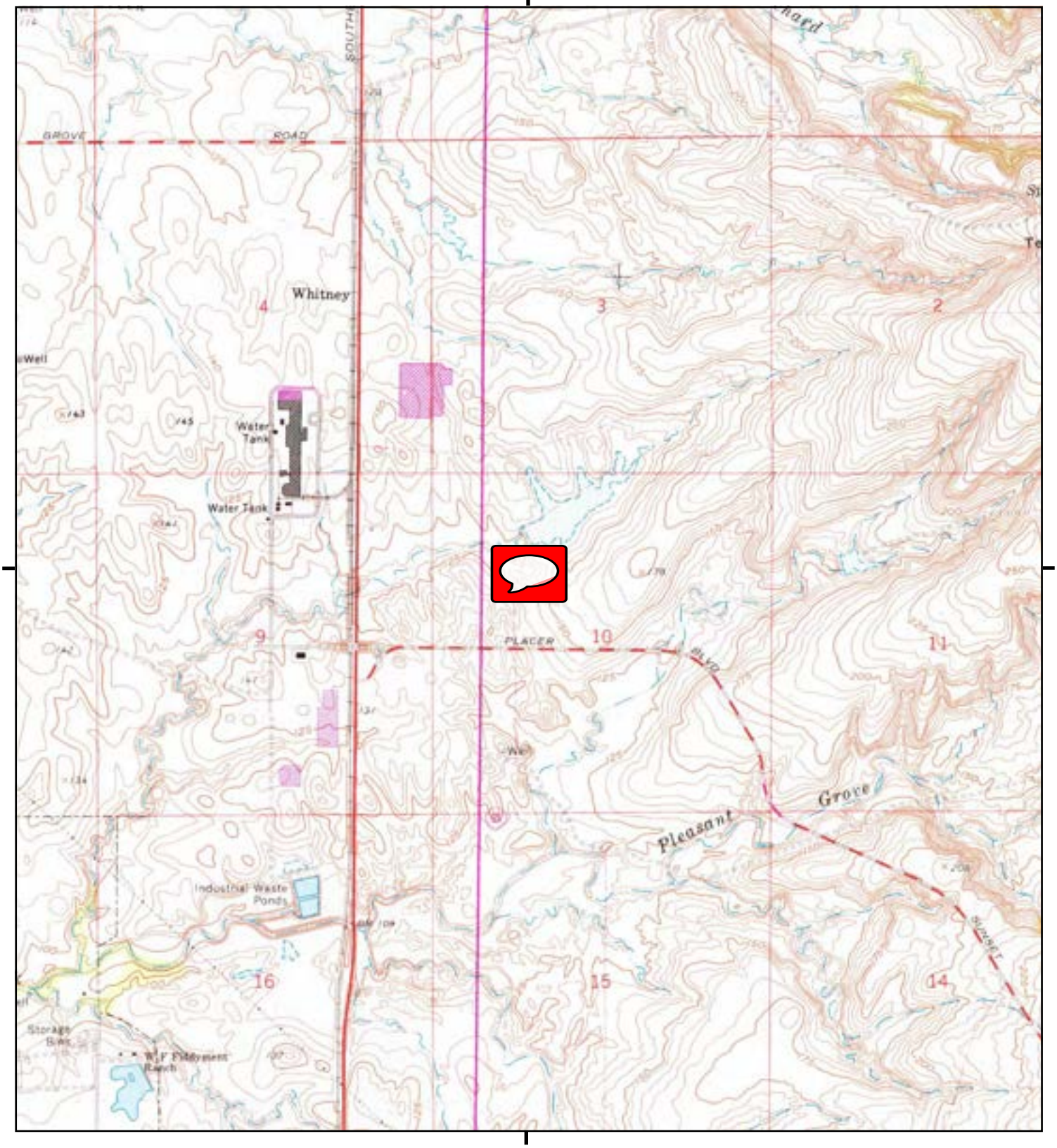
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Roseville, 1981, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

TP, Roseville, 1975, 7.5-minute

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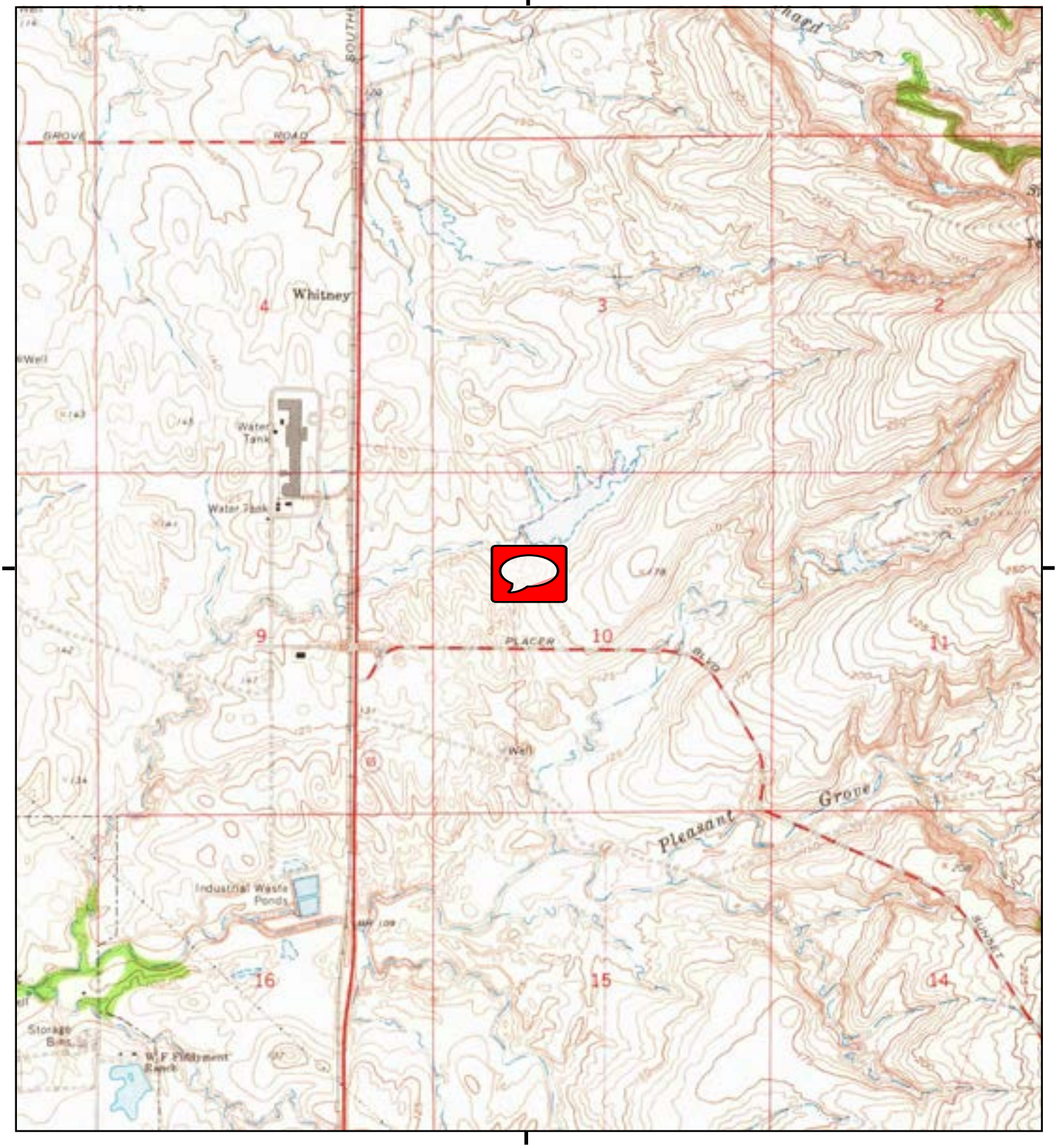
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

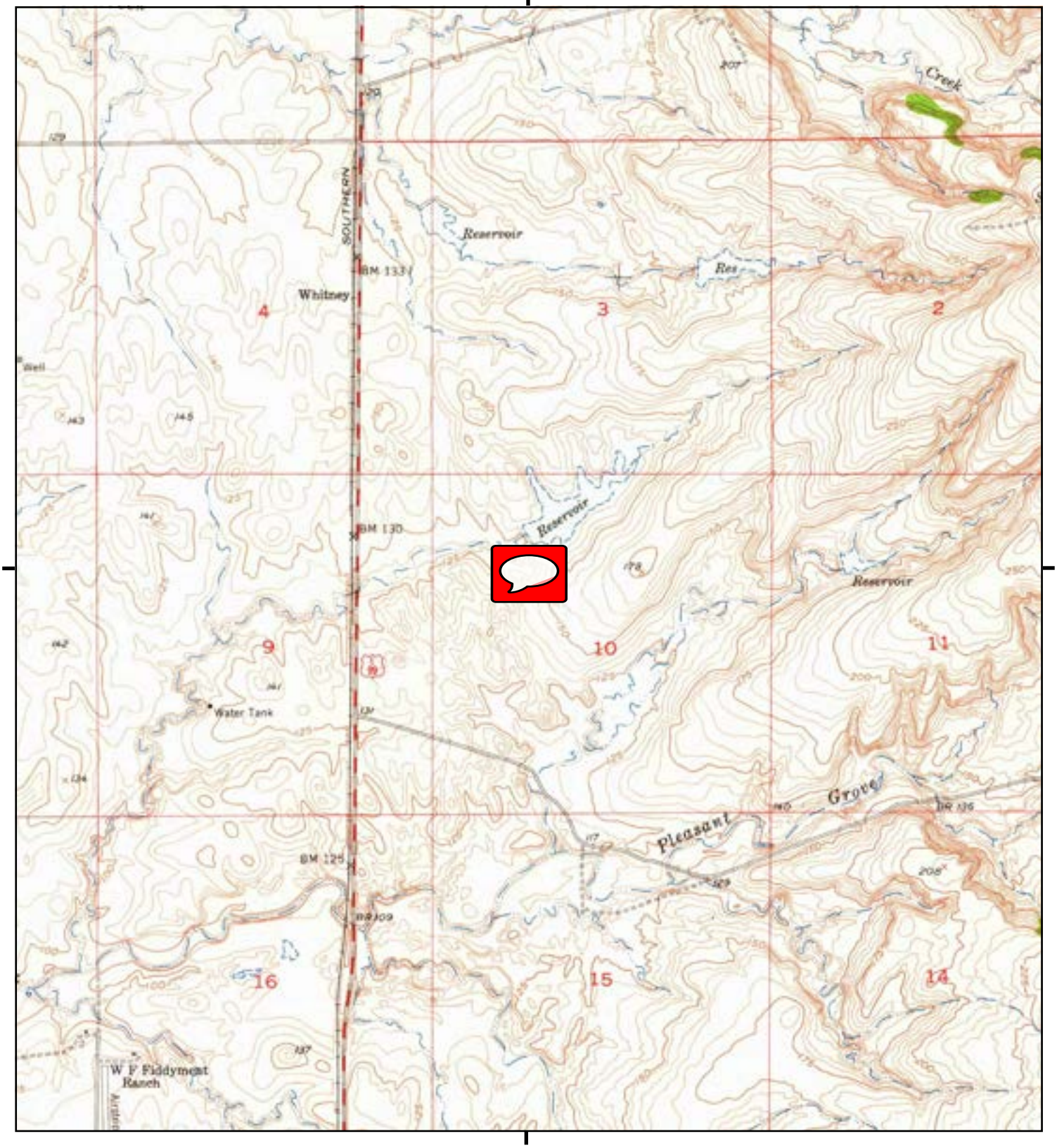
TP, Roseville, 1967, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N

Historical Topo Map

1953



This report includes information from the following map sheet(s).

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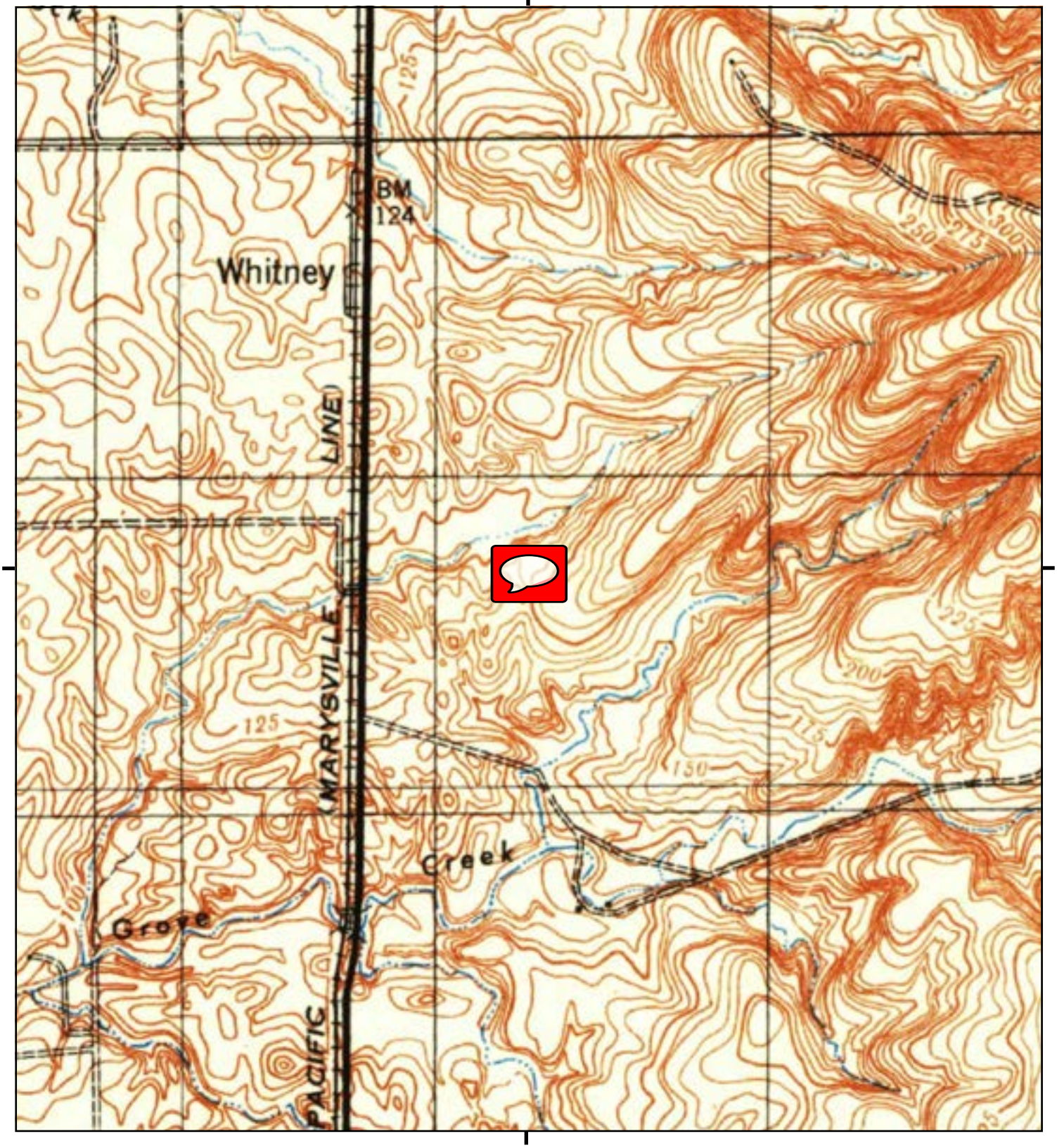
NW N NE
W E
SW S SE

TP, Roseville, 1953, 7.5-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



This report includes information from the following map sheet(s).

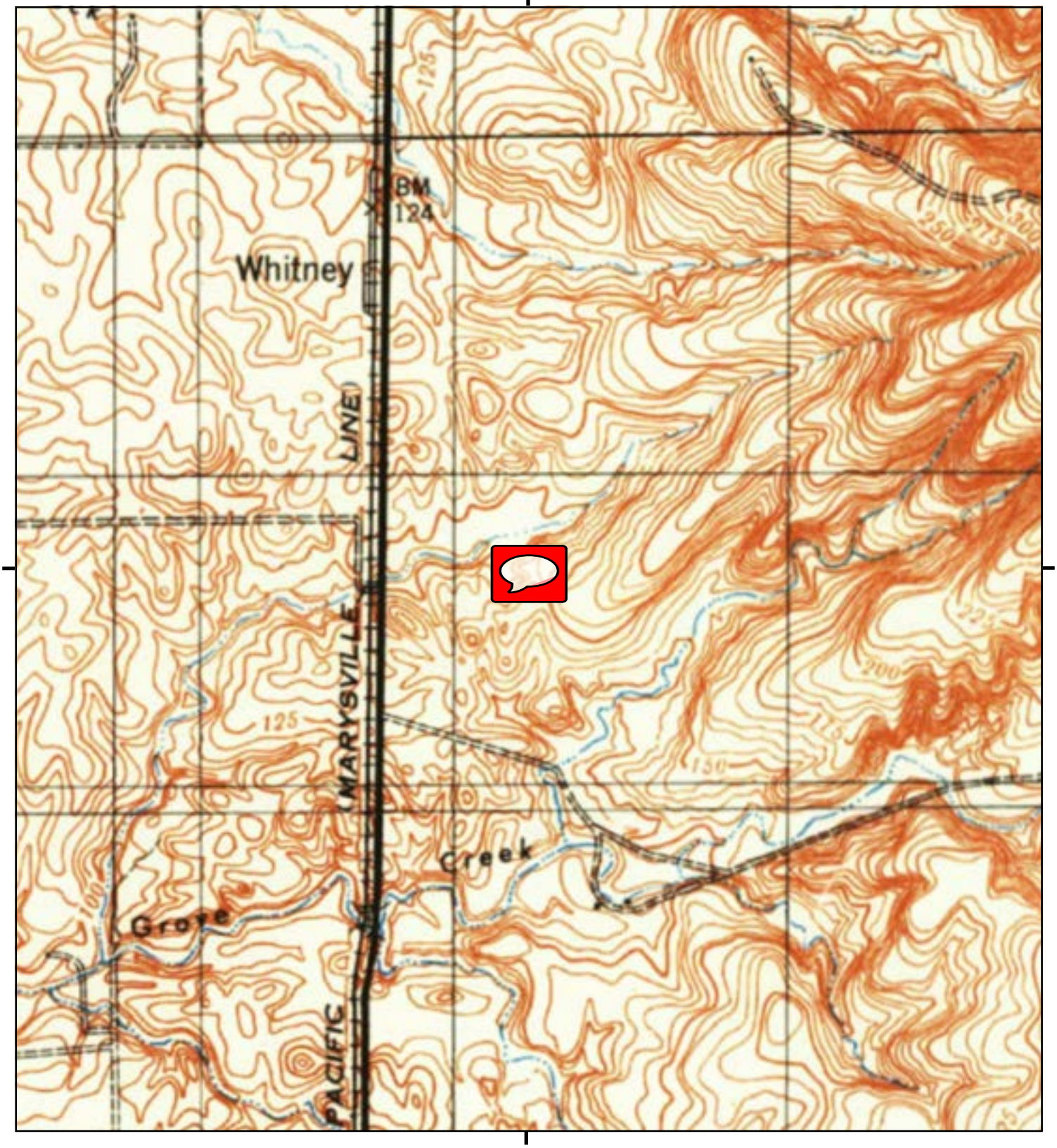
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Markham Ravine, 1942, 15-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



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NW N NE
W E
SW S SE

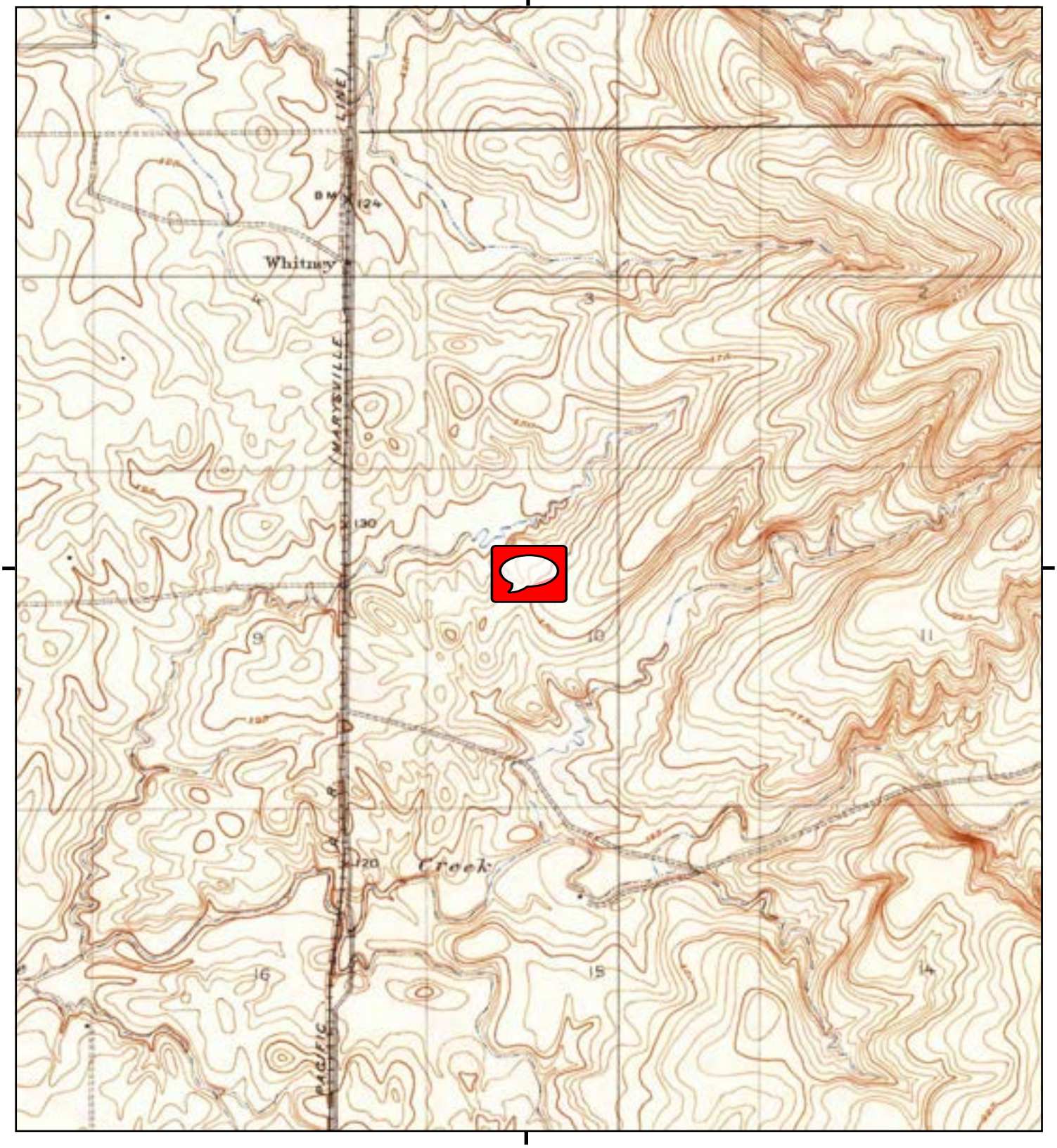
TP, MARKHAM RAVINE, 1941, 15-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N

Historical Topo Map

1910



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W E
SW S SE

TP, Roseville, 1910, 7.5-minute

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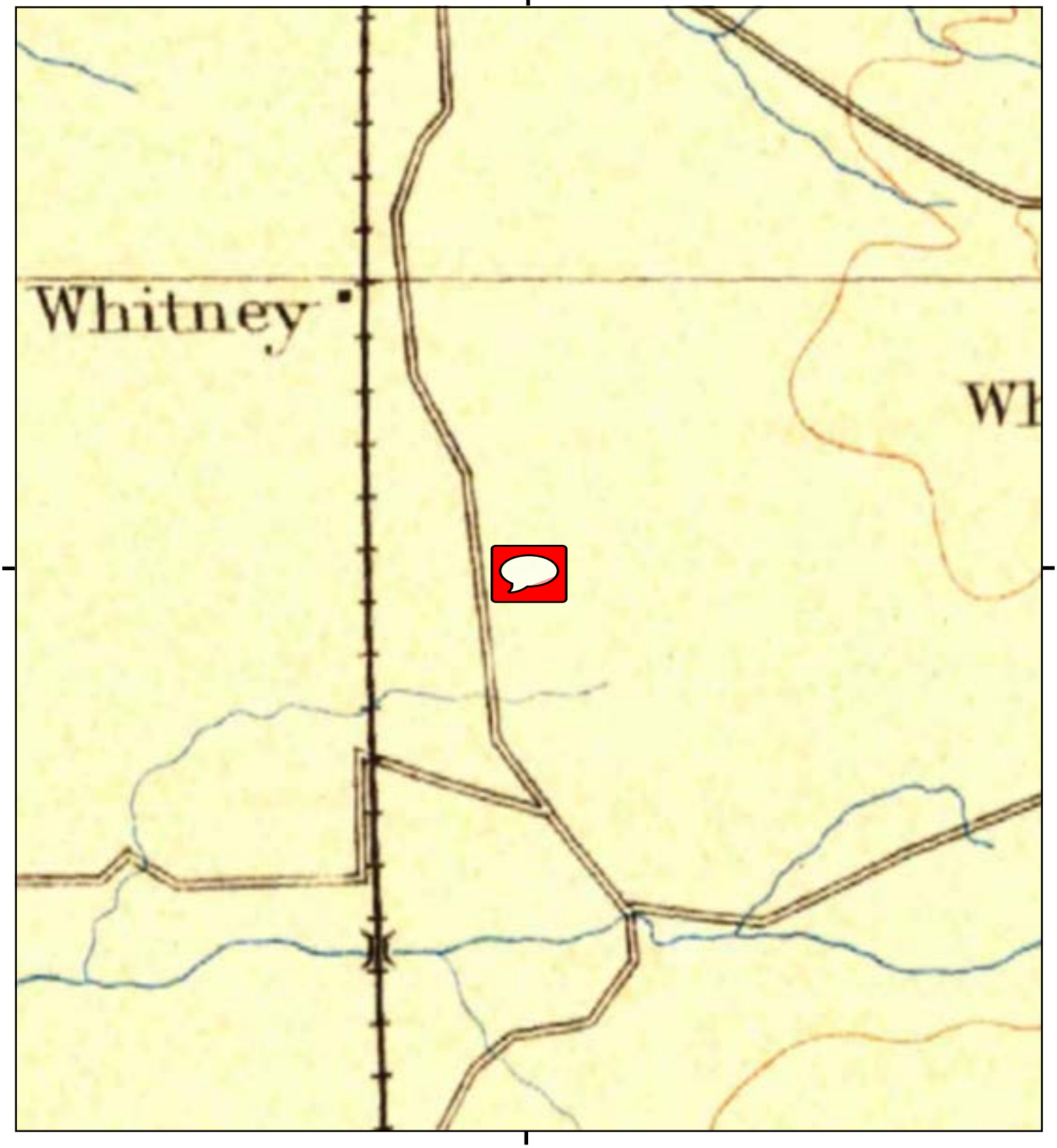
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



This report includes information from the following map sheet(s).

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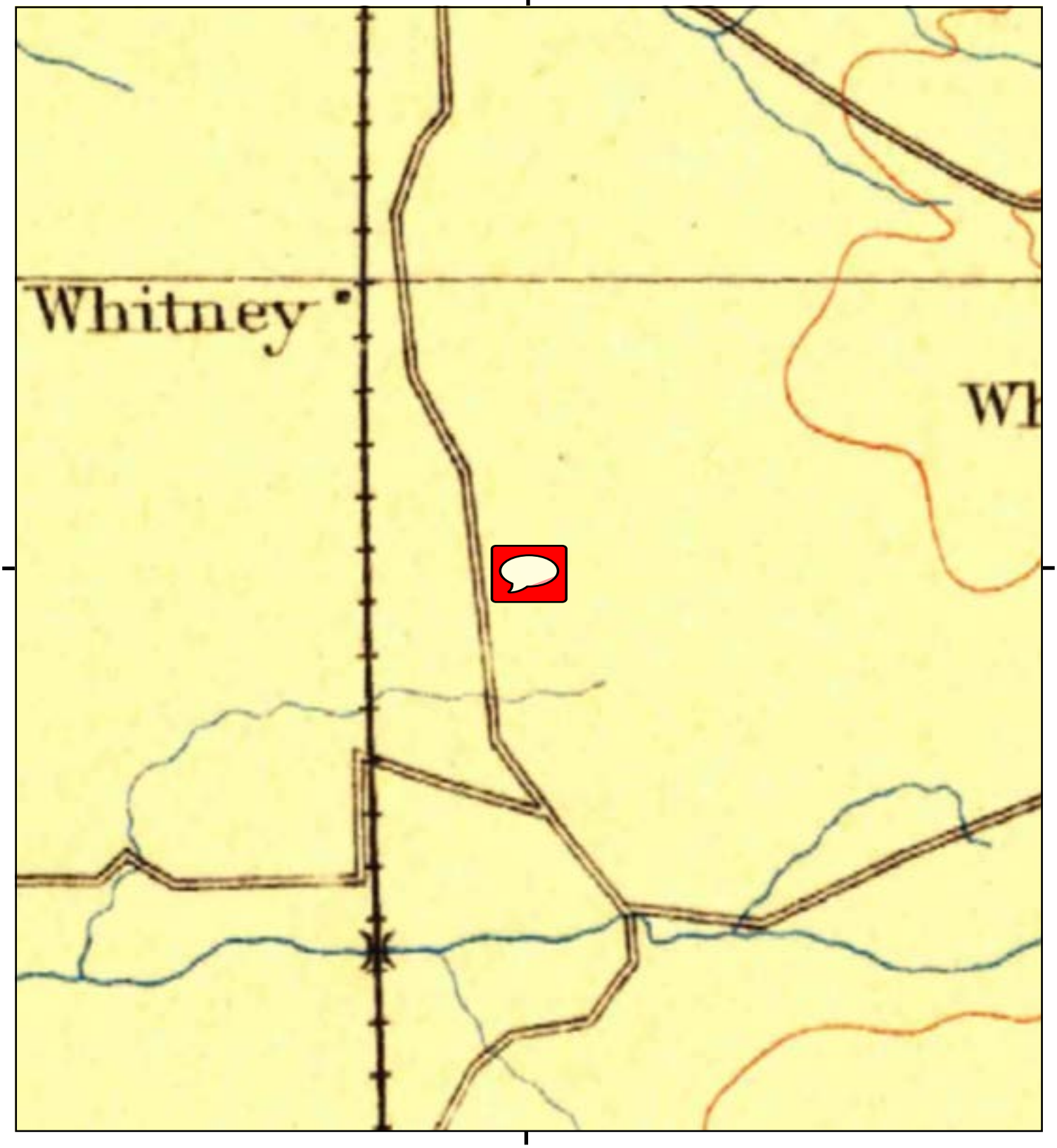
NW N NE
W E
SW S SE

TP, Sacramento, 1893, 30-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



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NW N NE
W E
SW S SE

TP, Sacramento, 1892, 30-minute

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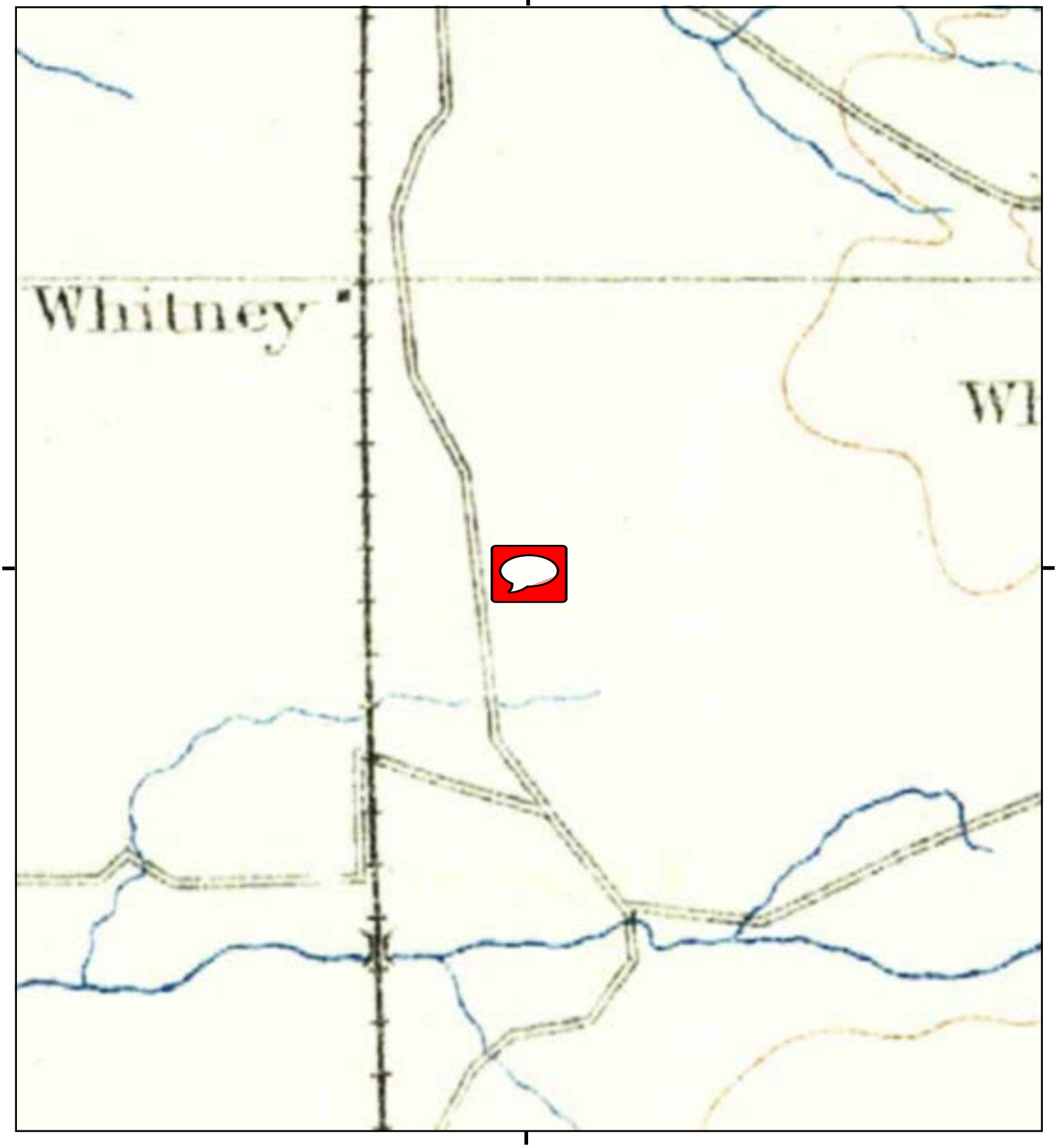
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Sacramento, 1891, 30-minute

SITE NAME: William Jessup Apartments Ph I ESA
ADDRESS: Not Reported
ROCKLIN, CA 95765
CLIENT: Geocon Consultants, Inc.

N

APPENDIX F

William Jessup Apartments Ph I ESA
Not Reported
ROCKLIN, CA 95765

Inquiry Number: 7143448.5
October 25, 2022

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

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Executive Summary

Findings

City Directory Images

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☐	☐	EDR Digital Archive
2005	☐	☐	EDR Digital Archive
2000	☐	☐	EDR Digital Archive
1995	☐	☐	EDR Digital Archive
1992	☐	☐	EDR Digital Archive
1990	☐	☐	Haines Criss-Cross Directory
1986	☐	☐	Haines Criss-Cross Directory
1981	☐	☐	Haines Criss-Cross Directory
1977	☐	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Not Reported
ROCKLIN, CA 95765

Year	CD Image	Source	

UNIVERSITY AVE

2017	pg A1	EDR Digital Archive	
2014	pg A2	EDR Digital Archive	
2010	-	EDR Digital Archive	Street not listed in Source
2005	-	EDR Digital Archive	Street not listed in Source
2000	-	EDR Digital Archive	Street not listed in Source
1995	-	EDR Digital Archive	Street not listed in Source
1992	-	EDR Digital Archive	Street not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1986	-	Haines Criss-Cross Directory	Street not listed in Source
1981	-	Haines Criss-Cross Directory	Street not listed in Source
1977	-	Haines Criss-Cross Directory	Street not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✔	-	EDR Digital Archive

UNIVERSITY AVE 2017

2121 COMPASS GROUP
WILLIAM JESSUP UNIVERSITY

Target Street	Cross Street	Source
✔	-	EDR Digital Archive

UNIVERSITY AVE 2014

711	ABEYTA, MELANIE
	ACEVES, ANDREW
	AHLFS, JAN
	ALLEN, LIANA C
	ARMSTRONG, RENE
	AVEY, GARY D
	AYERS, HEIDI L
	AZAR, MOHAMMAD N
	BELTRAN, ROSE
	BEVINS, ROBERT
	BINNAG, JENNIFER
	BOWER, PHILIP E
	BOWLING, KIMBERLY
	BRAZEL, JOAN E
	BRAZIL, ANITAR
	BURCH, DANIEL
	BYRD, A
	CAPUTO, TOM T
	CARRIOLO, PAULA
	CARROLL, BLAKE
	CATUBIG, CHRISA
	CHAUVET, BEVERLY A
	COLE, HEATHER
	COLE, STACY
	COSENTINO, KARISSA
	CRON, MELANIE
	CUSIMANO, RACHEL
	DARLING, LORI
	DAVIS, CAITLIN
	DENISTON, NATHAN
	DONALDSON, LORI
	DORCIK, ROLENE
	EARLE, INA
	ELLENBURG, SCOTT W
	FAHERTY, DANIEL J
	FLINK, VERONICA M
	GREENE, BRENDA D
	GRIMM, JODI L
	HAYMORE, LAUREN
	HEILSBERG, LAURA
	HERRIN, CALVIN
	HINTON, KRISTEN
	HOUSEMAN, APRIL N
	HOVENCAMP, SHAYNA
	HOWIDAWAHEB, ABDALLAH
	HUGG, LADAWNA M
	JASKSON, CHARISHA
	JOBKE, KARI A
	KALYUZHNYY, LYUDMILA N
	KENNEDY, KAYLA

UNIVERSITY AVE 2014 (Cont'd)

711 KNIGHT, HENRY P
KUTSENDA, CARRIE
LAL, JYOTISHNA
LANG, JAMES
LINFOOT, BETSY
LOUDER, MEGHAN
LOVE, RITA
MAHONEY, CAROLINE
MCKEIGHEN, DANIEL
MEDINA, MICHAEL A
MEEKER, ELIJAH
MENDEZ, REYES
METARELIS, HELEN M
MIAKA LLC
MICHAEL, THERESA
MOORE, KYLIE
MORGAN, BETH O
MURPHY, CHANTEL
MURRAY, MELISSA B
NAKASU, ROBERT K
NOBILE, BRIAN F
ONEIL, RENEE
OVERTON, GEORGE R
PHILLIPS, LAURIE
POIRER, JOSEPH
REEDER, LISA M
SALAZAR, TANIA T
SCOTT, DAVID
SEBRELL, ROY A
SILCHUK, SERGEY
SIMS, DENISE I
SNYDER, SALLIE
STRANG, CHARLES J
SWEETON, DAN K
TARANTINO, RICHARD
TATE, THOMAS G
TETLEY, DAYLA J
THOMAS, HEATHER
TOOHEY, EMANUELA C
TRAN, NAOMI
VILLORENTE, BERNARDINO
WATSON, TAMATHA M
WHITNEY RANCH APARTMENTS
YANKTESH, SHIRLEY J

APPENDIX B

AQUATIC RESOURCES DELINEATION REPORT

DRAFT

Aquatic Resources Delineation Report

USA Rocklin Property

Placer County, California
January 2023

MADRONE ECOLOGICAL CONSULTING

Prepared for:
USA Properties Fund
3200 Douglas Blvd., Suite 200
Roseville, CA 95661

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone) 2023. DRAFT *Aquatic Resources Delineation Report for the USA Rocklin Property*. Prepared for USA Properties Fund. Published on 25 January 2023.

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USA Rocklin Property

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3.2 Soils ____ **3**
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Attachment B. Aquatic Resources Delineation
Attachment C. Plant Species Observed within the Study Area
Attachment D. Representative Site Photographs
Attachment E. Aquatic Resources Excel Spreadsheet
Attachment F. Request for Aquatic Resource Verification or Jurisdictional Determination Form

1.0 INTRODUCTION

This report presents the results of a delineation of aquatic resources within the USA Rocklin Property (Study Area) conducted by Madrone Ecological Consulting, LLC (Madrone). The approximately 22-acre Study Area is generally located west of University Avenue, south of Whitney Ranch Parkway, north of Sunset Boulevard, and east of Highway 65 within Section 10, Township 11 North, Range 6 East (MDB&M) of the "Roseville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2018), approximate Latitude 38.82112 and Longitude -121.297366 (**Figure 1**).

1.1 Contact Information

Project Proponent
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Property Owner
University Business Office
William Jessup University
2121 University Ave
Rocklin, CA 95765

Agent
Sarah VonderOhe
Madrone Ecological Consulting
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2.0 METHODOLOGY

Madrone senior biologist Bonnie Peterson conducted a delineation of aquatic resources within the Study Area on 8 December 2022. Water features and data points were mapped in the field with a GPS unit capable of sub-meter accuracy (Arrow 100). Three-parameter data (vegetation, soils, and hydrology) were collected at each data point, documenting wetland/waters or upland status, as appropriate. The delineation map was prepared in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a). The GPS data was overlaid on ortho-rectified aerial photographs (Maxar 2022).

The delineation was performed in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and the Sacramento District's *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* (USACE 2016b). U.S. Army Corps of Engineers (USACE) regulations (33 CFR 328) were used to determine the presence of Waters of the United States other than wetlands. The most recent *National Wetland Plant List* (USACE 2022) was used to determine the wetland indicator status of plants observed in the Study Area. The *Jepson eFlora* (Jepson Flora Project 2022) was used for plant nomenclature.

Accuracy of delineation results was somewhat limited due to the lack of mature vegetation. However, the Study Area overlaps slightly with the Rocklin 30 Study Area (SPK-2021-00609) to the south. While this site is under completely different ownership, existing knowledge of the overlapping areas throughout multiple

site visits aided in identification of immature or dead plant species. Additionally, the delineation results were heavily influenced by recent rains which ensured clear hydrology indicators during the December 2022 site visit.

3.0 EXISTING CONDITIONS

The Study Area is characterized by rocky rolling terrain gently sloping to the north at elevations of 150-130 feet above mean sea level. In 2005-2006, a paved utility road was installed, which bisects the Study Area and then wraps south along the western boundary. Culverts were installed along the utility road to ensure appropriate drainage to the northern portion of the Study Area. Surrounding properties include a vacant parcel to the south (Rocklin 30, SPK-2021-00609), a vacant parcel to the north containing a semi-natural pond, University Avenue and William Jessup University to the east, and Highway 65 to the west.

The Study Area is comprised primarily of annual grassland dominated by non-native annual grasses and forbes including Medusa head (*Elymus caput-medusea*), soft chess (*Bromus hordeaceus*), storks bill (*Erodium botrys*), dove's-foot crane's-bill (*Geranium molle*), wild oats (*Avena* sp.), annual rygrass (*Festuca perennis*), and hairy vetch (*Vici villosa*). Upland areas exhibited a moderate amount of dormant upland vegetation and many species were identifiably outside the growing season.

The Study Area contains approximately 1.751 acre of potential waters of the U.S. (**Figure 2**). Annual grasslands are interspersed with a number of vernal pools (0.111 acre) as well as three seasonal wetland swales (0.132 acre) that flow north towards a pond (1.342 acres) and an unnamed intermittent tributary to Pleasant Grove Creek (0.122 acre). Two educational/recreational lookout points are located south of the pond and include signage and seating to encourage bird watching.

3.1 Hydrology

Surface water in the Study Area is driven from south to north across the landscape by rainfall, which collects in seasonal depressions, concentrates in flowing seasonal wetland swales, or sheet flows across annual grasslands towards the north. The receiving water is a pond and the intermittent stream at the northern perimeter of the Study Area. The pond is a historic in-stream impoundment of the intermittent stream, and receives flows from open space to the northeast and from University Avenue. Flows are conveyed west and outflow into the intermittent stream, and then offsite under Highway 65. The Study Area receives run-on from an undeveloped parcel to the south, as well as through a roadside drainage along Highway 65. The intermittent stream is an unnamed tributary to Pleasant Grove Creek, which empties into the Pleasant Grove Creek Canal and drains to the Sacramento River via the Cross Canal.

The Study Area is in the Pleasant Grove Creek-Cross Canal Watershed (HUC 1802016103) (USGS 1978). The Study Area was in a moderate drought during the 2021-2022 rainy season (National Integrated Drought Information System, 2022); however, the Study Area received 10.47 more inches of rain in December 2022 than normal, and potential aquatic resources within the Study Area were inundated during the site visit.

3.2 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2023), five soil mapping units occur within the Study Area (**Figure 3**) (**Table 1**). All mapped units are either hydric soils or contain hydric components.

Table 1. Hydric Rating of Soils within the Study Area

Soil Unit Name	Map Unit Symbol	Hydric Rating
Exchequer-Rock outcrop complex, 2 to 30% slopes	145	Yes, in minor components in depressions and drainageways
Fiddyment-Kaseberg loams, 2 to 9% slopes;	147	Yes, in minor components in depressions and drainageways
Inks-exchequer complex, 2 to 25% slopes.	154	Yes, in minor components in depressions and drainageways
Alamo-Fiddyment complex, 0 to 5 percent slopes	104	Yes, in minor components in depressions and drainageways
Water	198	Yes

3.3 Driving Directions

The Study Area is located in an unaddressed parcel directly north of 2120 University Avenue, Rocklin, Ca 95765.

To access the Study Area from Sacramento, proceed from Highway 80 eastbound to Highway 65 northbound and exit Sunset Boulevard. Turn left on University Avenue and the Study Area is located approximately 0.3 miles northwest of the intersection of University Avenue and Sunset Boulevard, just west of William Jessup University. The Study Area is unfenced and a paved utility road bisects the Study Area to allow vehicle access.

4.0 RESULTS

A total of approximately 1.751 acres of aquatic resources were delineated within the Study Area, including approximately 0.243 acre of wetlands and 1.342 acres of other waters. Vernal pools, seasonal wetland swales, intermittent drainages, an intermittent stream, and a pond were delineated within the Study Area. A summary of the aquatic resources found on-site and their acreages are shown in **Table 2** below.

Table 2. Aquatic Resources Delineated within the Study Area

Resource Type	Acreage
Wetlands	
Vernal Pool	0.111
Seasonal Wetland Swale	0.132
Other Waters	
Intermittent Drainage	0.044
Intermittent Stream	0.122
Pond	1.342
Total	**1.751**

Data sheets are included in **Attachment A**. Maps of the aquatic resources within the Study Area are included as **Figure 2** and **Attachment B**, and a list of the plant species observed in the Study Area with their wetland indicator status is included in **Attachment C**. Representative site photographs are included in **Attachment D.** The USACE *Aquatic Resources Excel Spreadsheet* is included in **Attachment E**. Copies of the spreadsheet and GIS Shapefiles will be digitally transmitted with this document when it is submitted. Each of the feature types delineated within the Study Area are described below.

4.1 Vernal Pool

Nineteen (19) vernal pools were delineated in the Study Area (0.111 acre). Vernal pools scattered throughout the site are characterized as closed depressions, with underlying rock or clay hardpan. Vernal pools are inundated during the wet season, and typically dry by late spring and remain dry through the summer months. Vernal pools are differentiated from depressional seasonal wetlands based upon the longer hydroperiod and resultant predominance of vernal pool endemic plant species. The majority of the pools were saturated or inundated during the site visit and dominated by a low cover wetland. While vegetation was immature during the site visit, typical vernal pool plant species expected to occur within these features including goldfields (*Lasthenia* sp.), water montia (*Montia fontana*, OBL), cress (*Cardamine* sp.), and winged water starwort (*Callitriche marginata*, OBL).

Vernal pools in the Study Area range from depressions within poorly defined low-lying topographical swales, to isolated features with minimal surface water connection to adjacent pools functioning as isolated depressions. The second type is often found within relatively flat or gently sloping landscape areas. Vernal pools were generally differentiated from the seasonal wetland swales discussed below by their lack of surface water flow between features. Vernal pools exhibited primary hydrology indicators in the form of ponding during the December 2022 site visit, and hydric soils in the form of a depleted matrix (F3).

4.2 Seasonal Wetland Swale

Three (3) seasonal wetland swales (0.132 acre) were delineated within the Study Area. Seasonal wetlands were dominated by annual hairgrass (*Deschampsia danthonioides*, FACW), annual rygrass, and winged water starwort, in addition to immature wetland plant species. These seasonal wetland swales exhibit similar soils,

and hydrology to the on-site vernal pools, and show evidence of flow including erosion and sediment sorting. During high flow periods these swales overland flow to the off-site intermittent stream (IS-1) or the pond. During the December 2022 site visit seasonal wetland swale SWS-1 was flowing to a culvert under the utility road, which connects to intermittent drainage ID-1 and ID-2, and subsequently into intermittent stream IS-1. Both SWS-2 and SWS-3, while generally flowing in a northern direction, did not have a direct surface water connection to IS-1 or the pond during the December 2022 site visit. Areas downslope of each of these two seasonal wetlands exhibited upland characteristics, including a dominance of upland vegetation (DP-5 and DP-2). Additionally, both of these seasonal wetland swales are separated from the off-site intermittent tributary to Pleasant Grove Creek by the utility road and culverts.

4.3 Intermittent Drainage

Two intermittent drainage segments (0.044 acre) were mapped within the Study Area. Flows in these intermittent drainage segments (ID-1 and ID-2) are comingled runoff from Highway 65 and from on-site seasonal wetland swales. These drainages convey stormwater runoff from the adjacent highway for short periods of time after precipitation events, and do not convey any groundwater flow. However, the landscape position results in these drainages receiving flows from upslope seasonal wetland swales for a longer duration then a typical ephemeral feature driven purely by road runoff, and as such they were classified as intermittent. A review of aerial images (google earth, 2023) indicated ID-2 was created in 2007 during the installation of the paved perimeter road, and ID-1 appears to have been installed concurrent with Highway 65 drainage pre-1985 and improved during highway work in 2009.

The intermittent drainages are dominated by facultative and facultative upland grasses and forbs including annual ryegrass (FAC), soft chess (*Bromus hordeaceus*, FACU), Mediterranean barley (*Hordeum marinum subsp. Gussoneanum*, FAC), and spiny fruit buttercup (*Ranunculus muricatus*, FACW). Both intermittent drainage segments were inundated with water during the December site visit and flowing north into the intermittent stream. The drainages were mapped at the OHWM, which was identified based on the extent of scour, topographic breaks, existing hydrology, and changes in vegetation.

4.4 Intermittent Stream

An unnamed intermittent stream (0.122 acre) flows from east to west along the northern perimeter of the Study Area. The intermittent stream originates from two discharge points located along the pond to the east. The pond, as discussed in **Section 4.5** below, was historically a portion of this stream before being impounded by an earthen berm. The active channel of the stream is predominantly devoid of plants, with unvegetated gravel and dirt bars bordering vertical or nearly vertical banks along much of the margins of the OHWM. Vegetation along the banks of the creek largely consists of facultative and facultative upland grasses including annual ryegrass, soft chess, and Mediterranean barley. The stream also contains seasonal wetland swale habitats in low flow or seasonally ponded bottoms, dominated by annual rabbitfoot grass (*Polypogon monspeliensis*, FACW), tall nutsedge (*Cyperus eragrostis,* FACW), creeping spikerush (*Eleocharis macrostachya*, FACW) fringed willow-herb (*Epilobium ciliatum*, FACW), spiny fruit buttercup (FACW) and Carters buttercup (*Ranunculus bonariensis var. trisepalus*, OBL). The stream was flowing below the OHWM

during the December 2022 site visit. The intermittent stream was mapped at the OHWM, which was determined based on sediment sorting, drift deposits, water marks, vegetation, topographic breaks, and aerial imagery.

4.5 Pond

A constructed pond (1.342 acres) occurs in the northeast corner of the Study Area. The pond is an in-stream impoundment of water from an unnamed tributary to Pleasant Grove Creek (IS-1). Per aerial imagery (historicaerials.com, 2022) the pond was impounded with an earthen berm between 1943 and 1966. The 1955 USGS topographic map (USGS, 2022) indicates the pond as a reservoir. Since construction of the berm at the western end of the pond, the pond has contained perennial water in low areas that corresponds with the historic intermittent channel, along with seasonal wetland margins. Concurrent with increased development in the upstream watershed, the perennial portions of the pond have expanded since 2005. The center of the pond (not within the Study Area) has a longer inundation period and supports willows (*Salix* sp.) and marsh species (*Typha* sp.), and the interface between perennial water and seasonal wetland fringes shift depending on the water year.

The south and southeastern edges of the pond fall within the Study Area and are vegetated with a variety of native and non-native hydrophytes including annual rabbitfoot grass, cattail, creeping spikerush, pennyroyal (*Mentha pulegium*, OBL), water chickweed (*Montia fontana,* OBL), and hyssop loosestrife (*Lythrum hyssopifolia,* OBL). The pond was mapped at the upland limited of the seasonal wetland habitat (DP-1 and DP-2). Annual vegetation was immature during the site visit, and much of the emergent vegetation was closely cropped from grazing by waterfowl. As such, the pond limit was mapped based on the extent of hydric soil indicators, maximum inundation as shown on aerial images and in the field, and the lack of residual upland vegetation observed within adjacent uplands rather than field observations of wetland plant species along the pond fringe.

5.0 CONCLUSION

The 1.751 acres of aquatic resources mapped on the site are potentially jurisdictional, and the applicant is requesting a Preliminary Jurisdictional Determination for the Aquatic Resources Delineation Map of the Study Area (**Attachment B**). A JD request form is attached in **Attachment E.**

6.0 REFERENCES

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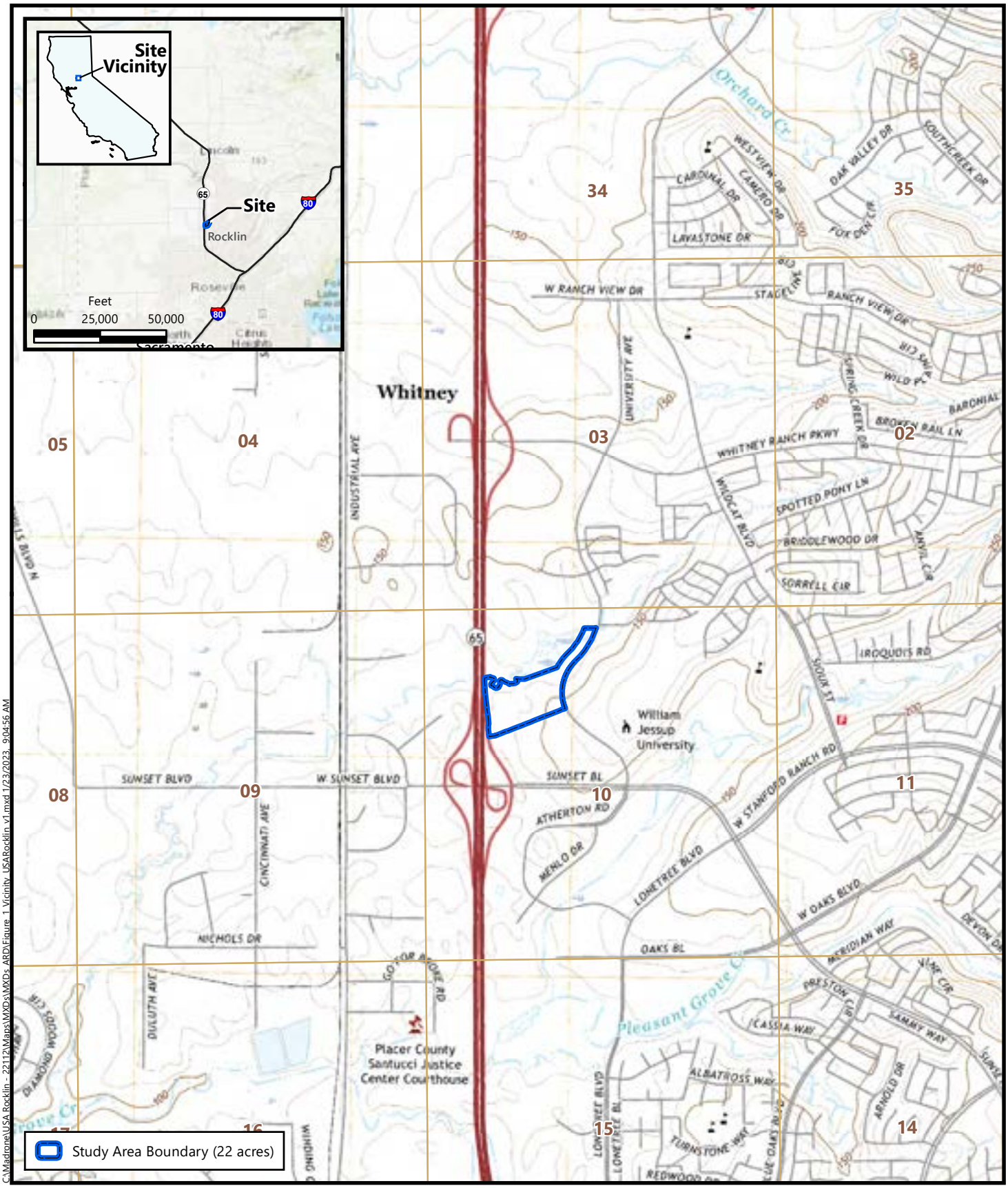
Figures

Figure 1. Vicinity Map

Figure 2. Aquatic Resources

Figure 3. Natural Resources Conservation Service Soils



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N

Feet
0
1,000
2,000

Source: United States Geologic Survey, 2021.
"Roseville, California" 7.5-Minute Topographic Quadrangle
Section 10, Township 11 North, Range 6 East.
Longitude -121.297366, Latitude 38.821112

Figure 1
Site and Vicinity

USA Rocklin
Rocklin, Placer County, California

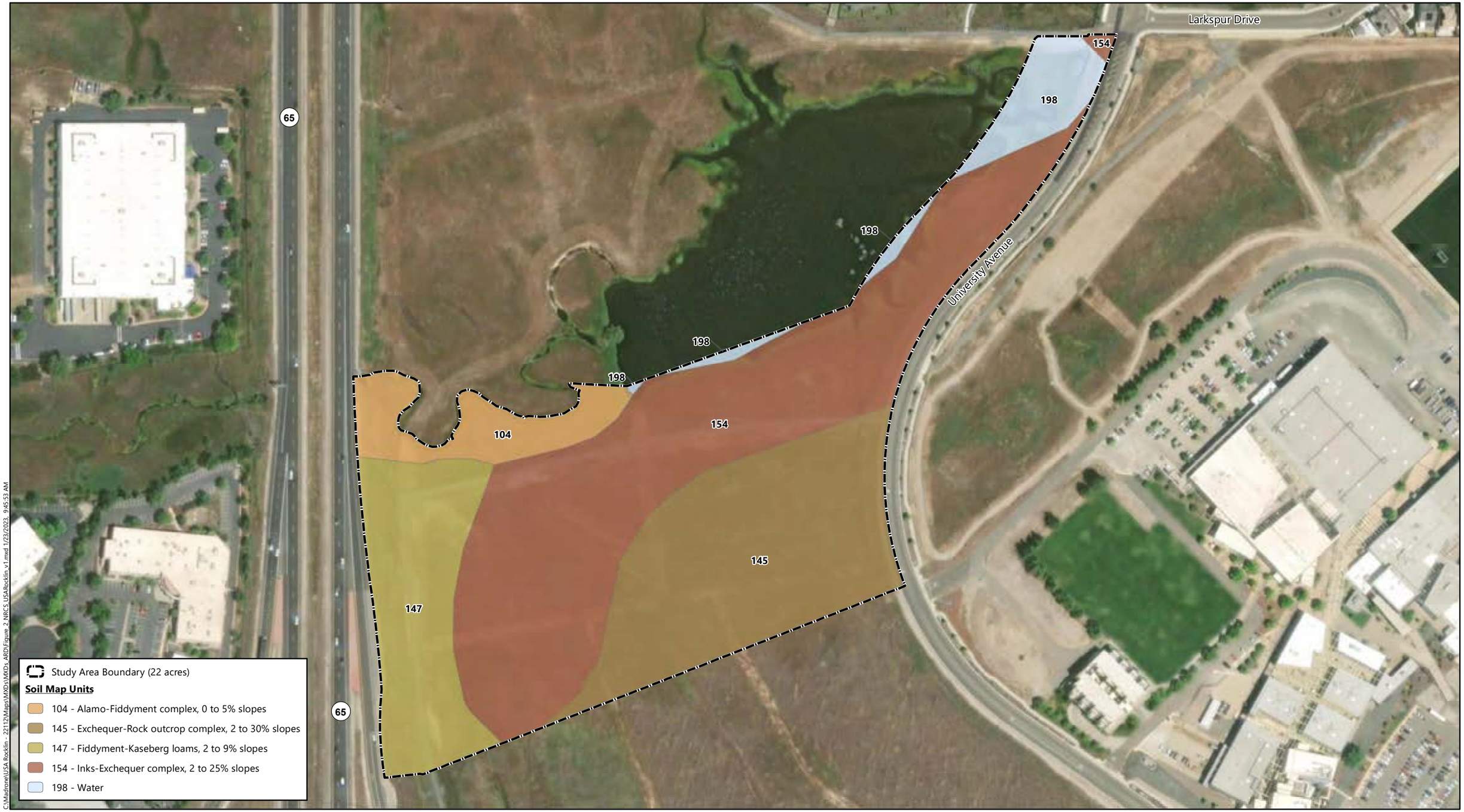
N

Feet
0 100 200

Aerial Source: Maxar, 26 April 2022.

Figure 2
Aquatic Resources

USA Rocklin
Rocklin, Placer County, California



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N

0 100 200 Feet

Soil Survey Source: *USDA, Soil Conservation Service. Soil Survey Geographic (SSURGO) database for Placer County, California, Western Part*
Aerial Source: Maxar, 26 April 2022.

Figure 3
Natural Resources Conservation Service Soils

USA Rocklin
Rocklin, Placer County, California

Attachments

Attachment A. Arid West Wetland Determination Data Forms

Attachment B. Aquatic Resources Delineation

Attachment C. Plant Species Observed within the Study Area

Attachment D. Representative Site Photographs

Attachment E. Aquatic Resources Excel Spreadsheet

Attachment F. Request for Aquatic Resource Verification or Jurisdictional Determination Form

Attachment A

Arid West Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: USA Rocklin Property City/County: Rocklin, Placer County Sampling Date: 12/08/22

Applicant/Owner: USA Properties Fund State: CA Sampling Point: DP 1

Investigator(s): Bonnie Peterson Section, Township, Range: Section 10, Township 11 North, Range 6 East.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.82166724 Long: -121.2959108 Datum: NAD 83

Soil Map Unit Name: 154 - Inks-Exchequer complex, 2 to 25% slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No **X**	**Is the Sampled Area within a Wetland?** Yes _____ No **X**
Hydric Soil Present?	Yes **X**	No _____	
Wetland Hydrology Present?	Yes **X**	No _____	

Remarks: Upland point selected downslope of culvert under the paved utility road and adjacent to seasonal wetland habitat associated with the pond.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	

Herb Stratum (Plot size: 1 meter^2)			
1. *Elymus caput-medusae*	60	YES	UPL
2. *Holocarpa virgata*	5	NO	UPL
3. *Erodium botrys*	10	NO	FACU
4. *Bromus hordeaceus*	10	NO	FACU
5.			
6.			
7.			
8.			
	95	=Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 0* % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**0**	x3 =	**0**
FACU species	**20**	x4 =	**80**
UPL species	**65**	x5 =	**325**
Column Totals:	**70** (A)		**405** (B)

Prevalence Index = B/A = **5.8**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No **X**

Remarks:*thatch

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					Sandy loam	Cobbles
4-12	10 YR 4/2	95	5 YR 4/6	5	C	PL	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water at 6" influenced by recent rains.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: USA Rocklin Property City/County: Rocklin, Placer County Sampling Date: 12/08/22

Applicant/Owner: USA Properties Fund State: CA Sampling Point: DP 2

Investigator(s): Bonnie Peterson Section, Township, Range: Section 10, Township 11 North, Range 6 East.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.8217047 Long: -121.295904 Datum: NAD 83

Soil Map Unit Name: 154 - Inks-Exchequer complex, 2 to 25% slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Point located in uppermost reaches of seasonal wetland habitat that rings the pond.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	

Herb Stratum (Plot size: 1 meter^2)			
1. *Holocarpa virgata*	1	NO	UPL
2. *Bromus hordeaceus*	30	YES	FACU
3. *Erodium botrys*	30	YES	FACU
4.			
5.			
6.			
7.			
8.			
	61	=Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 39 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**0**	x3 =	**0**
FACU species	**30**	x4 =	**120**
UPL species	**1**	x5 =	**5**
Column Totals:	**31** (A)		**125** (B)

Prevalence Index = B/A = **4.0**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

Remarks: Vegetation in immature. The sample point lacks the thatch and residual dry matter typical of the adjacent upland areas.

SOIL

Sampling Point: DP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/2	95	5 YR 4/6	5	C	PL	Sandy loam	Cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 10

Hydric Soil Present? Yes X No ___

Remarks: Gravel and rock at 10".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0.25

Water Table Present? Yes X No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Shallow surface water present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: USA Rocklin Property City/County: Rocklin, Placer County Sampling Date: 12/08/22

Applicant/Owner: USA Properties Fund State: CA Sampling Point: DP 3

Investigator(s): Bonnie Peterson Section, Township, Range: Section 10, Township 11 North, Range 6 East.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.82133055 Long: -121.2964164 Datum: NAD 83

Soil Map Unit Name: 145 - Exchequer-Rock outcrop complex, 2 to 30% slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Point selected in ponding portion of vernal pool VP-17.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	

Herb Stratum (Plot size: 1 meter^2)			
1. *Elymus caput-medusae*	1	NO	UPL
2. *Holocarpa virgata*	1	NO	UPL
3. *Erodium botrys*	30	YES	FACU
4. *Bromus hordeaceus*	5	NO	FACU
5. *Hemizonia fitchii*	1	NO	FACU
6.			
7.			
8.			
	38	=Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 62 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	**36**	x4 =	**144**
UPL species	**2**	x5 =	**10**
Column Totals:	**38** (A)		**154** (B)

Prevalence Index = B/A = **4.1**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

Remarks: Vegetation in immature. The sample point lacks the thatch and residual dry matter typical of the adjacent upland areas.

SOIL

Sampling Point: DP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/2	95	5 YR 4/6	5	C	PL	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 10

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

ROCK

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: USA Rocklin Property City/County: Rocklin, Placer County Sampling Date: 12/08/22

Applicant/Owner: USA Properties Fund State: CA Sampling Point: DP 4

Investigator(s): Bonnie Peterson Section, Township, Range: Section 10, Township 11 North, Range 6 East.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope (%): 0%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.82138371 Long: -121.2964203 Datum: NAD 83

Soil Map Unit Name: 154 - Inks-Exchequer complex, 2 to 25% slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No **X**	**Is the Sampled Area within a Wetland?** Yes _____ No **X**
Hydric Soil Present?	Yes _____	No **X**	
Wetland Hydrology Present?	Yes _____	No **X**	

Remarks: Point selected in topographic rise between VP-16 and VP-17 south of utility road.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	

Herb Stratum (Plot size: 1 meter^2)			
1. *Elymus caput-medusae*	30	YES	UPL
2. *Holocarpa virgata*	5	NO	UPL
3. *Erodium botrys*	5	NO	FACU
4. *Bromus hordeaceus*	20	YES	FACU
5. *Avena fauta*	15	NO	UPL
6.			
7.			
8.			
	75	=Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**0**	x3 =	**0**
FACU species	**25**	x4 =	**100**
UPL species	**50**	x5 =	**250**
Column Totals:	**75** (A)		**350** (B)

Prevalence Index = B/A = **4.7**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No **X**

Remarks:

SOIL

Sampling Point: DP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	710 YR 3/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 10

Hydric Soil Present? Yes ___ No X

Remarks: Rocks and boulders throughout.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: USA Rocklin Property City/County: Rocklin, Placer County Sampling Date: 12/08/22

Applicant/Owner: USA Properties Fund State: CA Sampling Point: DP 5

Investigator(s): Bonnie Peterson Section, Township, Range: Section 10, Township 11 North, Range 6 East.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.82109075 Long: -121.2959108 Datum: NAD 83

Soil Map Unit Name: 154 - Inks-Exchequer complex, 2 to 25% slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No **X**	**Is the Sampled Area within a Wetland?** Yes _____ No **X**
Hydric Soil Present?	Yes _____	No **X**	
Wetland Hydrology Present?	Yes **X**	No _____	

Remarks: Downstream of VP-3 and north of a culvert under the utility road.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	

Herb Stratum (Plot size: 1 meter^2)			
1. *Elymus caput-medusae*	30	YES	UPL
2. *Holocarpa virgata*	1	NO	UPL
3. *Erodium botrys*	15	NO	FACU
4. *Hordeum marinum*	20	YES	FAC
5.			
6.			
7.			
8.			
	66	=Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 34 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**20**	x3 =	**60**
FACU species	**15**	x4 =	**60**
UPL species	**31**	x5 =	**155**
Column Totals:	**90** (A)		**275** (B)

Prevalence Index = B/A = **3.1**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No **X**

Remarks:

SOIL

Sampling Point: DP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks: Saturated at 6"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes X No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 5

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water at 6 inches due to recent rains, no oxidized rhizospheres indicating longer inundation periods.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: USA Rocklin Property City/County: Rocklin, Placer County Sampling Date: 12/08/22

Applicant/Owner: USA Properties Fund State: CA Sampling Point: DP 6

Investigator(s): Bonnie Peterson Section, Township, Range: Section 10, Township 11 North, Range 6 East.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.82106804 Long: -121.298359 Datum: NAD 83

Soil Map Unit Name: 154 - Inks-Exchequer complex, 2 to 25% slopes NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Located in vernal pool VP-3.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	=Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	

Herb Stratum (Plot size: 1 meter^2)			
1. *Bromus hordeaceus*	5	NO	FACU
2. *Holocarpa virgata*	1	NO	UPL
3. *Erodium botrys*	25	YES	FACU
4. *Hordeum marinum*	25	YES	FAC
5.			
6.			
7.			
8.			
	56	=Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 44 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**25**	x3 =	**75**
FACU species	**30**	x4 =	**120**
UPL species	**1**	x5 =	**5**
Column Totals:	**56** (A)		**200** (B)

Prevalence Index = B/A = **3.6**

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

Remarks: Vegetation in immature. The sample point lacks the thatch and residual dry matter typical of the adjacent upland areas and is currently inundated.

SOIL

Sampling Point: DP 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/2	?						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks: Soil is too wet to read properly after an hour of drying, due to surface hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 1

Water Table Present? Yes X No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

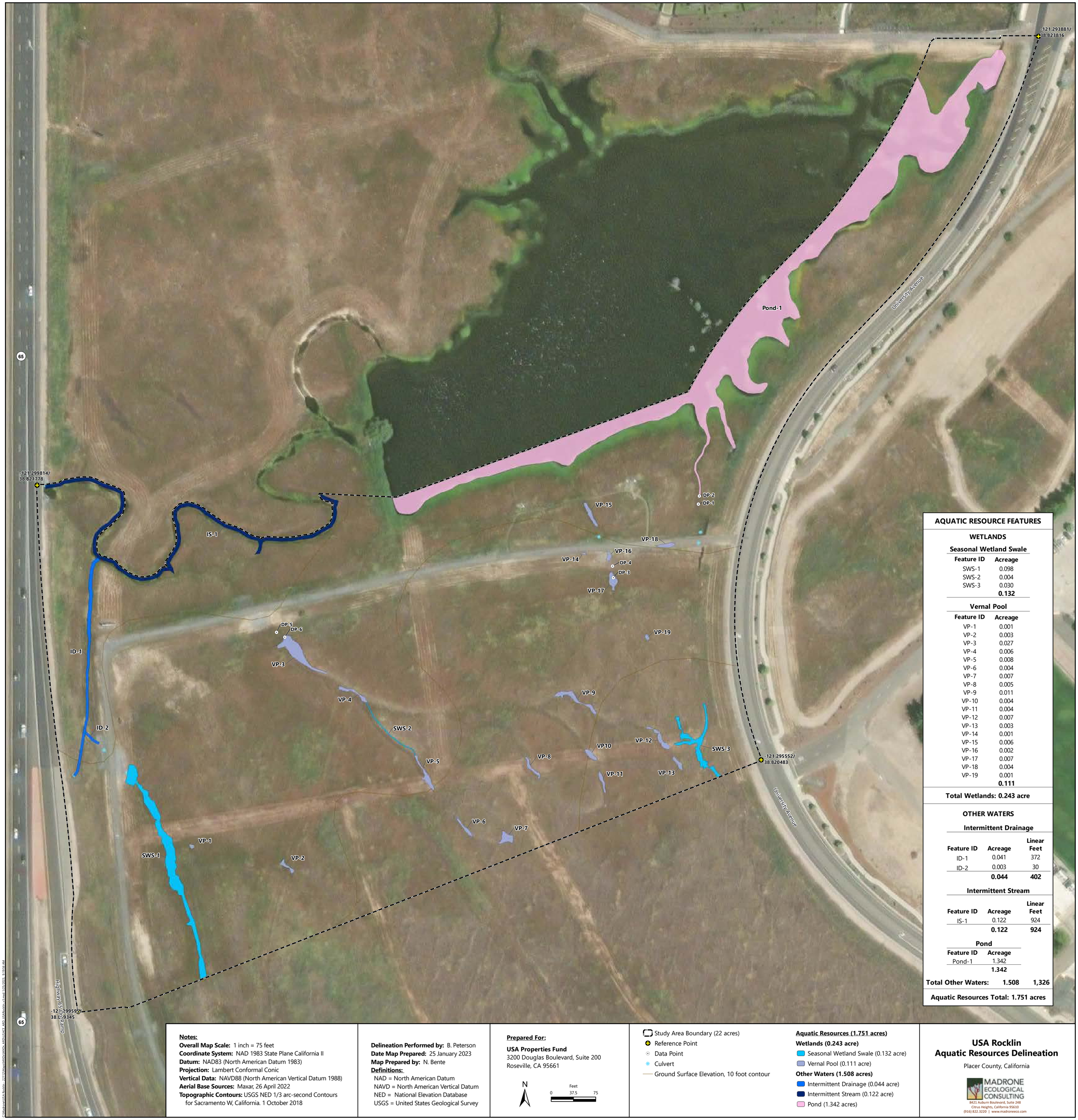
Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment B

Aquatic Resources Delineation Map



AQUATIC RESOURCE FEATURES

WETLANDS

Seasonal Wetland Swale

Feature ID	Acreage
SWS-1	0.098
SWS-2	0.004
SWS-3	0.030
	0.132

Vernal Pool

Feature ID	Acreage
VP-1	0.001
VP-2	0.003
VP-3	0.027
VP-4	0.006
VP-5	0.008
VP-6	0.004
VP-7	0.007
VP-8	0.005
VP-9	0.011
VP-10	0.004
VP-11	0.004
VP-12	0.007
VP-13	0.003
VP-14	0.001
VP-15	0.006
VP-16	0.002
VP-17	0.007
VP-18	0.004
VP-19	0.001
	0.111

Total Wetlands: 0.243 acre

OTHER WATERS

Intermittent Drainage

Feature ID	Acreage	Linear Feet
ID-1	0.041	372
ID-2	0.003	30
	0.044	**402**

Intermittent Stream

Feature ID	Acreage	Linear Feet
IS-1	0.122	924
	0.122	**924**

Pond

Feature ID	Acreage
Pond-1	1.342
	1.342

Total Other Waters: 1.508 1,326

Aquatic Resources Total: 1.751 acres

Notes:
Overall Map Scale: 1 inch = 75 feet
Coordinate System: NAD 1983 State Plane California II
Datum: NAD83 (North American Datum 1983)
Projection: Lambert Conformal Conic
Vertical Data: NAVD88 (North American Vertical Datum 1988)
Aerial Base Sources: Maxar, 26 April 2022
Topographic Contours: USGS NED 1/3 arc-second Contours for Sacramento W, California. 1 October 2018

Delineation Performed by: B. Peterson
Date Map Prepared: 25 January 2023
Map Prepared by: N. Bente
Definitions:
NAD = North American Datum
NAVD = North American Vertical Datum
NED = National Elevation Database
USGS = United States Geological Survey

Prepared For:
USA Properties Fund
3200 Douglas Boulevard, Suite 200
Roseville, CA 95661

N
Feet
0 37.5 75

- Study Area Boundary (22 acres)
- Reference Point
- Data Point
- Culvert
- Ground Surface Elevation, 10 foot contour

Aquatic Resources (1.751 acres)
Wetlands (0.243 acre)
- Seasonal Wetland Swale (0.132 acre)
- Vernal Pool (0.111 acre)

Other Waters (1.508 acres)
- Intermittent Drainage (0.044 acre)
- Intermittent Stream (0.122 acre)
- Pond (1.342 acres)

USA Rocklin
Aquatic Resources Delineation

Placer County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3220 | www.madroneeco.com

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Attachment C

Plant Species Observed within the Study Area

Plant Species Observed within the USA Rocklin Project Area
8 December 2022

Family / Species Name	Common name	Wetland Rating
APIACEAE		
Eryngium castrense	Great valley coyote-thistle	OBL
ASTERACEAE		
Achyrachaena mollis	Blow wives	FAC
Blennosperma nanum var. nanum	Common stickseed	FACW
Carduus pycnocephalus subsp. pycnocephalus	Italian thistle	UPL
Holocarpha virgata subsp. virgata	Slender tarweed	UPL
Pseudognaphalium luteoalbum	Pearly everlasting	FAC
Hypochaeris glabra	Smooth cat's-ear	UPL
Lasthenia fremontii	Fremont's goldfields	OB:
Lasthenia glaberrima	Smooth goldfields	OBL
Leontodon saxatilis subsp. saxatilis	Hairy hawkbit	FACU
Senecio vulgaris	Common groundsel	FACU
BORAGINACEAE		
Plagiobothrys greenei	Greene's spiny-nut popcornflower	FACW
Plagiobothrys stipitatus var. micranthus	Slender popcorn flower	FACW
Amsinckia menziesii	Common fiddleneck	UPL
Plagiobothrys greenei	Greene's spiny-nut popcornflower	FACW
Plagiobothrys nothofulvus	Rusty popcornflower, foothill snowdrops	FAC
Brassica nigra	Black mustard	UPL
Lepidium nitidum	Shining pepperweed	FAC
CRASSULACEAE		
Cressa truxillensis	Alkali weed	FACW
Crassula aquatica	Water pygmy weed	OBL
Crassula tillaea	Mediterranean pygmy weed	FACU
CYPERACEAE		
Eleocharis macrostachya	Creeping spikerush	OBL
Cyperus eragrostis	Tall nutsedge	FACW
EUPHORBIACEAE		
Croton setiger	Turkey-mullein	UPL

Plant Species Observed within the USA Rocklin Project Area
8 December 2022

Family / Species Name	Common name	Wetland Rating
FABACEAE		
Acmispon americanus var. americanus	Spanish lotus	UPL
Lupinus bicolor	Miniature lupine	UPL
Medicago polymorpha	Toothed medick	FACU
Trifolium depauperatum	Dwarf sack clover	FAC
Trifolium variegatum	White tip clover	FAC
Vicia villosa	Hairy vetch, winter vetch	UPL
Acmispon americanus var. americanus	Spanish lotus	UPL
Trifolium hirtum	Rose clover	UPL
GERANIACEAE		
Erodium botrys	Filaree	FACU
Geranium dissectum	Cut leaf geranium	UPL
JUNCACEAE		
Juncus bufonius	Toad rush	FACW
LAMIACEAE		
Lamium amplexicaule	Henbit	UPL
Mentha pulegium	Pennyroyal	OBL
LYTHRACEAE		
Lythrum hyssopifolia	Hyssop loosestrife	OBL
MARSILEACEAE		
Pilularia americana	American pillwort	OBL
MONTIACEAE		
Montia fontana	Water chickweed	OBL
OROBANCHACEAE		
Castilleja attenuata	Valley tassels	UPL
Triphysaria eriantha	Butter-and-eggs	UPL
Epilobium ciliatum	Fringed willow-herb	FACW
PAPAVERACEAE		
Eschscholzia lobbii	Frying pans	UPL

Plant Species Observed within the USA Rocklin Project Area
8 December 2022

Family / Species Name	Common name	Wetland Rating
PLANTAGINACEAE		
Veronica peregrina subsp. xalapensis	Purslane speedwell	FAC
POACEAE		
Aira caryophyllea	Silver hair grass	FACU
Avena barbata	Slender wild oat	UPL
Avena sativa	Cultivated oat	UPL
Briza minor	Annual quaking grass	FAC
Bromus hordeaceus	Soft chess	FACU
Deschampsia danthonioides	Annual hair grass	FACW
Elymus caput-medusae	Medusa head	UPL
Festuca microstachys	Pacific fescue	UPL
Festuca perennis	Annual rye grass	FAC
Hordeum marinum subsp. gussoneanum	Mediterranean barley	FAC
Polypogon monspeliensis	Annual rabbitfoot grass	FACW
RANUNCULACEAE		
Ranunculus bonariensis var. trisepalus	Carter's buttercup	OBL
Ranunculus muricatus	Spiny fruit buttercup	FACW
RUBIACEAE		
Galium aparine	Goose grass	

Attachment D

Representative Site Photographs

Photo DP-1 – Photo taken 8 January 2022, facing south.

Photo DP-2 – Photo taken 8 January 2022, facing south at the uppermost reach of the pond.

Photo DP-3 – Photo taken 8 January 2022, facing south.

Photo DP-4 – Photo taken 8 January 2022, facing north.

Photo DP-5– Photo taken 8 January 2022, facing south.

Photo DP-6– Photo taken 8 January 2022, facing northwest.

Intermittent Stream– Photo taken 8 January 2022, facing northeast from intermittent stream IS-1 towards the pond.

Pond– Photo taken 8 January 2022, facing northeast towards the pond.

Pond– Photo taken 8 January 2022, facing south from the northeast corner.

Intermittent drainage– Photo taken 8 January 2022, along the western boundary facing north at intermittent drainage ID-1 as it flows towards ID-2.

Attachment E

Aquatic Resources Excel Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
VP-1	CALIFORNIA	PEM		Area	0.001	ACRE	DELINEATE	38.82010405	-121.2989187	Pleasant Grove Creek
VP-2	CALIFORNIA	PEM		Area	0.003	ACRE	DELINEATE	38.82000841	-121.2983579	Pleasant Grove Creek
VP-3	CALIFORNIA	PEM		Area	0.027	ACRE	DELINEATE	38.82099859	-121.2982923	Pleasant Grove Creek
VP-4	CALIFORNIA	PEM		Area	0.006	ACRE	DELINEATE	38.82080665	-121.2979595	Pleasant Grove Creek
VP-5	CALIFORNIA	PEM		Area	0.008	ACRE	DELINEATE	38.82042444	-121.2975352	Pleasant Grove Creek
VP-6	CALIFORNIA	PEM		Area	0.004	ACRE	DELINEATE	38.82017874	-121.2973046	Pleasant Grove Creek
VP-7	CALIFORNIA	PEM		Area	0.007	ACRE	DELINEATE	38.82013133	-121.2970603	Pleasant Grove Creek
VP-8	CALIFORNIA	PEM		Area	0.005	ACRE	DELINEATE	38.82045298	-121.296905	Pleasant Grove Creek
VP-9	CALIFORNIA	PEM		Area	0.011	ACRE	DELINEATE	38.82076939	-121.2966508	Pleasant Grove Creek
VP-10	CALIFORNIA	PEM		Area	0.004	ACRE	DELINEATE	38.82051367	-121.2965597	Pleasant Grove Creek
VP-11	CALIFORNIA	PEM		Area	0.004	ACRE	DELINEATE	38.82039018	-121.2964924	Pleasant Grove Creek
VP-12	CALIFORNIA	PEM		Area	0.007	ACRE	DELINEATE	38.82058355	-121.2961469	Pleasant Grove Creek
VP-13	CALIFORNIA	PEM		Area	0.003	ACRE	DELINEATE	38.82047001	-121.2960429	Pleasant Grove Creek
VP-14	CALIFORNIA	PEM		Area	0.001	ACRE	DELINEATE	38.82144295	-121.2965902	Pleasant Grove Creek
VP-15	CALIFORNIA	PEM		Area	0.006	ACRE	DELINEATE	38.82162431	-121.2965503	Pleasant Grove Creek
VP-16	CALIFORNIA	PEM		Area	0.002	ACRE	DELINEATE	38.8214285	-121.2964424	Pleasant Grove Creek
VP-17	CALIFORNIA	PEM		Area	0.007	ACRE	DELINEATE	38.82131573	-121.296421	Pleasant Grove Creek
VP-18	CALIFORNIA	PEM		Area	0.004	ACRE	DELINEATE	38.82147769	-121.2961018	Pleasant Grove Creek
VP-19	CALIFORNIA	PEM		Area	0.001	ACRE	DELINEATE	38.8210531	-121.2962208	Pleasant Grove Creek
SWS-1	CALIFORNIA	PEM		Area	0.098	ACRE	DELINEATE	38.82004678	-121.2990586	Pleasant Grove Creek
SWS-2	CALIFORNIA	PEM		Area	0.004	ACRE	DELINEATE	38.82063124	-121.2977502	Pleasant Grove Creek
SWS-3	CALIFORNIA	PEM		Area	0.03	ACRE	DELINEATE	38.82056141	-121.2959314	Pleasant Grove Creek
ID-1	CALIFORNIA	R4		Area	0.041	ACRE	DELINEATE	38.82098807	-121.2995237	Pleasant Grove Creek
ID-2	CALIFORNIA	R4		Area	0.003	ACRE	DELINEATE	38.82060668	-121.299503	Pleasant Grove Creek
IS-1	CALIFORNIA	R4		Area	0.122	ACRE	DELINEATE	38.8215761	-121.2989487	Pleasant Grove Creek
Pond-1	CALIFORNIA	L2EM		Area	1.342	ACRE	DELINEATE	38.82269037	-121.2954596	Pleasant Grove Creek

Attachment F

Request for Aquatic Resource Verification or Jurisdictional Determination Form

REQUEST FOR AQUATIC RESOURCES DELINEATION VERIFICATION

OR JURISDICTIONAL DETERMINATION

A separate jurisdictional determination (JD) is not necessary to process a permit. An Approved Jurisdictional Determination (AJD) is required to definitively determine the extent of waters of the U.S. and is generally used to disclaim jurisdiction over aquatic resources that are not waters of the U.S., in cases where the review area contains no aquatic resources, and in cases when the recipient wishes to challenge the water of the U.S. determination on appeal. Either an Aquatic Resources Delineation Verification or a Preliminary Jurisdictional Determination (PJD) may be used when the recipient wishes to assume that aquatic resources are waters of the U.S. for the purposes of permitting. In some circumstances an AJD may require more information, a greater level of effort, and more time to produce. If you are unsure which product to request, please speak with your project manager or call the Sacramento District's general information line at (916) 557-5250.

I am requesting the product indicated below from the U.S. Army Corps of Engineers, Sacramento District, for the review area located at:

Street Address: None, University Ave City: Rocklin County: Placer
State: CA Zip: _____ Section: 10 Township: 11 N Range: 6 E
Latitude (decimal degrees): 38.82112 Longitude (decimal degrees): -121.463168 121.297366
The approximate size of the review area for the JD is 22 acres. **(Please attach location map)**

Choose one:
- ◉ I own the review area
- ◉ I hold an easement or development rights over the review area
- ◉ I lease the review area
- ◉ I plan to purchase the review area
- ◉ I am an agent/consultant acting on behalf of the requestor
- ◉ Other: _____

Choose one product:
- ◉ I am requesting an Aquatic Resources Delineation Verification
- ◉ I am requesting an Approved JD
- ◉ I am requesting a Preliminary JD
- ◉ I am requesting additional information to inform my decision about which product to request

Reason for request: (check all that apply)
- ☑ I need information concerning aquatic resources within the review area for planning purposes.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid those aquatic resources determined to be waters of the U.S.
- ☐ I intend to construct/develop a project or perform activities in this review area which may require authorization from the Corps; this request is accompanied by my permit application.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district's list of navigable waters under Section 10 of the Rivers and Harbors Act of 1899 and/or is subject to the ebb and flow of the tide.
- ☐ My lender, insurer, investors, local unit of government, etc. has indicated that an aquatic resources delineation verification is inadequate and is requiring a jurisdictional determination.
- ☐ I intend to contest jurisdiction over particular aquatic resources and request the Corps confirm that these aquatic resources are or are not waters of the U.S.
- ☐ I believe that the review area may be comprised entirely of dry land.
- ☐ Other: _____

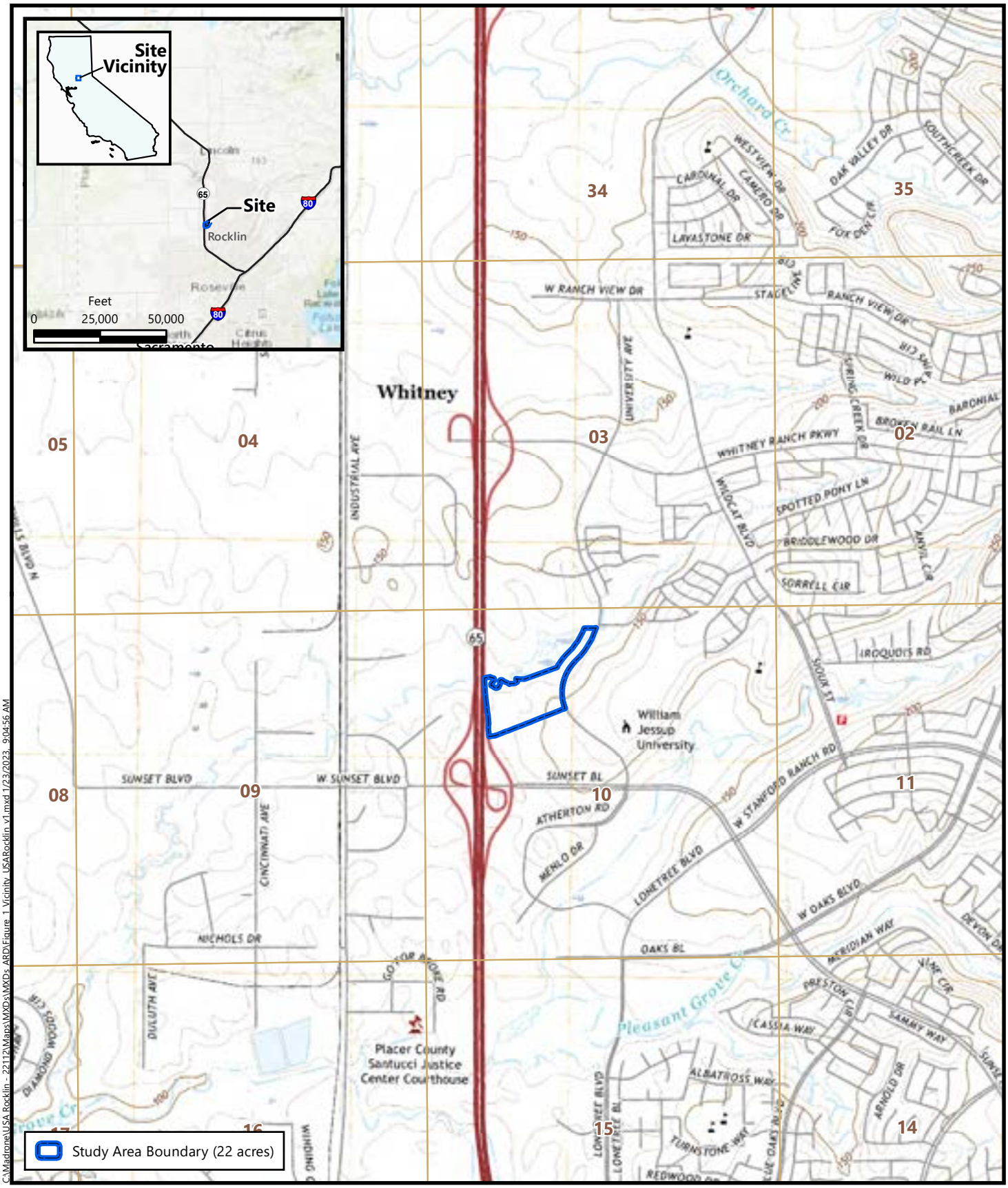
Attached Information:
- ☑ Maps depicting the general location and aquatic resources within the review area consistent with Map and Drawing Standards for the South Pacific Division Regulatory Program (Public Notice February 2016, http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/)
- ☑ Aquatic Resources Delineation Report, if available, consistent with the Sacramento District's Minimum Standards for Acceptance (Public Notice January 2016, http://1.usa.gov/1V68IYa)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the review area. Your signature shall be an affirmation that you possess the requisite property rights for this request on the subject property.

*Signature: _____ Date: _____
Name: Milo Terzich Company name: USA Properties Fund
Address: 3200 Douglas Blvd., Suite 200, Roseville CA 95661

Telephone: _____ Email: _____

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.



C:\Madrone\USA Rocklin - 22112\Maps\MXDs\MXDs ARD\Figure 1 Vicinity_USARocklin_v1.mxd 1/23/2023 9:04:56 AM

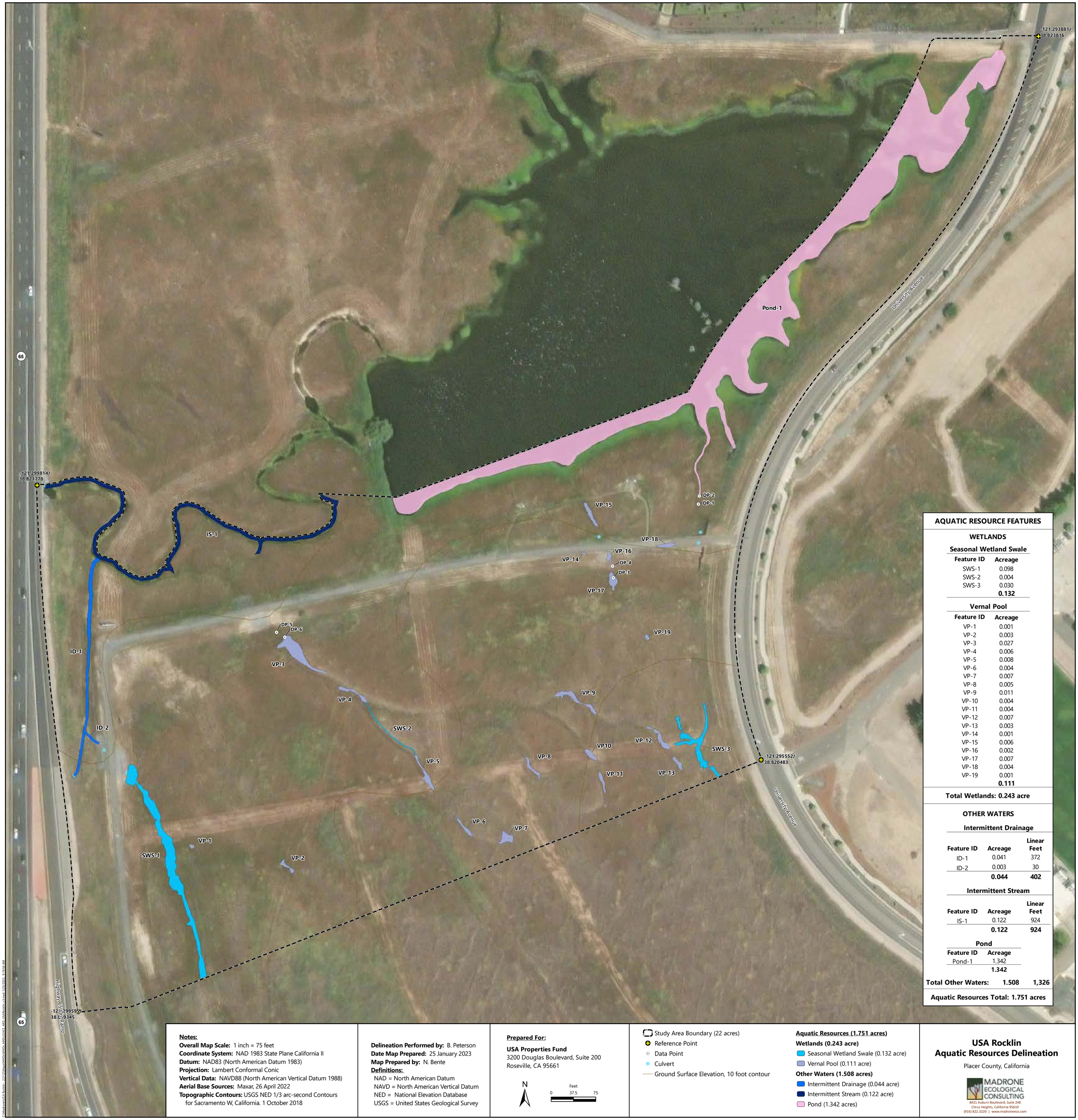
N

Feet
0
1,000
2,000

Source: United States Geologic Survey, 2021.
"Roseville, California" 7.5-Minute Topographic Quadrangle
Section 10, Township 11 North, Range 6 East.
Longitude -121.297366, Latitude 38.821112

Figure 1
Site and Vicinity

USA Rocklin
Rocklin, Placer County, California



AQUATIC RESOURCE FEATURES

WETLANDS

Seasonal Wetland Swale

Feature ID	Acreage
SWS-1	0.098
SWS-2	0.004
SWS-3	0.030
	0.132

Vernal Pool

Feature ID	Acreage
VP-1	0.001
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VP-4	0.006
VP-5	0.008
VP-6	0.004
VP-7	0.007
VP-8	0.005
VP-9	0.011
VP-10	0.004
VP-11	0.004
VP-12	0.007
VP-13	0.003
VP-14	0.001
VP-15	0.006
VP-16	0.002
VP-17	0.007
VP-18	0.004
VP-19	0.001
	0.111

Total Wetlands: 0.243 acre

OTHER WATERS

Intermittent Drainage

Feature ID	Acreage	Linear Feet
ID-1	0.041	372
ID-2	0.003	30
	0.044	**402**

Intermittent Stream

Feature ID	Acreage	Linear Feet
IS-1	0.122	924
	0.122	**924**

Pond

Feature ID	Acreage
Pond-1	1.342
	1.342

Total Other Waters: 1.508 1,326

Aquatic Resources Total: 1.751 acres

Notes:
Overall Map Scale: 1 inch = 75 feet
Coordinate System: NAD 1983 State Plane California II
Datum: NAD83 (North American Datum 1983)
Projection: Lambert Conformal Conic
Vertical Data: NAVD88 (North American Vertical Datum 1988)
Aerial Base Sources: Maxar, 26 April 2022
Topographic Contours: USGS NED 1/3 arc-second Contours for Sacramento W, California. 1 October 2018

Delineation Performed by: B. Peterson
Date Map Prepared: 25 January 2023
Map Prepared by: N. Bente
Definitions:
NAD = North American Datum
NAVD = North American Vertical Datum
NED = National Elevation Database
USGS = United States Geological Survey

Prepared For:
USA Properties Fund
3200 Douglas Boulevard, Suite 200
Roseville, CA 95661

N
Feet
0 37.5 75

- Study Area Boundary (22 acres)
- Reference Point
- Data Point
- Culvert
- Ground Surface Elevation, 10 foot contour

Aquatic Resources (1.751 acres)
Wetlands (0.243 acre)
- Seasonal Wetland Swale (0.132 acre)
- Vernal Pool (0.111 acre)

Other Waters (1.508 acres)
- Intermittent Drainage (0.044 acre)
- Intermittent Stream (0.122 acre)
- Pond (1.342 acres)

USA Rocklin
Aquatic Resources Delineation

Placer County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3220 | www.madroneeco.com

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APPENDIX C

AIR QUALITY AND GREENHOUSE GAS IMPACT ANALYSIS

Air Quality and Greenhouse Gas Impact Analysis

University Avenue Apartments Project

Prepared for:
USA Properties Fund, Inc.

August 2024

Prepared by

RANEY PLANNING & MANAGEMENT, INC.
1501 Sports Drive, Suite A, Sacramento, CA 95834

INTRODUCTION

This Air Quality and Greenhouse Gas Impact Analysis identifies and analyzes the potential environmental impacts from the University Avenue Apartments Project (proposed project) related to air quality and greenhouse gas (GHG) emissions. The information and analysis in this document are organized in accordance with the checklist in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. If the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures that should be applied to the project are prescribed. All modeling results are included as Appendix A to this document.

BACKGROUND AND APPROACH TO ANALYSIS

The project site is located within the boundaries of the Northwest Rocklin General Development Area, buildout of which was evaluated in the Northwest Rocklin Annexation (Sunset Ranchos) Environmental Impact Report (EIR) and associated Addendum (SCH No. 99102012). The Northwest Rocklin Annexation EIR was certified by the Rocklin City Council on July 9, 2002. The Addendum to the Northwest Rocklin Annexation EIR, released in 2007, included an analysis of GHG emissions.

Construction of the Northwest Rocklin Annexation Project was determined to generate criteria air pollutants that would exceed Placer County Air Pollution Control District (PCAPCD) thresholds, resulting in significant impacts. Similarly, operational vehicle and area source emissions associated with the Northwest Rocklin Annexation Project were determined to be significant. The 2002 EIR included Mitigation Measures to minimize construction and operational criteria pollutant emissions. However, impacts were determined to remain significant and unavoidable.

All other impacts related to air quality, including impacts related to toxic air contaminants (TACs) and carbon monoxide (CO), and GHG emissions were determined to be less than significant within the 2002 EIR and the 2007 Addendum to the Northwest Rocklin Annexation EIR.

The following analysis provides a comparison of emissions associated with buildout of the project site under the approved conditions (i.e., maximum buildout under the existing land use and zoning designations), as compared to buildout of the project site as proposed.

PROJECT SUMMARY

The project site is located northeast of the intersection of State Route (SR) 65 and Sunrise Boulevard in the City of Rocklin, California (see Figure 1). The approximately 12.72-acre project site, identified by Assessor's Parcel Numbers (APNs) 017-276-005 and -006, is undeveloped and contains approximately 0.237 acres of wetland resources. A paved utility road, sewer, and drainage improvements are located along the northern and western boundaries of the site as part of a South Placer Municipal Utility District project. As such, the total net acreage of the site, excluding the 1.49-acre sewer easement, is 11.23 acres.

Surrounding existing uses include undeveloped land, open space, and a pond to the north; William Jessup University to the east, across University Avenue; a light industrial business park to the west beyond SR 65; and the approved, but not yet constructed, Estia at Rocklin Residential Project and the University Square Retail Project to the south, which will include development of 200 detached rental units and eight buildings totaling 108,500 square feet, respectively (see Figure 2).

The City of Rocklin General Plan designates the site as Mixed-Use (M-U) and Recreation-Conservation (R-C) and the site is zoned Planned Development Light Industrial (PD-LI) and Open Space (OS) within the Northwest Rocklin General Development Plan area.

Figure 1
Regional Project Location

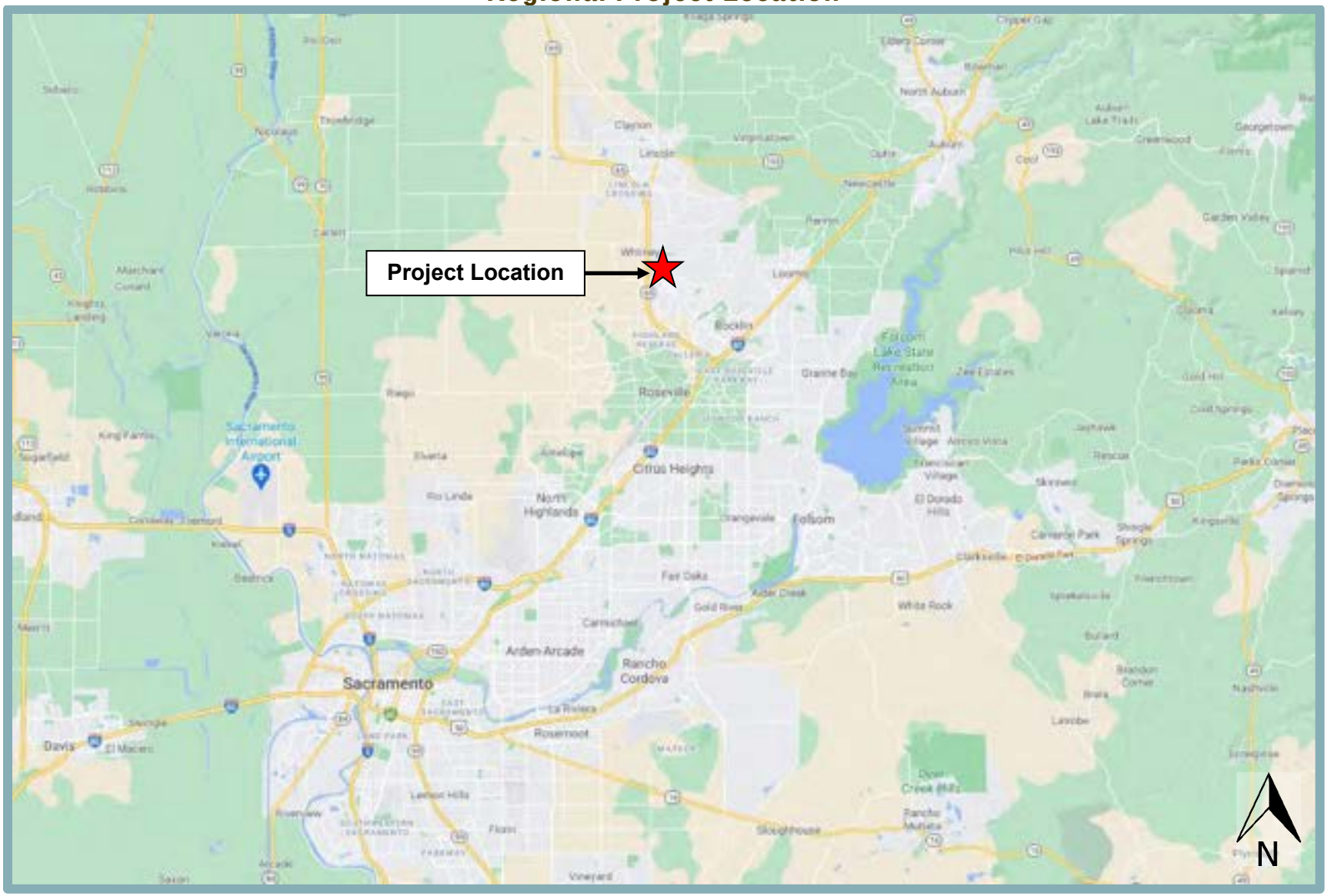


Figure 2
Project Vicinity Map

The proposed project would include the development of 12 three-story apartment buildings with a total of 324 units, including 307 market rate units and 17 units reserved for very-low income households (see Figure 3). The development would include a unit mix of 74, 722 square-foot (sf) one-bedroom units; 169, 994-sf two-bedroom units; and 81, 1,240 sf three-bedroom units (see Table 1). Two of the market rate units would be reserved for managers. The unit floorplans would include a full kitchen, living area, bedroom(s), bathroom(s), storage, washer and dryer, and a patio/balcony. Overall, the proposed project would have a density of 25.5 units per acre with a floor area ratio (FAR) of 0.67 and site coverage of 23 percent.

Table 1
Residential Unit Summary

Bedrooms / Bathrooms	Unit Area	Number of Units	Percentage of Total Units
1 Bedroom / 1 Bath	722 sf	74 Units	23%
2 Bedroom / 2 Bath	994 sf	169 Units	52%
3 Bedroom / 2 Bath	1,240 sf	81 Units	25%
	Total	**324 Units**	**100%**

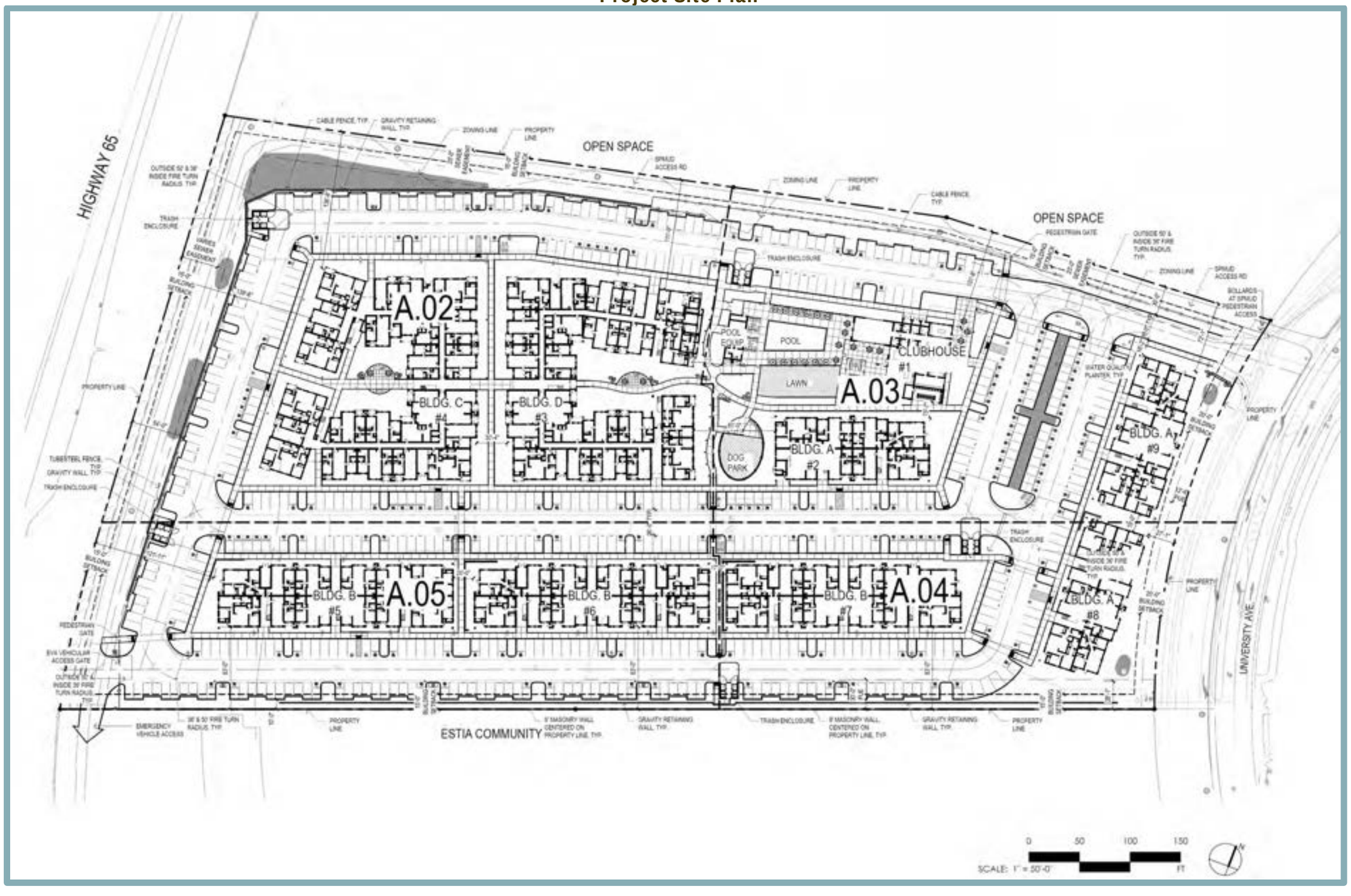
The proposed project would also include the development of a 5,390-sf, single-story clubhouse consisting of lounge areas, meeting space, fitness room, and leasing office. Other amenities would include a swimming pool with bar seating and tables, playground, outdoor game and lawn area, pet wash station, patio with an outdoor kitchen, two outdoor seating and barbeque areas, and bicycle parking.

SOURCES

The following documents are referenced information sources used for the purposes of this Air Quality and Greenhouse Gas Impact Analysis:

1. California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
2. City of Rocklin. *Addendum to the Final Environmental Impact Report Northwest Rocklin Annexation (Sunset Ranchos)*. 2007.
3. City of Rocklin. *Northwest Rocklin Annexation (Sunset Ranchos) Environmental Impact Report SCH # 99102012*. March 2002.
4. Department of Conservation, California Geological Survey. *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*. 2006.
5. Placer County Air Pollution Control District. *CEQA Air Quality Handbook*. November 21, 2017.
6. Placer County Community Development and Resource Agency. *Placer County Sustainability Plan: A Greenhouse Gas Emission Reduction Plan and Adaptation Strategy.* January 28, 2020.
7. U.S. Environmental Protection Agency. *Nonattainment and Unclassifiable Area Designations for the 2015 Ozone Standards*. April 30, 2018.

Figure 3
Project Site Plan



III. AIR QUALITY. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	✖	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	✖	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✖	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

Discussion

a,b. The project site is located within the Sacramento Valley Air Basin (SVAB) and is under the jurisdiction of the PCAPCD. The SVAB is designated nonattainment for the federal particulate matter 2.5 microns in diameter ($PM_{2.5}$) and the State particulate matter 10 microns in diameter (PM_{10}) standards, as well as for both the federal and State ozone standards. The federal Clean Air Act requires areas designated as federal nonattainment to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures for states to use to attain the federal ambient air quality standards (AAQS). The SIP is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of air basins as reported by the agencies with jurisdiction over them. In compliance with regulations, the PCAPCD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the federal and State AAQS, including control strategies to reduce air pollutant emissions via regulations, incentive programs, public education, and partnerships with other agencies.

The current applicable air quality plan for the project area is the Sacramento Regional 2009 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan (Ozone Attainment Plan), updated July 24, 2017. The Ozone Attainment Plan demonstrates how existing and new control strategies would provide the necessary future emission reductions to meet the Federal Clean Air Act requirements, including the federal AAQS.

It should be noted that in addition to strengthening the 8-hour ozone federal AAQS, the U.S. Environmental Protection Agency (USEPA) also strengthened the secondary 8-hour ozone federal AAQS, making the secondary standard identical to the primary standard. The SVAB remains classified as a severe nonattainment area for ozone with an attainment deadline of 2027. On October 26, 2015, the USEPA released a final implementation rule for the revised NAAQS for ozone to address the requirements for reasonable further progress, modeling and attainment demonstrations, and reasonably available control measures (RACM) and reasonably available control technology (RACT). On April 30, 2018, the USEPA published designations for areas in attainment/unclassifiable for the 2015 ozone standards. The USEPA identified the portions of Placer County within the SVAB as nonattainment for the 2015 ozone standards.[1] Due to the designation of the

[1] U.S. Environmental Protection Agency. *Nonattainment and Unclassifiable Area Designations for the 2015 Ozone Standards*. April 30, 2018.

SVAB as nonattainment for the 2015 standards, the PCAPCD will work with other regional air districts to prepare a new ozone SIP for the revised 2015 standards.

General conformity requirements of the regional air quality plan include whether a project would cause or contribute to new violations of any AAQS, increase the frequency or severity of an existing violation of any AAQS, or delay timely attainment of any AAQS. In order to evaluate ozone and other criteria air pollutant emissions and support attainment goals for those pollutants that the area is designated nonattainment, the PCAPCD has adopted recommended thresholds of significance for emissions of PM_{10} and the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_X). On October 13, 2016, the PCAPCD adopted updated significance thresholds for the aforementioned pollutants.

The significance thresholds, expressed in pounds per day (lbs/day), listed in Table 2 are the PCAPCD's current thresholds of significance for use in the evaluation of air quality impacts associated with proposed development projects. Thus, if the proposed project's emissions exceed the pollutant thresholds presented in Table 2, the project could have a significant effect on air quality, the attainment of federal and State AAQS, and could conflict with or obstruct implementation of the applicable air quality plan.

Table 2
PCAPCD Thresholds of Significance (lbs/day)

Pollutant	Construction Threshold	Operational Threshold
ROG	82	55
NO_X	82	55
PM_{10}	82	82

Source: Placer County Air Pollution Control District. CEQA Handbook. 2017.

Implementation of the proposed project would contribute local emissions in the area during both the construction and operation of the proposed project. For both the Approved Conditions and Proposed Project scenarios, construction and operational emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2022 web-based software – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, trip generation rates, vehicle mix, trip length, average speed, compliance with the California Building Standards Code (CBSC), etc. Where project-specific data was available, such data was input into the model (e.g., construction phases and timing, inherent site or project design features, compliance with applicable regulations, etc.).

The modeling for the Approved Conditions Scenario assumed the following:

- Construction would begin in January 2025;
- The land use would be 244,600 sf of general light industrial uses.

The modeling for the Proposed Project Scenario assumed the following:

- Construction would begin in January 2025 and occur over approximately two years;

- The proposed project would result in the development of a 324-unit multi-family apartment complex; and
- Trip generation rates were updated based on a project-specific traffic analysis prepared by Kimley Horn;
- Fireplaces would not be included within the proposed development.

All CalEEMod results are included in Appendix A. The results of the emissions analysis for construction and operational emissions are discussed separately below.

Construction Emissions

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site. Construction-related emissions would be generated from construction equipment, vegetation clearing and earth movement activities, construction workers' commute, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the proposed project would generate emissions of criteria air pollutants, including ROG, NO_X, and PM_{10}, intermittently within the site and in the vicinity of the site, until all construction has been completed, construction is a potential concern, as the proposed project is located in a nonattainment area for ozone and PM.

Table 3 presents the estimated unmitigated construction-related emissions under the Approved Conditions Scenario and the Proposed Project Scenario.

Table 3
Maximum Unmitigated Construction Emissions (lbs/day)

	ROG	NO_X	PM_{10}
Approved Conditions Scenario	6.44	31.7	21.2
Proposed Project Scenario	8.09	31.7	21.2
Net Change	*+1.65*	*+0.0*	*+0.0*
PCAPCD Significance Threshold	**82.0**	**82.0**	**82.0**
Exceeds Threshold?	**NO**	**NO**	**NO**

Source: CalEEMod, April 2024 (see Appendix A).

As shown in Table 3, implementation of the Proposed Project Scenario would result in a net increase in ROG by 1.65 lbs/day as compared to the Approved Conditions Scenario. In addition, emissions of NO_X and PM_{10} would be similar under the Proposed Project Scenario and the Approved Conditions Scenario. However, the total construction-related emissions associated with the Proposed Project Scenario would be below the applicable PCAPCD thresholds of significance for all criteria pollutants.

Furthermore, the proposed project would be required to comply with all PCAPCD rules and regulations for construction, which would be noted on City-approved construction plans. The applicable rules and regulations would include, but not be limited to, the following:

- Rule 202 related to visible emissions;
- Rule 217 related to cutback and emulsified asphalt paving materials;
- Rule 218 related to architectural coatings;

- Rule 228 related to fugitive dust; and
- Rule 501 related to general permit requirements.

The proposed project's compliance with the above PCAPCD rules would minimize construction-related emissions. For example, Rule 228 includes implementation of dust control measures, such as minimizing track-out on to paved public roadways, limiting vehicle travel on unpaved surfaces to 15 miles per hour, and stabilization of storage piles and disturbed areas. A Dust Control Plan must also be submitted to the PCAPCD per Rule 228 prior to the start of earth-disturbing activities. Given the project's compliance with all PCAPCD rules and regulations for construction, listed above, construction-related emissions of criteria pollutants would likely be lower than the levels presented within Table 3.

Because the estimated unmitigated construction emissions associated with the Proposed Project Scenario would be below the applicable PCAPCD thresholds of significance, construction of the proposed project would not violate any AAQS or contribute substantially to an existing or projected air quality violation, and a less-than-significant impact would occur associated with construction.

Operational Emissions

Operational emissions of ROG, NO_X, and PM_{10} would be generated by the proposed project from both mobile and stationary sources. Day-to-day activities, such as the future vehicle trips to and from the project site, would make up the majority of the mobile emissions. Emissions would also occur from area sources such as building heating mechanisms and landscape maintenance equipment exhaust. As stated above, the proposed project would be required to comply with all applicable PCAPCD rules and regulations, including the following related to operations:

- Rule 205 related to nuisances;
- Rule 231 or Rule 247 related to commercial water heaters and boilers; and
- Rule 502 related to review of new sources of emissions.

Table 4 presents the estimated unmitigated operational emissions under the Approved Conditions Scenario and the Proposed Project Scenario.

Table 4
Maximum Unmitigated Operational Emissions (lbs/day)

	ROG	NO_X	PM_{10}
Approved Conditions Scenario	9.31	2.17	2.89
Proposed Project Scenario	19.4	11.8	19.1
Net Change	*+10.09*	*+9.63*	*+16.21*
PCAPCD Significance Threshold	**55.0**	**55.0**	**82.0**
Exceeds Threshold?	**NO**	**NO**	**NO**

Source: CalEEMod, April 2024 (see Appendix A).

As shown in the table, implementation of the Proposed Project Scenario would result in a net increase in ROG, NO_X, and PM_{10} as compared to the Approved Conditions Scenario. However, the total operational emissions associated with the Proposed Project Scenario would be below the applicable PCAPCD thresholds of significance for all criteria pollutants. Accordingly, operations of the proposed project would not violate any AAQS or

contribute substantially to an existing or projected air quality violation, and a less-than-significant impact would occur associated with operations.

Cumulative Emissions

A cumulative impact analysis considers a project over time in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. Due to the dispersive nature and regional sourcing of air pollutants, air pollution is already largely a cumulative impact. The nonattainment status of regional pollutants, including ozone and PM, is a result of past and present development, and, thus, cumulative impacts related to these pollutants could be considered cumulatively significant.

To improve air quality and attain the health-based standards, reductions in emissions are necessary within nonattainment areas. The project is part of a pattern of urbanization occurring in the greater Sacramento ozone nonattainment area. The growth and combined vehicle usage, and business activity within the nonattainment area from the project, in combination with other past, present, and reasonably foreseeable projects within Placer County and surrounding areas, could either delay attainment of the standards or require the adoption of additional controls on existing and future air pollution sources to offset emission increases. Thus, the project could cumulatively contribute to regional air quality health effects through emissions of criteria and mobile source air pollutants.

The PCAPCD recommends using the region's existing attainment plans as a basis for analysis of cumulative emissions. If a project would interfere with an adopted attainment plan, the project would inhibit the future attainment of AAQS, and thus result in a cumulative impact. As discussed above, the PCAPCD's recommended thresholds of significance for ozone precursors and PM_{10} are based on attainment plans for the region. Thus, the PCAPCD concluded that if a project's ozone precursor and PM_{10} emissions would be less than PCAPCD project-level thresholds, the project would not be expected to conflict with any relevant attainment plans, and would not result in a cumulatively considerable contribution to a significant cumulative impact. As a result, the PCACPD established operational phase cumulative-level emissions thresholds identical to the operational thresholds identified above, in Table 2.

As shown in Table 4, operational emissions associated with buildout of the Proposed Project Scenario would be below the PCAPCD's project-level thresholds, and, thus, would be below the PCAPCD's cumulative-level thresholds as well. Accordingly, impacts related to the cumulative emissions of criteria pollutants for which PCAPCD is in non-attainment would be considered less than significant.

Conclusion

Because the proposed project would not result in construction-related or operational emissions of criteria air pollutants in excess of PCAPCD's thresholds of significance, the proposed project would not be considered to conflict with or obstruct the implementation of any applicable air quality plans. In addition, the proposed project would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is non-attainment under an applicable ambient air quality standard. Therefore, a ***less-than-significant*** impact would result.

In addition, the proposed project would still be required to implement all applicable Mitigation Measures included in the 2002 EIR, such as Mitigation Measures GMM 1(a), GMM-2(b), GMM-2(e), GMM-2(f), and GMM-5, as well as the applicable air quality required measures (REQ-MM), which would further reduce air quality impacts associated with the proposed project.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest existing sensitive receptors to the project site are the on-campus apartments associated with William Jessup University, located approximately 600 feet southeast of the project site, across University Avenue. In addition, the Ansel Park Assisted Living and Memory Care facility is located approximately 1,000 feet to the north of the site, and a single-family residential neighborhood is located approximately 1,500 feet northeast of the site.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions, as well as regional effects of emissions of criteria pollutants, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Traffic congestion near a roadway's intersection with vehicles moving slowly or idling could result in localized CO emissions at that intersection due to a vehicle engine's inefficient combustion. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Accordingly, a land use project could result in impacts associated with localized CO concentrations at roadway intersections if the project generates substantial traffic.

The PCAPCD has established screening methodology for localized CO emissions, which are intended to provide a conservative indication of whether project-generated vehicle trips would result in the generation of localized CO emissions that would contribute to an exceedance of AAQS and potentially expose sensitive receptors to substantial CO concentrations. Per the PCAPCD's screening methodology, if the project would result in vehicle operations producing more than 550 lbs/day of CO emissions and if either of the following scenarios are true, the project could result in localized CO emissions that would violate CO standards:

- Degrade the peak hour LOS on one or more streets or at one or more intersections (both signalized and non-signalized) in the project vicinity from an acceptable LOS (i.e., LOS A, B, C, or D) to an unacceptable LOS (i.e., LOS E or F); or
- Substantially worsen an already existing unacceptable peak hour LOS on one or more streets or at one or more intersections in the project vicinity. "Substantially

worsen" includes an increase in delay at an intersection by 10 seconds or more when project-generated traffic is included.[2]

However, considering that the law has changed with respect to how transportation-related impacts may be addressed under CEQA such that unacceptable LOS is no longer considered a significant impact on the environment under CEQA, this analysis relies on the 550 lbs/day of CO emissions screening criterion only.

According to the modeling performed for the Proposed Project Scenario, operation of the project would result in maximum mobile source CO emissions of 93.5 lbs/day (see Appendix A). Consequently, CO emissions related to operation of the proposed project would be below the 550 lbs/day screening threshold used by PCAPCD. Therefore, according to the PCAPCD's screening methodology for localized CO emissions, the proposed project would not be expected to generate localized CO emissions that would contribute to an exceedance of AAQS, and the proposed project would not expose sensitive receptors to substantial concentrations of localized CO.

TAC Emissions

Another category of environmental concern is TACs. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk. The California Air Resources Board's (CARB's) Air Quality and Land Use Handbook: A Community Health Perspective (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, gas dispensing facilities (GDFs), chrome plating operations, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. The proposed multi-family residences would not involve long-term or frequent operations of any stationary diesel engines. Thus, project operations would not result in the production of substantial concentrations of TAC emissions.

Construction-related activities have the potential to generate TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed project. Health risks are typically associated with exposure to high concentrations of TACs over extended periods of time (e.g., 30 years or greater), whereas the construction period associated with the proposed project is estimated to be approximately two years. Additionally, DPM is known to be highly dispersive, and only portions of the site would be disturbed at a time throughout the construction period. Operation of construction equipment would occur intermittently throughout the course of a day, rather than continuously at any one location on the project site. Operation of construction equipment within portions of the overall development area would allow for the dispersal of emissions, and would ensure that construction activity is not continuously occurring in the portions of the project site closest to existing receptors.

In addition, all construction equipment and operation thereof would be regulated per the

[2] Placer County Air Pollution Control District. *CEQA Air Quality Handbook* [pg. 37]. November 21, 2017.

CARB's In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation includes emissions reducing requirements such as limitations on vehicle idling, disclosure, reporting, and labeling requirements for existing vehicles, as well as standards relating to fleet average emissions and the use of Best Available Control Technologies. Thus, on-site emissions of PM would be reduced, which would result in a proportional reduction in DPM emissions and exposure of nearby residences to DPM. Project construction would also be required to comply with all applicable PCAPCD rules and regulations, including Rule 501 related to General Permit Requirements.

Considering the intermittent nature of construction equipment operating within an influential distance to the nearest sensitive receptors, the limited duration of construction activities, and compliance with regulations, the likelihood that any one nearby sensitive receptor would be exposed to high concentrations of DPM for any extended period of time would be low. Thus, the proposed project would not expose nearby sensitive receptors to substantial concentrations of TACs associated with construction emissions. In addition, given that the project site was previously anticipated for development with urban uses, construction activities associated with such urban development were contemplated in the Northwest Rocklin Annexation EIR and subsequent addendums. The proposed project would not result in a significant change in TAC emissions beyond what has been previously considered for the site.

With regard to the proposed on-site residents, which would be considered sensitive receptors, the proposed project is located approximately 100 feet east of State Route (SR) 65. As discussed above, the CARB Handbook provides recommended setback distances for sensitive land uses from major sources of TACs. Specifically, the CARB Handbook recommends to, "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day". While the proposed project would be located less than 500 feet from SR 65, impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review.[3] Therefore, impacts related to siting the project within 500 feet of SR 65 are not discussed further herein.

Naturally Occurring Asbestos

Asbestos is a known carcinogen and, thus, naturally occurring asbestos (NOA) is considered a TAC. According to the Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California, prepared by the Department of Conservation, the project site is located within an area categorized as least likely to contain NOA, because faults and serpentinite outcroppings are not known to be

[3] "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project." (*Ballona Wetlands Land Trust v. Town of Los Angeles,* (2011) 201 Cal.App.4th 455, 473 (Ballona).) The California Supreme Court recently held that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate… is an analysis of how a project might exacerbate existing environmental hazards." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist*. (2015) 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 197 ["identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes"], quoting *Ballona, supra*, 201 Cal.App.4th at p. 474.) In the case of the proposed project, the impact of placing future residents within a TAC Risk Area is considered an existing environmental condition that would affect future users/residents.

in the project area.[4] Consequently, NOA is not anticipated to be present on the project site.

Criteria Pollutants

Exposure to criteria pollutants can result in adverse health effects. The applicable AAQS are health-based standards designed to ensure safe levels of criteria pollutants that avoid specific adverse health effects. Because the SVAB is designated as nonattainment for State and federal eight-hour ozone and State PM_{10} standards, the PCAPCD, along with other air districts in the SVAB region, has adopted federal and State attainment plans to demonstrate progress towards attainment of the AAQS. Full implementation of the attainment plans would ensure that the AAQS are attained and sensitive receptors within the SVAB are not exposed to excess concentrations of criteria pollutants. The PCAPCD's thresholds of significance were established with consideration given to the health-based air quality standards established by the AAQS, and are designed to aid the district in implementing the applicable attainment plans to achieve attainment of the AAQS.[5] Thus, if a project's criteria pollutant emissions exceed the PCAPCD's mass emission thresholds of significance, a project would be considered to conflict with or obstruct implementation of the PCAPCD's air quality planning efforts, thereby delaying attainment of the AAQS. Because the AAQSs are representative of safe levels that avoid specific adverse health effects, a project's hinderance of attainment of the AAQS could be considered to contribute towards regional health effects associated with the existing nonattainment status of ozone and PM_{10} standards.

As discussed above, the Proposed Project Scenario would not result in exceedance of the PCAPCD's thresholds of significance for criteria pollutant emissions (refer to Table 4). Consequently, implementation of the proposed project would not conflict with the PCAPCD's adopted attainment plans nor would the proposed project inhibit attainment of regional AAQS. Therefore, implementation of the proposed project would not contribute towards regional health effects associated with the existing nonattainment status of ozone and PM_{10} standards.

Conclusion

Based on the above analysis, the proposed project would not be anticipated to result in the production of substantial concentrations of localized CO, TACs, or criteria pollutants. Consequently, the proposed project would result in a ***less-than-significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

d. Emissions of pollutants have the potential to adversely affect sensitive receptors within the project area. Pollutants of principal concern include emissions leading to odors, emissions of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in questions 'a' through 'c' above. Therefore, the following discussion focuses on emissions of odors and dust during construction and operation of the project.

Odors

Odors are generally regarded as an annoyance rather than a health hazard. Due to the subjective nature of odor impacts, the number of variables that can influence the potential

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4 Department of Conservation, California Geological Survey. *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*. 2006.

5 Placer County Air Pollution Control District. *CEQA Air Quality Handbook* [pg. 20]. November 21, 2017.

for an odor impact, and the variety of odor sources, determining the presence of a significant odor impact is difficult. Certain land uses such as wastewater treatment facilities, landfills, confined animal facilities, composting operations, food manufacturing plants, refineries, and chemical plants have the potential to generate considerable odors. The proposed project would not include any such uses.

Diesel fumes from construction equipment and heavy-duty trucks could be found to be objectionable; however, operation of construction equipment would be regulated by PCAPCD rules and regulations, restricted to certain hours pursuant to the City of Rocklin Construction Noise Guidelines, and would occur intermittently throughout the course of a day. All construction equipment and operation thereof would be regulated per the statewide In-Use Off-Road Diesel Vehicle Regulation. In addition, construction is temporary and construction equipment would operate intermittently throughout the course of a day and would likely only occur over portions of the improvement area at a time. For the aforementioned reasons and due to the distance between the project site and the nearest sensitive receptors, the project would not result in any noticeable objectionable odors associated with construction.

Furthermore, PCAPCD Rule 205, Nuisance, addresses the exposure of "nuisance or annoyance" air contaminant discharges, including odors, and provides enforcement of odor control. Rule 205 is complaint-based, where if public complaints are sufficient to cause the odor source to be considered a public nuisance, then the PCAPCD is required to investigate the identified source, as well as determine and ensure a solution for the source of the complaint, which could include operational modifications to correct the nuisance condition. Thus, although not anticipated, if odor or air quality complaints are made upon development of the proposed project, the PCAPCD would be required (per PCAPCD Rule 205) to ensure that such complaints are addressed and mitigated, as necessary.

Dust

As noted previously, construction of projects within the City of Rocklin are required to comply with all applicable PCAPCD rules and regulations. The aforementioned rules would act to reduce construction-related dust by implementing dust control measures. PCAPCD Rule 228 requires implementation of dust control measures, such as minimizing track-out on to paved public roadways, limiting vehicle travel on unpaved surfaces to 15 miles per hour, and stabilization of storage piles and disturbed areas. Following project construction, vehicles operating within the project site would be limited to paved areas of the site, which would not have the potential to create substantial dust emissions. Thus, project operations would not include sources of dust that could adversely affect a substantial number of people.

Conclusion

For the aforementioned reasons, construction and operation of the proposed project would not create objectionable odors affecting a substantial number of people, and impacts would be ***less than significant***.

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✖	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✖	☐

Discussion

a, b. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

In recognition of the global scale of climate change, California has enacted several pieces of legislation in an attempt to curb GHG emissions. Specifically, Assembly Bill (AB) 32 and, more recently, Senate Bill (SB) 32, have established statewide GHG emissions reduction targets. Accordingly, the CARB has prepared the Climate Change Scoping Plan for California (Scoping Plan), approved in 2008 and updated in 2014 and 2017, which provides the outline for actions to reduce California's GHG emissions and achieve the emissions reduction targets required by AB 32 and SB 32. In concert with statewide efforts to reduce GHG emissions, air districts, counties, and local jurisdictions throughout the State have implemented their own policies and plans to achieve emissions reductions in line with the Scoping Plan and emissions reduction targets, including AB 32 and SB 32.

On October 13, 2016, the PCAPCD adopted GHG emissions thresholds for construction and operations in concert with the criteria pollutant threshold update. For project construction, the PCAPCD established a threshold of 10,000 $MTCO_2e$/yr. Should construction of a proposed project emit GHG emissions in excess of 10,000 $MTCO_2e$/yr, the project would be considered to have a cumulatively considerable contribution to global climate change.

The PCAPCD's operational thresholds begin with a screening emission level of 1,100 $MTCO_2e$/yr. Any project below the 1,100 MT CO_2e/yr threshold is judged by the PCAPCD

as having a less-than-significant impact on GHG emissions within the PCAPCD and, thus, would not conflict with any State or regional GHG emissions reduction goals. Projects that would result in emissions above the 1,100 MT CO_2e/yr threshold would not necessarily result in substantial impacts, if certain efficiency thresholds are met. The efficiency thresholds, which are based on service populations and square footage, are presented in Table 5.

Table 5
PCAPCD Operational GHG Efficiency Thresholds of Significance

Residential ($MTCO_2e$/capita)		Non-Residential ($MTCO_2e$/1,000 sf)	
Urban	**Rural**	**Urban**	**Rural**
4.5	5.5	26.5	27.3

Source: Placer County Air Pollution Control District. CEQA Handbook. 2017.

The PCAPCD further advises that regardless of emissions efficiency, should a project result in operational emissions in excess of 10,000 $MTCO_2e$/yr, the project would be considered to have a cumulatively considerable contribution to global climate change.

Construction GHG Emissions

Table 6 presents the estimated unmitigated maximum construction-related GHG emissions under the Approved Conditions Scenario and the Proposed Project Scenario.

Table 6
Unmitigated Annual Construction GHG Emissions

	Maximum GHG Emissions ($MTCO_2e$/yr)
Approved Conditions Scenario	585
Proposed Project Scenario	753
Net Change	*+168*
PCAPCD Significance Threshold	10,000.00
Exceeds Threshold?	**NO**

Source: CalEEMod, January 2024 (see Appendix A).

As shown in the table, construction of the Proposed Project Scenario would result in a net increase in GHG emissions as compared to construction of the Approved Conditions Scenario. However, the total maximum annual emissions related to construction of the Proposed Project Scenario would be well below the PCAPCD's bright-line threshold of 10,000 $MTCO_2e$/yr. Therefore, project construction would not be considered to result in a cumulatively considerable contribution to global climate change.

Operational GHG Emissions

Table 7 presents the estimated operational GHG emissions at full buildout for the Approved Conditions Scenario and the Proposed Project Scenario. As shown in the table, operations of the Proposed Project Scenario would result in a net increase in GHG emissions as compared to the Approved Conditions Scenario. In addition, the Proposed Project Scenario would result in operational GHG emissions in excess of the 1,100 $MTCO_2e$/yr operational threshold of significance.

Because the net change in emissions would exceed the PCAPCD's screening level threshold, the project's increase in emissions has been further evaluated in comparison with the efficiency thresholds, presented in Table 5. As shown in Table 8, the proposed project's net increase of operational GHG emissions would be below the applicable

PCAPCD efficiency threshold. Therefore, operation of the proposed project would not be considered to generate GHG emissions that may have a significant impact on the environment.

Table 7
Unmitigated Operational GHG Emissions

Emission Source	GHG Emissions ($MTCO_2e$/yr)		
	Approved Conditions Scenario	Proposed Project Scenario	Net Change
Mobile	**548**	**3,560**	***+3,012***
Area	**3.58**	**4.03**	***+0.45***
Energy	**311**	**390**	***+79***
Water	**93.8**	**17.9**	***-75.9***
Waste	**71.8**	**74.8**	***+3***
Refrigerants	**-**	**0.38**	***+0.38***
TOTAL ANNUAL GHG EMISSIONS	**1,028**	**4,047**	***+3,019***
PCAPCD Screening Level Threshold	**1,100.00**		

Source: CalEEMod, January 2024 (see Appendix A).

Table 8
Unmitigated Project Operational GHG Emissions Per Capita

Project Emissions ($MTCO_2e$/yr/capita)	PCAPCD Efficiency Threshold for Urban Non-Residential Projects ($MTCO_2e$/yr/capita)
3.36	4.5

Notes: The estimated population for the project at buildout is based on a 2.77 persons per household rate for the City of Rocklin.

Source: Esri Community Profile – City of Rocklin, January 4, 2023.

In addition, the Addendum to the Northwest Rocklin Annexation EIR determined that implementation of the City of Rocklin's GHG emission reduction strategies, as well as Mitigation Measures GMM-1(a) through GMM-1(g) from the Air Quality section of the Northwest Rocklin Annexation EIR would help to reduce GHG emissions generated by the project, which would be implemented by the proposed project.

Based on the above, the proposed project would not result in any new or more severe impacts than those identified in the Northwest Rocklin Annexation EIR and the associated Addendum.

Conclusion

Based on the information presented above, construction and operations of the proposed project would not be considered to generate GHG emissions that would have a significant impact on the environment and, thus, would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Consequently, the project would not result in a cumulatively considerable incremental contribution to impacts related to GHG emissions or climate change and the project's impact would be ***less than significant***.

Appendix A

CalEEMod Air Quality and Greenhouse Gas Modeling Results

University Avenue Apartments - Approved Conditions Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	University Avenue Apartments - Approved Conditions
Construction Start Date	1/2/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	7.80
Location	38.82060042028713, -121.29744833864193
County	Placer-Sacramento
City	Rocklin
Air District	Placer County APCD
Air Basin	Sacramento Valley
TAZ	466
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Unrefrigerated Warehouse-No Rail	245	1000sqft	11.2	244,600	130,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.03	6.44	13.1	21.0	0.03	0.47	1.54	2.02	0.44	0.37	0.81	—	5,048	5,048	0.13	0.24	7.95	5,130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.00	6.38	31.7	30.8	0.06	1.37	19.8	21.2	1.26	10.1	11.4	—	6,796	6,796	0.27	0.24	0.21	6,821
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.56	3.77	11.0	14.4	0.03	0.42	2.16	2.58	0.38	0.79	1.17	—	3,487	3,487	0.11	0.14	1.93	3,533
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.69	2.00	2.63	< 0.005	0.08	0.39	0.47	0.07	0.14	0.21	—	577	577	0.02	0.02	0.32	585

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.03	6.44	13.1	21.0	0.03	0.47	1.54	2.02	0.44	0.37	0.81	—	5,048	5,048	0.13	0.24	7.95	5,130
2026	1.92	6.35	12.4	20.5	0.03	0.42	1.54	1.96	0.39	0.37	0.76	—	4,999	4,999	0.13	0.20	7.16	5,069
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.00	6.38	31.7	30.8	0.06	1.37	19.8	21.2	1.26	10.1	11.4	—	6,796	6,796	0.27	0.24	0.21	6,821
2026	1.87	6.30	12.6	18.9	0.03	0.42	1.54	1.96	0.39	0.37	0.76	—	4,842	4,842	0.14	0.24	0.19	4,918
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.56	3.77	11.0	14.4	0.03	0.42	2.16	2.58	0.38	0.79	1.17	—	3,487	3,487	0.11	0.14	1.93	3,533
2026	0.52	1.86	3.46	5.25	0.01	0.11	0.43	0.54	0.11	0.10	0.21	—	1,345	1,345	0.04	0.07	0.85	1,366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.28	0.69	2.00	2.63	< 0.005	0.08	0.39	0.47	0.07	0.14	0.21	—	577	577	0.02	0.02	0.32	585
2026	0.09	0.34	0.63	0.96	< 0.005	0.02	0.08	0.10	0.02	0.02	0.04	—	223	223	0.01	0.01	0.14	226

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.99	9.31	2.00	26.1	0.04	0.08	2.82	2.89	0.07	0.72	0.79	232	5,500	5,732	23.9	0.44	11.6	6,473
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.87	7.33	2.17	13.2	0.03	0.06	2.82	2.87	0.05	0.72	0.77	232	5,157	5,389	23.9	0.45	0.30	6,123

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.81	8.20	2.11	18.3	0.03	0.07	2.80	2.87	0.06	0.71	0.77	232	5,240	5,473	23.9	0.45	5.01	6,209
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.51	1.50	0.39	3.33	0.01	0.01	0.51	0.52	0.01	0.13	0.14	38.5	868	906	3.96	0.07	0.83	1,028

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.06	1.92	1.55	15.2	0.03	0.03	2.82	2.85	0.03	0.72	0.74	—	3,494	3,494	0.13	0.14	11.6	3,552
Area	1.89	7.37	0.09	10.6	< 0.005	0.02	—	0.02	0.01	—	0.01	—	43.7	43.7	< 0.005	< 0.005	—	43.9
Energy	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,862	1,862	0.27	0.03	—	1,877
Water	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566
Waste	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Total	3.99	9.31	2.00	26.1	0.04	0.08	2.82	2.89	0.07	0.72	0.79	232	5,500	5,732	23.9	0.44	11.6	6,473
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.83	1.68	1.81	12.9	0.03	0.03	2.82	2.85	0.03	0.72	0.74	—	3,195	3,195	0.15	0.16	0.30	3,246
Area	—	5.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,862	1,862	0.27	0.03	—	1,877
Water	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566
Waste	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Total	1.87	7.33	2.17	13.2	0.03	0.06	2.82	2.87	0.05	0.72	0.77	232	5,157	5,389	23.9	0.45	0.30	6,123

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.83	1.70	1.70	12.7	0.03	0.03	2.80	2.83	0.03	0.71	0.74	—	3,256	3,256	0.14	0.15	5.01	3,310
Area	0.93	6.48	0.04	5.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.6	21.6	< 0.005	< 0.005	—	21.7
Energy	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,862	1,862	0.27	0.03	—	1,877
Water	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566
Waste	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Total	2.81	8.20	2.11	18.3	0.03	0.07	2.80	2.87	0.06	0.71	0.77	232	5,240	5,473	23.9	0.45	5.01	6,209
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.31	0.31	2.32	0.01	0.01	0.51	0.52	< 0.005	0.13	0.14	—	539	539	0.02	0.03	0.83	548
Area	0.17	1.18	0.01	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.57	3.57	< 0.005	< 0.005	—	3.58
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	308	308	0.04	< 0.005	—	311
Water	—	—	—	—	—	—	—	—	—	—	—	17.9	16.6	34.6	1.84	0.04	—	93.8
Waste	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Total	0.51	1.50	0.39	3.33	0.01	0.01	0.51	0.52	0.01	0.13	0.14	38.5	868	906	3.96	0.07	0.83	1,028

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.87	0.83	< 0.005	0.04	—	0.04	0.03	—	0.03	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.66	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.02	175

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.85	4.85	< 0.005	< 0.005	0.01	4.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.80	0.80	< 0.005	< 0.005	< 0.005	0.81
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	2.44	2.33	0.01	0.10	—	0.10	0.09	—	0.09	—	542	542	0.02	< 0.005	—	544
Dust From Material Movement	—	—	—	—	—	—	0.76	0.76	—	0.30	0.30	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.45	0.42	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.8	89.8	< 0.005	< 0.005	—	90.1
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.02	200
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.03	16.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.75	2.75	< 0.005	< 0.005	< 0.005	2.79
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	5.72	7.15	0.01	0.24	—	0.24	0.22	—	0.22	—	1,314	1,314	0.05	0.01	—	1,318
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.13	0.11	1.04	1.30	< 0.005	0.04	—	0.04	0.04	—	0.04	—	218	218	0.01	< 0.005	—	218
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.36	0.23	5.35	0.00	0.00	1.04	1.04	0.00	0.24	0.24	—	1,146	1,146	0.02	0.04	4.13	1,162
Vendor	0.05	0.03	1.52	0.40	0.01	0.02	0.30	0.31	0.02	0.08	0.10	—	1,142	1,142	0.01	0.17	3.00	1,196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.31	0.31	3.90	0.00	0.00	1.04	1.04	0.00	0.24	0.24	—	1,012	1,012	0.02	0.04	0.11	1,025
Vendor	0.05	0.03	1.63	0.41	0.01	0.02	0.30	0.31	0.02	0.08	0.10	—	1,142	1,142	0.01	0.17	0.08	1,193
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.15	2.19	0.00	0.00	0.57	0.57	0.00	0.13	0.13	—	570	570	0.01	0.02	0.98	578
Vendor	0.03	0.02	0.87	0.22	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	626	626	0.01	0.09	0.71	654
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.40	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	94.3	94.3	< 0.005	< 0.005	0.16	95.6
Vendor	0.01	< 0.005	0.16	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	< 0.005	0.02	0.12	108
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.70	3.55	0.01	0.10	—	0.10	0.10	—	0.10	—	657	657	0.03	0.01	—	659
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.49	0.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	109	109	< 0.005	< 0.005	—	109
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.23	5.01	0.00	0.00	1.04	1.04	0.00	0.24	0.24	—	1,123	1,123	0.02	0.01	3.71	1,129
Vendor	0.05	0.03	1.44	0.38	0.01	0.02	0.30	0.31	0.02	0.08	0.10	—	1,121	1,121	0.01	0.17	2.71	1,174
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.29	0.27	3.67	0.00	0.00	1.04	1.04	0.00	0.24	0.24	—	992	992	0.02	0.04	0.10	1,005
Vendor	0.04	0.03	1.54	0.40	0.01	0.02	0.30	0.31	0.02	0.08	0.10	—	1,121	1,121	0.01	0.17	0.07	1,172
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.03	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	279	279	< 0.005	0.01	0.44	283
Vendor	0.01	0.01	0.42	0.11	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	307	307	< 0.005	0.05	0.32	321
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.19	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.2	46.2	< 0.005	< 0.005	0.07	46.9
Vendor	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	50.8	50.8	< 0.005	0.01	0.05	53.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.41	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.57	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	148	148	< 0.005	0.01	0.02	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	8.44
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.38	1.38	< 0.005	< 0.005	< 0.005	1.40

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	4.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	4.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.46	0.59	< 0.005	0.01	—	0.01	0.01	—	0.01	—	69.5	69.5	< 0.005	< 0.005	—	69.7

Architectural Coatings	—	2.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Architectural Coatings	—	0.45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.07	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	229	229	< 0.005	0.01	0.83	232
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.78	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	202	202	< 0.005	0.01	0.02	205
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	108	108	< 0.005	< 0.005	0.19	110
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.9	17.9	< 0.005	< 0.005	0.03	18.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	4.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	4.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.26	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.2	40.2	< 0.005	< 0.005	—	40.4

Architect Coatings	—	1.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.66	6.66	< 0.005	< 0.005	—	6.68
Architectural Coatings	—	0.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	1.00	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	225	225	< 0.005	< 0.005	0.74	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.73	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	198	198	< 0.005	0.01	0.02	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.4	61.4	< 0.005	< 0.005	0.10	62.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.02	10.3

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	2.06	1.92	1.55	15.2	0.03	0.03	2.82	2.85	0.03	0.72	0.74	—	3,494	3,494	0.13	0.14	11.6	3,552
Total	2.06	1.92	1.55	15.2	0.03	0.03	2.82	2.85	0.03	0.72	0.74	—	3,494	3,494	0.13	0.14	11.6	3,552
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	1.83	1.68	1.81	12.9	0.03	0.03	2.82	2.85	0.03	0.72	0.74	—	3,195	3,195	0.15	0.16	0.30	3,246
Total	1.83	1.68	1.81	12.9	0.03	0.03	2.82	2.85	0.03	0.72	0.74	—	3,195	3,195	0.15	0.16	0.30	3,246
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No	0.33	0.31	0.31	2.32	0.01	0.01	0.51	0.52	< 0.005	0.13	0.14	—	539	539	0.02	0.03	0.83	548
Total	0.33	0.31	0.31	2.32	0.01	0.01	0.51	0.52	< 0.005	0.13	0.14	—	539	539	0.02	0.03	0.83	548

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,426	1,426	0.23	0.03	—	1,440
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,426	1,426	0.23	0.03	—	1,440
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,426	1,426	0.23	0.03	—	1,440
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,426	1,426	0.23	0.03	—	1,440
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	236	236	0.04	< 0.005	—	238
Total	—	—	—	—	—	—	—	—	—	—	—	—	236	236	0.04	< 0.005	—	238

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	435	435	0.04	< 0.005	—	437
Total	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	435	435	0.04	< 0.005	—	437
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	435	435	0.04	< 0.005	—	437
Total	0.04	0.02	0.36	0.31	< 0.005	0.03	—	0.03	0.03	—	0.03	—	435	435	0.04	< 0.005	—	437
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.1	72.1	0.01	< 0.005	—	72.3

Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.1	72.1	0.01	< 0.005	—	72.3

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	5.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.89	1.75	0.09	10.6	< 0.005	0.02	—	0.02	0.01	—	0.01	—	43.7	43.7	< 0.005	< 0.005	—	43.9
Total	1.89	7.37	0.09	10.6	< 0.005	0.02	—	0.02	0.01	—	0.01	—	43.7	43.7	< 0.005	< 0.005	—	43.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	5.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	5.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	—	0.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.17	0.16	0.01	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.57	3.57	< 0.005	< 0.005	—	3.58
Total	0.17	1.18	0.01	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.57	3.57	< 0.005	< 0.005	—	3.58

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566
Total	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566
Total	—	—	—	—	—	—	—	—	—	—	—	108	100	209	11.1	0.27	—	566

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	17.9	16.6	34.6	1.84	0.04	—	93.8
Total	—	—	—	—	—	—	—	—	—	—	—	17.9	16.6	34.6	1.84	0.04	—	93.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Total	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Total	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8
Total	—	—	—	—	—	—	—	—	—	—	—	20.5	0.00	20.5	2.05	0.00	—	71.8

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/2/2025	1/15/2025	5.00	10.0	—
Grading	Grading	1/16/2025	2/26/2025	5.00	30.0	—

Building Construction	Building Construction	3/27/2025	5/20/2026	5.00	300	—
Paving	Paving	2/27/2025	3/26/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	4/10/2025	6/3/2026	5.00	300	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	103	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	40.1	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.5	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	366,900	122,300	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	426	426	426	155,345	3,960	3,960	3,960	1,445,259

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	366,900	122,300	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	2,552,323	204	0.0330	0.0040	1,358,713

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	56,563,750	1,495,680

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	230	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage adjusted to be representative of total site acreage. Landscaping information not available, assumed same amount of landscaping as Proposed Project Scenario.
Construction: Construction Phases	Based on typical construction practices, architectural coating assumed to start two weeks after the start of building construction and last for the same number of days.

University Avenue Apartments - Proposed Project Custom Report

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2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

3.3. Grading (2025) - Unmitigated

3.5. Building Construction (2025) - Unmitigated

3.7. Building Construction (2026) - Unmitigated

3.9. Building Construction (2027) - Unmitigated

3.11. Paving (2025) - Unmitigated

3.13. Architectural Coating (2025) - Unmitigated

3.15. Architectural Coating (2026) - Unmitigated

3.17. Architectural Coating (2027) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	University Avenue Apartments - Proposed Project
Construction Start Date	1/2/2025
Operational Year	2027
Lead Agency	City of Rocklin
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	7.80
Location	38.82060042028713, -121.29744833864193
County	Placer-Sacramento
City	Rocklin
Air District	Placer County APCD
Air Basin	Sacramento Valley
TAZ	466
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Apartments Mid Rise	324	Dwelling Unit	6.93	321,780	130,000	—	846	—
Parking Lot	571	Space	4.30	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.63	8.09	13.3	29.1	0.03	0.47	3.08	3.56	0.44	0.73	1.17	—	6,640	6,640	0.15	0.27	13.8	6,739
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.00	7.96	31.7	30.8	0.06	1.37	19.8	21.2	1.26	10.1	11.4	—	6,796	6,796	0.27	0.28	0.36	6,821
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.84	5.62	11.7	17.6	0.02	0.45	3.47	3.92	0.42	1.28	1.70	—	4,483	4,483	0.12	0.20	3.83	4,549
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34	1.03	2.13	3.21	< 0.005	0.08	0.63	0.72	0.08	0.23	0.31	—	742	742	0.02	0.03	0.63	753

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.63	8.09	13.3	29.1	0.03	0.47	3.08	3.56	0.44	0.73	1.17	—	6,640	6,640	0.15	0.27	13.8	6,739
2026	2.48	7.97	12.6	28.1	0.03	0.42	3.08	3.50	0.38	0.73	1.12	—	6,559	6,559	0.15	0.19	12.4	6,631
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.00	7.96	31.7	30.8	0.06	1.37	19.8	21.2	1.26	10.1	11.4	—	6,796	6,796	0.27	0.28	0.36	6,821
2026	2.38	7.86	12.8	24.4	0.03	0.42	3.08	3.50	0.38	0.73	1.12	—	6,203	6,203	0.17	0.28	0.32	6,291
2027	2.28	7.78	12.2	23.8	0.03	0.37	3.08	3.45	0.34	0.73	1.07	—	6,134	6,134	0.17	0.27	0.29	6,220
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.84	3.99	11.7	17.1	0.02	0.45	3.47	3.92	0.42	1.28	1.70	—	3,995	3,995	0.12	0.13	2.68	4,041
2026	1.70	5.62	9.10	17.6	0.02	0.30	2.19	2.49	0.27	0.52	0.79	—	4,483	4,483	0.12	0.20	3.83	4,549
2027	0.13	0.58	0.66	1.34	< 0.005	0.02	0.17	0.20	0.02	0.04	0.06	—	344	344	0.01	0.01	0.27	349
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.34	0.73	2.13	3.12	< 0.005	0.08	0.63	0.72	0.08	0.23	0.31	—	661	661	0.02	0.02	0.44	669
2026	0.31	1.03	1.66	3.21	< 0.005	0.05	0.40	0.45	0.05	0.10	0.15	—	742	742	0.02	0.03	0.63	753
2027	0.02	0.11	0.12	0.25	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.04	57.8

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.8	19.4	10.4	112	0.23	0.28	18.8	19.1	0.27	4.77	5.04	150	25,142	25,291	16.0	0.97	70.9	26,051

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.98	16.7	11.8	77.7	0.21	0.27	18.8	19.0	0.26	4.77	5.03	150	23,131	23,281	16.1	1.04	4.08	23,999
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.8	17.5	11.3	86.7	0.22	0.27	18.7	19.0	0.26	4.75	5.01	150	23,562	23,712	16.1	1.01	31.9	24,446
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.98	3.19	2.06	15.8	0.04	0.05	3.41	3.46	0.05	0.87	0.91	24.8	3,901	3,926	2.66	0.17	5.29	4,047

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.0	10.1	9.14	93.5	0.22	0.18	18.8	19.0	0.17	4.77	4.94	—	22,730	22,730	0.74	0.90	68.6	23,084
Area	1.70	9.22	0.18	18.4	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	49.1	49.1	< 0.005	< 0.005	—	49.3
Energy	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	2,342	2,342	0.27	0.02	—	2,355
Water	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Waste	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Total	12.8	19.4	10.4	112	0.23	0.28	18.8	19.1	0.27	4.77	5.04	150	25,142	25,291	16.0	0.97	70.9	26,051
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.85	8.99	10.7	77.3	0.20	0.18	18.8	19.0	0.17	4.77	4.94	—	20,769	20,769	0.83	0.97	1.78	21,082
Area	0.00	7.60	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Energy	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	2,342	2,342	0.27	0.02	—	2,355
Water	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Waste	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Total	9.98	16.7	11.8	77.7	0.21	0.27	18.8	19.0	0.26	4.77	5.03	150	23,131	23,281	16.1	1.04	4.08	23,999
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	9.87	9.03	10.1	77.1	0.21	0.18	18.7	18.9	0.17	4.75	4.92	—	21,176	21,176	0.78	0.94	29.6	21,505
Area	0.84	8.40	0.09	9.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	24.2	24.2	< 0.005	< 0.005	—	24.3
Energy	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	2,342	2,342	0.27	0.02	—	2,355
Water	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Waste	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Total	10.8	17.5	11.3	86.7	0.22	0.27	18.7	19.0	0.26	4.75	5.01	150	23,562	23,712	16.1	1.01	31.9	24,446
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.80	1.65	1.84	14.1	0.04	0.03	3.41	3.44	0.03	0.87	0.90	—	3,506	3,506	0.13	0.16	4.91	3,560
Area	0.15	1.53	0.02	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	4.01	4.01	< 0.005	< 0.005	—	4.03
Energy	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	388	388	0.05	< 0.005	—	390
Water	—	—	—	—	—	—	—	—	—	—	—	3.38	3.36	6.74	0.35	0.01	—	17.9
Waste	—	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	—	74.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Total	1.98	3.19	2.06	15.8	0.04	0.05	3.41	3.46	0.05	0.87	0.91	24.8	3,901	3,926	2.66	0.17	5.29	4,047

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.73	1.65	< 0.005	0.07	—	0.07	0.07	—	0.07	—	290	290	0.01	< 0.005	—	291
Dust From Material Movement	—	—	—	—	—	—	1.08	1.08	—	0.55	0.55	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.0	48.0	< 0.005	< 0.005	—	48.2
Dust From Material Movement	—	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.66	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.02	175
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.70	9.70	< 0.005	< 0.005	0.02	9.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.61	1.61	< 0.005	< 0.005	< 0.005	1.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.25	3.10	0.01	0.14	—	0.14	0.12	—	0.12	—	723	723	0.03	0.01	—	726
Dust From Material Movement	—	—	—	—	—	—	1.01	1.01	—	0.40	0.40	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.59	0.57	< 0.005	0.02	—	0.02	0.02	—	0.02	—	120	120	< 0.005	< 0.005	—	120
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	197	197	< 0.005	0.01	0.02	200

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	22.2	22.2	< 0.005	< 0.005	0.04	22.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.67	3.67	< 0.005	< 0.005	0.01	3.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.58	5.72	0.01	0.19	—	0.19	0.17	—	0.17	—	1,051	1,051	0.04	0.01	—	1,055
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.84	1.04	< 0.005	0.03	—	0.03	0.03	—	0.03	—	174	174	0.01	< 0.005	—	175
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.90	0.81	0.52	12.2	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,602	2,602	0.04	0.09	9.37	2,638
Vendor	0.05	0.03	1.31	0.34	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	987	987	0.01	0.15	2.59	1,033
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.70	0.69	8.86	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,298	2,298	0.05	0.09	0.24	2,327
Vendor	0.04	0.03	1.41	0.35	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	987	987	0.01	0.15	0.07	1,031
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.31	0.27	3.98	0.00	0.00	1.03	1.03	0.00	0.24	0.24	—	1,035	1,035	0.02	0.04	1.77	1,049
Vendor	0.02	0.01	0.60	0.15	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	433	433	< 0.005	0.06	0.49	452
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.73	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	171	171	< 0.005	0.01	0.29	174

Vendor	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.6	71.6	< 0.005	0.01	0.08	74.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.85	0.76	0.51	11.4	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,550	2,550	0.04	0.02	8.41	2,564
Vendor	0.04	0.03	1.24	0.33	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	968	968	0.01	0.15	2.34	1,014
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.76	0.66	0.62	8.33	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,253	2,253	0.05	0.09	0.22	2,282
Vendor	0.04	0.03	1.33	0.35	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	969	969	0.01	0.15	0.06	1,013
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.54	0.48	0.43	6.08	0.00	0.00	1.68	1.68	0.00	0.39	0.39	—	1,653	1,653	0.03	0.06	2.59	1,676
Vendor	0.03	0.02	0.94	0.24	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	692	692	0.01	0.11	0.72	724
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	1.11	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	274	274	< 0.005	0.01	0.43	277
Vendor	0.01	< 0.005	0.17	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.12	120
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.05	0.50	0.68	< 0.005	0.02	—	0.02	0.02	—	0.02	—	127	127	0.01	< 0.005	—	127
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.0	21.0	< 0.005	< 0.005	—	21.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.64	0.61	7.81	0.00	0.00	2.36	2.36	0.00	0.55	0.55	—	2,213	2,213	0.05	0.09	0.19	2,242
Vendor	0.04	0.03	1.27	0.33	0.01	0.01	0.26	0.27	0.01	0.07	0.08	—	948	948	0.01	0.14	0.05	990
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.42	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	120	120	< 0.005	< 0.005	0.17	122
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.1	50.1	< 0.005	0.01	0.05	52.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	19.9	19.9	< 0.005	< 0.005	0.03	20.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.29	8.29	< 0.005	< 0.005	0.01	8.66
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.82	1.09	< 0.005	0.04	—	0.04	0.04	—	0.04	—	166	166	0.01	< 0.005	—	166
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.4	27.4	< 0.005	< 0.005	—	27.5
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.78	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	167	167	< 0.005	0.01	0.60	170
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.57	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	148	148	< 0.005	0.01	0.02	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.03	16.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.75	2.75	< 0.005	< 0.005	< 0.005	2.79
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.36	0.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.9	54.9	< 0.005	< 0.005	—	55.1
Architectural Coatings	—	2.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.08	9.08	< 0.005	< 0.005	—	9.12
Architectural Coatings	—	0.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.10	2.43	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	520	520	0.01	0.02	1.87	528
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.14	1.77	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	460	460	0.01	0.02	0.05	465
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.75	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	194	194	< 0.005	0.01	0.33	197
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	32.1	32.1	< 0.005	< 0.005	0.06	32.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.61	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	4.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	0.76	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.10	2.28	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	510	510	0.01	< 0.005	1.68	513
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.13	0.12	1.67	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	451	451	0.01	0.02	0.04	456
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.22	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	331	331	0.01	0.01	0.52	335
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.8	54.8	< 0.005	< 0.005	0.09	55.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	5.84	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.7	10.7	< 0.005	< 0.005	—	10.7
Architectural Coatings	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.77	1.77	< 0.005	< 0.005	—	1.78
Architectural Coatings	—	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.13	0.12	1.56	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	443	443	0.01	0.02	0.04	448
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.5	36.5	< 0.005	< 0.005	0.05	37.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.04	6.04	< 0.005	< 0.005	0.01	6.12
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	11.0	10.1	9.14	93.5	0.22	0.18	18.8	19.0	0.17	4.77	4.94	—	22,730	22,730	0.74	0.90	68.6	23,084
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	11.0	10.1	9.14	93.5	0.22	0.18	18.8	19.0	0.17	4.77	4.94	—	22,730	22,730	0.74	0.90	68.6	23,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	9.85	8.99	10.7	77.3	0.20	0.18	18.8	19.0	0.17	4.77	4.94	—	20,769	20,769	0.83	0.97	1.78	21,082
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	9.85	8.99	10.7	77.3	0.20	0.18	18.8	19.0	0.17	4.77	4.94	—	20,769	20,769	0.83	0.97	1.78	21,082
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.80	1.65	1.84	14.1	0.04	0.03	3.41	3.44	0.03	0.87	0.90	—	3,506	3,506	0.13	0.16	4.91	3,560
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.80	1.65	1.84	14.1	0.04	0.03	3.41	3.44	0.03	0.87	0.90	—	3,506	3,506	0.13	0.16	4.91	3,560

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	818	818	0.13	0.02	—	826
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	91.7	91.7	0.01	< 0.005	—	92.6
Total	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.15	0.02	—	919
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	818	818	0.13	0.02	—	826
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	91.7	91.7	0.01	< 0.005	—	92.6
Total	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.15	0.02	—	919
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	135	135	0.02	< 0.005	—	137
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	15.2	15.2	< 0.005	< 0.005	—	15.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.02	< 0.005	—	152

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,432	1,432	0.13	< 0.005	—	1,436
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,432	1,432	0.13	< 0.005	—	1,436
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,432	1,432	0.13	< 0.005	—	1,436
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.13	0.07	1.13	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,432	1,432	0.13	< 0.005	—	1,436
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	237	237	0.02	< 0.005	—	238
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	237	237	0.02	< 0.005	—	238

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consumer	—	6.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.70	1.61	0.18	18.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.1	49.1	< 0.005	< 0.005	—	49.3
Total	1.70	9.22	0.18	18.4	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	49.1	49.1	< 0.005	< 0.005	—	49.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	6.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	7.60	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	1.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.15	0.02	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.01	4.01	< 0.005	< 0.005	—	4.03
Total	0.15	1.53	0.02	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	4.01	4.01	< 0.005	< 0.005	—	4.03

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	20.4	20.3	40.7	2.10	0.05	—	108
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.38	3.36	6.74	0.35	0.01	—	17.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.38	3.36	6.74	0.35	0.01	—	17.9

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	—	452
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	—	74.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	—	74.8

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.30	2.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.38	0.38

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/2/2025	1/29/2025	5.00	20.0	—
Grading	Grading	1/30/2025	3/26/2025	5.00	40.0	—
Building Construction	Building Construction	5/22/2025	1/27/2027	5.00	440	—
Paving	Paving	3/27/2025	5/21/2025	5.00	40.0	—
Architectural Coating	Architectural Coating	6/5/2025	2/10/2027	5.00	440	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	—	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	233	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	34.6	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	14.3	LDA,LDT1,LDT2
Paving	Vendor	—	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	46.7	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	651,605	217,202	0.00	0.00	11,238

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	30.0	0.00	—
Grading	—	—	120	0.00	—
Paving	0.00	0.00	0.00	0.00	4.30

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Parking Lot	4.30	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	2,184	2,184	2,184	797,072	26,398	26,398	26,398	9,635,109
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0

Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	324
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
651604.5	217,202	0.00	0.00	11,238

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	1,463,771	204	0.0330	0.0040	4,468,767
Parking Lot	164,082	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	10,648,722	1,828,053
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	240	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	Land use adjustments based on project-specific information provided by the applicant.
Construction: Construction Phases	Phase timing adjustments based on applicant provided construction schedule. Based on typical construction practices, architectural coating assumed to start two weeks after the start of building construction and last for the same number of days
Operations: Vehicle Data	Trip rate adjustment based on Kimley Horn TIS.
Operations: Hearths	No fireplaces proposed.

APPENDIX D

EMFAC, AERMOD, AND HARP 2 RAST

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	University Avenue Apartments Project
CO	TITLETWO	Project title 2	
CO	MODELOPT	Model options	DFAULT,CONC,NODRYDPLT,NOWETDPLT
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	
CO	POLLUTID	Pollutant ID	PM25 H1H
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	1.8
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	I:\Projects\Reference Material\Air Quality Assessment_HRA Guidance_2023 \Meteorological Data for AERMOD\Sac International Airport.SFC
ME	PROFFILE	Profile met file	I:\Projects\Reference Material\Air Quality Assessment_HRA Guidance_2023 \Meteorological Data for AERMOD\Sac International Airport.PFL
ME	SURFDATA	Surf met data info.	93225 2014
ME	UAIRDATA	U-Air met data info.	23230 2014
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	8
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
4OOR83V5	VOLUME		647542.3	4297961.2	0	0.000240669	(g/s)	3.35
4OOR83V6	VOLUME		647543.4	4298120.5	0	0.000240669	(g/s)	3.35
4OOR83V7	VOLUME		647544.5	4298279.7	0	0.000240669	(g/s)	3.35
4OOR83V8	VOLUME		647545.6	4298438.9	0	0.000240669	(g/s)	3.35
4OOR83V9	VOLUME		647546.7	4298598.2	0	0.000240669	(g/s)	3.35
4OOR83VA	VOLUME		647547.8	4298757.4	0	0.000240669	(g/s)	3.35
4OOR83VB	VOLUME		647548.9	4298916.6	0	0.000240669	(g/s)	3.35
4OOR83VC	VOLUME		647550.0	4299075.9	0	0.000240669	(g/s)	3.35
4OOR83VD	VOLUME		647551.1	4299235.1	0	0.000240669	(g/s)	3.35
4OOR83VE	VOLUME		647552.2	4299394.3	0	0.000240669	(g/s)	3.35
4OOR83VF	VOLUME		647553.3	4299553.6	0	0.000240669	(g/s)	3.35
4OOR83VG	VOLUME		647554.4	4299712.8	0	0.000240669	(g/s)	3.35
4OOR83VH	VOLUME		647555.5	4299872.1	0	0.000240669	(g/s)	3.35
4OOR83VI	VOLUME		647556.6	4300031.3	0	0.000240669	(g/s)	3.35
4OOR83VJ	VOLUME		647557.8	4300190.5	0	0.000240669	(g/s)	3.35
4OOR83VK	VOLUME		647558.9	4300349.8	0	0.000240669	(g/s)	3.35
4OOR83VL	VOLUME		647560.0	4300509.0	0	0.000240669	(g/s)	3.35
4OOR83VM	VOLUME		647561.1	4300668.2	0	0.000240669	(g/s)	3.35
4OOR83VN	VOLUME		647562.2	4300827.5	0	0.000240669	(g/s)	3.35
4OOR83VO	VOLUME		647563.3	4300986.7	0	0.000240669	(g/s)	3.35
4OOR83VP	VOLUME		647564.4	4301145.9	0	0.000240669	(g/s)	3.35
4OOR83VQ	VOLUME		647565.5	4301305.2	0	0.000240669	(g/s)	3.35
4OOR83VR	VOLUME		647566.6	4301464.4	0	0.000240669	(g/s)	3.35
4OOR83VS	VOLUME		647567.7	4301623.6	0	0.000240669	(g/s)	3.35

Volume Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Release Height	Init. Lat. Dim.	Init. Vert. Dim.
		East (m)	North (m)	(m)	(g/s)	(m)	(m)	(m)
4OOR83V5		647542.3	4297961.2	0	0.000240669	3.35	74.06512	3.116279
4OOR83V6		647543.4	4298120.5	0	0.000240669	3.35	74.06512	3.116279
4OOR83V7		647544.5	4298279.7	0	0.000240669	3.35	74.06512	3.116279
4OOR83V8		647545.6	4298438.9	0	0.000240669	3.35	74.06512	3.116279
4OOR83V9		647546.7	4298598.2	0	0.000240669	3.35	74.06512	3.116279

4OOR83VA		647547.8	4298757.4	0	0.000240669	3.35	74.06512	3.116279
4OOR83VB		647548.9	4298916.6	0	0.000240669	3.35	74.06512	3.116279
4OOR83VC		647550.0	4299075.9	0	0.000240669	3.35	74.06512	3.116279
4OOR83VD		647551.1	4299235.1	0	0.000240669	3.35	74.06512	3.116279
4OOR83VE		647552.2	4299394.3	0	0.000240669	3.35	74.06512	3.116279
4OOR83VF		647553.3	4299553.6	0	0.000240669	3.35	74.06512	3.116279
4OOR83VG		647554.4	4299712.8	0	0.000240669	3.35	74.06512	3.116279
4OOR83VH		647555.5	4299872.1	0	0.000240669	3.35	74.06512	3.116279
4OOR83VI		647556.6	4300031.3	0	0.000240669	3.35	74.06512	3.116279
4OOR83VJ		647557.8	4300190.5	0	0.000240669	3.35	74.06512	3.116279
4OOR83VK		647558.9	4300349.8	0	0.000240669	3.35	74.06512	3.116279
4OOR83VL		647560.0	4300509.0	0	0.000240669	3.35	74.06512	3.116279
4OOR83VM		647561.1	4300668.2	0	0.000240669	3.35	74.06512	3.116279
4OOR83VN		647562.2	4300827.5	0	0.000240669	3.35	74.06512	3.116279
4OOR83VO		647563.3	4300986.7	0	0.000240669	3.35	74.06512	3.116279
4OOR83VP		647564.4	4301145.9	0	0.000240669	3.35	74.06512	3.116279
4OOR83VQ		647565.5	4301305.2	0	0.000240669	3.35	74.06512	3.116279
4OOR83VR		647566.6	4301464.4	0	0.000240669	3.35	74.06512	3.116279
4OOR83VS		647567.7	4301623.6	0	0.000240669	3.35	74.06512	3.116279

BREEZE AERMOD Model Results

Max. Annual (4 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	0.03280	647683.70	4298199.00	0.00	0.00	1.80	DC	
	2ND	0.03185	647598.70	4298274.00	0.00	0.00	1.80	DC	
	3RD	0.03184	647598.70	4298284.00	0.00	0.00	1.80	DC	
	4TH	0.03182	647598.70	4298279.00	0.00	0.00	1.80	DC	
	5TH	0.03158	647688.70	4298209.00	0.00	0.00	1.80	DC	
	6TH	0.03157	647688.70	4298199.00	0.00	0.00	1.80	DC	
	7TH	0.03153	647688.70	4298204.00	0.00	0.00	1.80	DC	
	8TH	0.03150	647688.70	4298194.00	0.00	0.00	1.80	DC	
	9TH	0.03148	647688.70	4298189.00	0.00	0.00	1.80	DC	
	10TH	0.03146	647603.70	4298289.00	0.00	0.00	1.80	DC	

Highest Results of Pollutant: PM25

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	1ST	Avg. Conc.	0.72905	ug/m**3	14011902	647598.70	4298284.00	0.00	0.00	1.80	DC	

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
6	Warning Message(s)
996	Informational Message(s)
43680	Hours Were Processed
452	Calm Hours Identified
544	Missing Hours Identified (1.25 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W276	Special proc for 1h-NO2/SO2 24hPM25 NAAQS disabled PM25 H1H

WARNING	CO	W363	Multiyr 24h/Ann PM25 processing not applicable for PM25 H1H
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50

www.breeze-software.com

*HARP - HRACalc v22118 9/12/2025 3:56:48 PM - Cancer Risk - Input File: C:\Users\GOlsen\Desktop\HARP Results\UniversityAvenueApartments_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_R	MMILK_RIS	WATER_RIS	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISI	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVE	2ND_DRIVI	PASTURE_(	FISH_CONC	WATER_CONC
1			9901	DieselExhF	0.0328	2.84E-05	30YrCance	*	2.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v22118 9/12/2025 3:56:48 PM - Acute Risk - Input File: C:\Users\GOlsen\Desktop\HARP Results\UniversityAvenueApartments_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL
	1		9901	DieselExhP	0.72905	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v22118 9/12/2025 3:56:48 PM - Chronic Risk - Input File: C:\Users\OOlsen\Desktop\HARP Results\UniversityAvenueApartments_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH CONC	SOIL DOSI	DERMAL D	MMILK DC	WATER DO	FISH DOSI	CROP DO	BEEF DOS	DAIRY DO	PIG_DOSE	CHICKEN	EGG DOSI	1ST DRIVE	2ND DRIV	3RD DRIVI	PASTURE	FISH CON	WATER_CONC
1			9901	DieselExhf	0.0328	NonCance	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	*	3.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATIC	NA	NA	0.00E+00	0.00E+00	0.00E+00

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	University Avenue Apartments Project
CO	TITLETWO	Project title 2	
CO	MODELOPT	Model options	DFAULT,CONC,NODRYDPLT,NOWETDPLT
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	
CO	POLLUTID	Pollutant ID	PM25 H1H
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	1.8
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	I:\Projects\Reference Material\Air Quality Assessment_HRA Guidance_2023 \Meteorological Data for AERMOD\Sac International Airport.SFC
ME	PROFFILE	Profile met file	I:\Projects\Reference Material\Air Quality Assessment_HRA Guidance_2023 \Meteorological Data for AERMOD\Sac International Airport.PFL
ME	SURFDATA	Surf met data info.	93225 2014
ME	UAIRDATA	U-Air met data info.	23230 2014
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	8
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
4OOR83V5	VOLUME		647542.3	4297961.2	0	0.000240669	(g/s)	3.35
4OOR83V6	VOLUME		647543.4	4298120.5	0	0.000240669	(g/s)	3.35
4OOR83V7	VOLUME		647544.5	4298279.7	0	0.000240669	(g/s)	3.35
4OOR83V8	VOLUME		647545.6	4298438.9	0	0.000240669	(g/s)	3.35
4OOR83V9	VOLUME		647546.7	4298598.2	0	0.000240669	(g/s)	3.35
4OOR83VA	VOLUME		647547.8	4298757.4	0	0.000240669	(g/s)	3.35
4OOR83VB	VOLUME		647548.9	4298916.6	0	0.000240669	(g/s)	3.35
4OOR83VC	VOLUME		647550.0	4299075.9	0	0.000240669	(g/s)	3.35
4OOR83VD	VOLUME		647551.1	4299235.1	0	0.000240669	(g/s)	3.35
4OOR83VE	VOLUME		647552.2	4299394.3	0	0.000240669	(g/s)	3.35
4OOR83VF	VOLUME		647553.3	4299553.6	0	0.000240669	(g/s)	3.35
4OOR83VG	VOLUME		647554.4	4299712.8	0	0.000240669	(g/s)	3.35
4OOR83VH	VOLUME		647555.5	4299872.1	0	0.000240669	(g/s)	3.35
4OOR83VI	VOLUME		647556.6	4300031.3	0	0.000240669	(g/s)	3.35
4OOR83VJ	VOLUME		647557.8	4300190.5	0	0.000240669	(g/s)	3.35
4OOR83VK	VOLUME		647558.9	4300349.8	0	0.000240669	(g/s)	3.35
4OOR83VL	VOLUME		647560.0	4300509.0	0	0.000240669	(g/s)	3.35
4OOR83VM	VOLUME		647561.1	4300668.2	0	0.000240669	(g/s)	3.35
4OOR83VN	VOLUME		647562.2	4300827.5	0	0.000240669	(g/s)	3.35
4OOR83VO	VOLUME		647563.3	4300986.7	0	0.000240669	(g/s)	3.35
4OOR83VP	VOLUME		647564.4	4301145.9	0	0.000240669	(g/s)	3.35
4OOR83VQ	VOLUME		647565.5	4301305.2	0	0.000240669	(g/s)	3.35
4OOR83VR	VOLUME		647566.6	4301464.4	0	0.000240669	(g/s)	3.35
4OOR83VS	VOLUME		647567.7	4301623.6	0	0.000240669	(g/s)	3.35

Volume Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Release Height	Init. Lat. Dim.	Init. Vert. Dim.
		East (m)	North (m)	(m)	(g/s)	(m)	(m)	(m)
4OOR83V5		647542.3	4297961.2	0	0.000240669	3.35	74.06512	3.116279
4OOR83V6		647543.4	4298120.5	0	0.000240669	3.35	74.06512	3.116279
4OOR83V7		647544.5	4298279.7	0	0.000240669	3.35	74.06512	3.116279
4OOR83V8		647545.6	4298438.9	0	0.000240669	3.35	74.06512	3.116279
4OOR83V9		647546.7	4298598.2	0	0.000240669	3.35	74.06512	3.116279

4OOR83VA		647547.8	4298757.4	0	0.000240669	3.35	74.06512	3.116279
4OOR83VB		647548.9	4298916.6	0	0.000240669	3.35	74.06512	3.116279
4OOR83VC		647550.0	4299075.9	0	0.000240669	3.35	74.06512	3.116279
4OOR83VD		647551.1	4299235.1	0	0.000240669	3.35	74.06512	3.116279
4OOR83VE		647552.2	4299394.3	0	0.000240669	3.35	74.06512	3.116279
4OOR83VF		647553.3	4299553.6	0	0.000240669	3.35	74.06512	3.116279
4OOR83VG		647554.4	4299712.8	0	0.000240669	3.35	74.06512	3.116279
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4OOR83VJ		647557.8	4300190.5	0	0.000240669	3.35	74.06512	3.116279
4OOR83VK		647558.9	4300349.8	0	0.000240669	3.35	74.06512	3.116279
4OOR83VL		647560.0	4300509.0	0	0.000240669	3.35	74.06512	3.116279
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4OOR83VR		647566.6	4301464.4	0	0.000240669	3.35	74.06512	3.116279
4OOR83VS		647567.7	4301623.6	0	0.000240669	3.35	74.06512	3.116279

BREEZE AERMOD Model Results

Max. Annual (4 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	0.03280	647683.70	4298199.00	0.00	0.00	1.80	DC	
	2ND	0.03185	647598.70	4298274.00	0.00	0.00	1.80	DC	
	3RD	0.03184	647598.70	4298284.00	0.00	0.00	1.80	DC	
	4TH	0.03182	647598.70	4298279.00	0.00	0.00	1.80	DC	
	5TH	0.03158	647688.70	4298209.00	0.00	0.00	1.80	DC	
	6TH	0.03157	647688.70	4298199.00	0.00	0.00	1.80	DC	
	7TH	0.03153	647688.70	4298204.00	0.00	0.00	1.80	DC	
	8TH	0.03150	647688.70	4298194.00	0.00	0.00	1.80	DC	
	9TH	0.03148	647688.70	4298189.00	0.00	0.00	1.80	DC	
	10TH	0.03146	647603.70	4298289.00	0.00	0.00	1.80	DC	

Highest Results of Pollutant: PM25

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	1ST	Avg. Conc.	0.72905	ug/m**3	14011902	647598.70	4298284.00	0.00	0.00	1.80	DC	

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
6	Warning Message(s)
996	Informational Message(s)
43680	Hours Were Processed
452	Calm Hours Identified
544	Missing Hours Identified (1.25 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W276	Special proc for 1h-NO2/SO2 24hPM25 NAAQS disabled PM25 H1H

WARNING	CO	W363	Multiyr 24h/Ann PM25 processing not applicable for PM25 H1H
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50

www.breeze-software.com

*HARP - HRACalc v22118 9/12/2025 3:56:48 PM - Cancer Risk - Input File: C:\Users\GOlsen\Desktop\HARP Results\UniversityAvenueApartments_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_R	MMILK_RIS	WATER_RIS	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISI	PIG_RISK	CHICKEN_	EGG_RISK	1ST_DRIVE	2ND_DRIVI	PASTURE_(	FISH_CONC	WATER_CONC
1			9901	DieselExhF	0.0328	2.84E-05	30YrCance	*	2.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v22118 9/12/2025 3:56:48 PM - Acute Risk - Input File: C:\Users\GOlsen\Desktop\HARP Results\UniversityAvenueApartments_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL
	1		9901	DieselExhP	0.72905	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v22118 9/12/2025 3:56:48 PM - Chronic Risk - Input File: C:\Users\OOlsen\Desktop\HARP Results\UniversityAvenueApartments_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBRE	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH CONC	SOIL DOSI	DERMAL D	MMILK DC	WATER DO	FISH DOSI	CROP DO	BEEF DOS	DAIRY DO	PIG_DOSE	CHICKEN	EGG DOSI	1ST DRIVE	2ND DRIV	3RD DRIVI	PASTURE	FISH CON	WATER_CONC
1			9901	DieselExhf	0.0328	NonCance	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	*	3.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATIC	NA	NA	0.00E+00	0.00E+00	0.00E+00

APPENDIX E

BIOLOGICAL RESOURCES ASSESSMENT

Biological Resources Assessment

University Avenue Apartments

Rocklin, Placer County, California

February 2024

MADRONE ECOLOGICAL CONSULTING

Prepared for:
USA Properties Fund
3200 Douglas Blvd., Suite 200
Roseville, CA 95661

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2024. *Biological Resources Assessment for University Avenue Apartments.* Prepared for USA Properties Fund. Published on 26 February 2024.

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Attachments

Attachment A. IPaC Trust Resource Report for the Study Area
Attachment B. CNPS Inventory of Rare and Endangered Plants Query for the "Roseville, California" USGS Quadrangle and Eight Surrounding Quadrangles
Attachment C. Preliminary Jurisdictional Determination for the USA Rocklin Property

1.0 INTRODUCTION

This report presents the results of a Biological Resources Assessment conducted for the University Avenue Apartments project (Project). The approximately 13.4-acre Project study area (Study Area) is located in the City of Rocklin, west of University Avenue, east of Highway 65, and north of Sunset Boulevard. The Study Area consists of the main Project site (approximately 12.7 acres) and adjacent off-site areas (approximately 0.7 acre) along University Avenue. The Project site, owned by William Jessup University, consists of Assessor's Parcel Numbers (APNs) 017-276-005-000 and 017-276-006-000. The Study Area is within Section 10, Township 11 North, Range 6 East (MDB&M) as shown on the "Roseville, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021), approximate Latitude 38.82112 and Longitude -121.297366 (**Figure 1**). The Project is also referred to as the USA Rocklin Property in supporting documents attached to this BRA.

1.1 Project Description

The proposed Project is a 324-unit rental apartment community west of University Avenue near William Jessup University in northwest Rocklin. The Project will provide housing opportunities proximate to the university and to planned retail services at University Avenue and Sunset Boulevard. The Project includes a mix of one, two, and three-bedroom units in 12 three-story buildings; a single-story clubhouse/amenity building; and a swimming pool, playground, outdoor kitchen, and other outdoor amenities. Vehicle access will be provided from a driveway on University Avenue. The Project includes gated emergency vehicle access (EVA) in the site's southwest corner. Accessible pedestrian paths will provide a walking route for residents, and paths will connect to sidewalks on University Avenue.

Post and cable fencing will be installed on the north and east sides of the site between the residential development area and an adjacent utility access road. A six-foot masonry wall will be installed on the shared property line with the parcel to the south. The University Avenue frontage will not be fenced.

Site grading will occur in one phase, and approximately 300,000 cubic yards of material will be moved, with no import or export of material. The project will be graded and constructed in a single phase and will take approximately fourteen months to complete.

2.0 REGULATORY SETTING

This section describes federal, state, and local regulations and policies that are relevant to this assessment of biological resources.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 protects species that are federally listed as endangered or threatened with extinction. FESA prohibits the unauthorized "take" of listed species. Take includes

harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such activities. Harm includes significant modifications or degradations of habitats that may cause death or injury to protected species by impairing their behavioral patterns. Harassment includes disruption of normal behavior patterns that may result in injury to or mortality of protected species. Civil or criminal penalties can be levied against persons convicted of unauthorized "take."

2.1.2 Clean Water Act, Section 404

Section 404 of the Federal Clean Water Act requires that a Department of the Army permit be issued prior to the discharge of dredged or fill material into waters of the United States, including some wetlands. The U.S. Army Corps of Engineers (USACE) administers this program, with oversight from the U. S. Environmental Protection Agency. As of the date of this document, waters of the United States (waters of the U.S.) are defined as follows (40 CFR 120.2):

1. Waters which are:
    i. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
    ii. The territorial seas; or
    iii. Interstate waters;
2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under item (5) below;
3. Tributaries of waters identified in items (1) or (2) above that are relatively permanent, standing or continuously flowing bodies of water;
4. Wetlands adjacent to the following waters:
    i. Waters identified in item (1) of this section; or
    ii. Relatively permanent, standing or continuously flowing bodies of water identified in items (2) or (3) above and with a continuous surface connection to those waters;
5. Intrastate lakes and ponds not identified in paragraphs (1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items (1) or (3) above.

Under the current definition of waters of the U.S., "adjacent" means *having a continuous surface connection*.

Waters subject to regulation under Section 404 are referred to as "jurisdictional waters".

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any native migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11.). Likewise, Section 3513 of the California Fish & Game Code prohibits the "take or possession" of any migratory non-game bird identified under the

MBTA. Therefore, activities that may result in the injury or mortality of native migratory birds, including eggs and nestlings, would be prohibited under the MBTA.

2.2 State Regulations

2.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources. Determining the significance of those effects is commonly guided by Appendix G of the CEQA guidelines, which ask whether a project would:

- Have substantial adverse effects on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) (these effects could be direct or via habitat modification);
- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFW or the USFWS;
- Have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

2.2.2 State Endangered Species Act

With limited exceptions, the California Endangered Species Act (CESA) of 1984 protects state-designated endangered and threatened species in a way similar to FESA. For projects on private, CESA enables CDFW to authorize take of a listed species that is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code Section 2081).

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes

some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

2.2.4 Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any applicant for a Clean Water Act Section 404 permit for activities that result in the discharge of dredged or fill material into waters of the United States to obtain a State Water Quality Certification (401 Certification) that the proposed activity will comply with state water quality standards. In California, this program is administered by the State Water Resources Control Board and the nine Regional Water Quality Control Boards (RWQCBs). Because the water quality certification program is triggered by the need for a Section 404 permit (and both programs are a part of the Clean Water Act), the definition of waters of the U.S. under Section 401 is the same as that used by the USACE under Section 404.

2.2.5 California Water Code, Porter-Cologne Water Quality Control Act

Waters that are not considered waters of the U.S. may be considered waters of the State of California (waters of the State) under the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne, from Division 7 of the California Water Code, requires any person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge (RWD) with the RWQCB. The RWQCB can waive the filing of a report, but once a report is filed, the RWQCB must either waive or adopt water discharge requirements (WDRs). Waters of the State are defined as any surface water or groundwater, including saline waters, within the boundaries of the state of California.

2.2.6 California Fish and Game Code, Section 1600 – Streambed and Lake Alteration

The Department of California Fish and Wildlife (CDFW) is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code Section 1602 requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The notification requirement applies to any river, stream, or lake, including those that are dry for periods of time (ephemeral/episodic) as well as those that flow year round (perennial). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. If notification is required and CDFW

determines that proposed activity will substantially alter a river, stream, or lake, and may substantially adversely affect existing fish or wildlife resources, it will require that the parties enter into a Lake or Streambed Alteration Agreement (LSAA).

2.2.7 California Fish and Game Code, Section 3503.5 – Raptor Nests

Section 3503.5 of the Fish and Game Code makes it unlawful to take, possess, or destroy hawks or owls, unless permitted to do so, or to destroy the nest or eggs of any hawk or owl.

2.2.8 California Fish and Game Code, Section 3511, 4700, 5050, and 5515 – Fully Protected Species

The California Fish and Game Code identifies "fully protected species" in sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). The state initially identified fully protected species in the 1960s to identify and provide additional protection to animals that were rare or faced possible extinction. Subsequent passage of the California Endangered Species Act has offered additional protection to some fully protected species.

Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (NCCP).

2.3 Local Regulations

2.3.1 City of Rocklin General Plan

The City of Rocklin General Plan (City of Rocklin 2012) Open Space, Conservation, and Recreation Element Action Plan (Table A-2) contains Action Steps intended to help minimize impacts to natural resources during local planning and development. Action Step OCRA-10 directs the City to utilize the entitlement process to "encourage development patterns that avoid or minimize impacts to natural resources including but not limited to hilltops, hillsides, creeks, riparian areas, wetlands, heritage oak trees, quarries, major rock outcroppings and historically significant or geologically unique areas." Action Step OCRA-11 directs the City to apply open space easements to all lands located within 50 feet from the edge of the bank of all perennial and intermittent streams and creeks that provide natural drainage. The Action Step states that "the City may designate an easement greater than 50 feet for perennial streams when it is determined such a buffer is necessary to adequately protect drainage and habitat areas. In designating these areas as open space, the City is preserving natural resources and protecting these areas from development. However, features which may be considered acceptable within the 50-foot setback, buffer area and/or open space easements include, but are not limited to, *de minimis* encroachments of a public thoroughfare, bridges, trails, drainage facilities, utilities, and fencing intended to delineate or protect a specific resource."

2.3.2 Northwest Rocklin Annexation Environmental Impact Report

In 2002, the City completed a CEQA Environmental Impact Report (EIR) for the Northwest Rocklin Annexation area, which included the Study Area (EIP Associates 2001, 2002). The EIR contains several mitigation measures that apply to development in the area covered by the EIR, including requirements for:

- A special-status plant survey
- Specific mitigation for impacts to special-status plant populations
- Compliance with the City's tree ordinance (see **Section 2.3.3** below)
- Completion of a wetland delineation prior to approval of a tentative map, design review, or use permit
- Mitigation for impacts to wetlands and other jurisdictional waters of the U.S. and to streams
- A pre-construction nesting bird survey and active nest avoidance
- Completion of surveys for vernal pool invertebrates (or assume presence of such)
- Compensatory mitigation for impacts to vernal pool crustaceans as appropriate/required

Because it is located within the area covered by the Northwest Rocklin Annexation EIR, these mitigation measures apply to the Project.

2.3.3 City of Rocklin Tree Ordinance

The City of Rocklin (City) Oak Tree Preservation Ordinance (Chapter 17.77 of the City of Rocklin Code) (Tree Ordinance) regulates the removal and preservation of oak trees within the City. "Trees" under the Tree Ordinance includes all oak trees native to the Rocklin area with at least one trunk with a diameter at breast height (DBH) of six inches or more. The Tree Ordinance requires a permit for any activity that results in the physical removal of a Tree from the ground or the willful injury, trimming, disfiguring or other harmful action which leads directly to physical removal or creates such a condition that makes disease likely or results in a significant risk of injury to persons or property. The *City of Rocklin Oak Tree Preservation Guidelines* (dated April 2006) provides additional detail regarding mitigation requirements.

3.0 METHODOLOGY

3.1 Literature Review

A list of special-status species with potential to occur within the Study Area was developed by conducting a query of the following databases:

- California Natural Diversity Database (CNDDB) (CNDDB 2023) query of the Study Areas and all areas within five miles of the Study Areas (**Figure 2 and Figure 3**);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2023) query for the Study Area (**Attachment A**);

- California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2023) query of the "Roseville, California" USGS topo quadrangle, and the eight surrounding quadrangles (**Attachment B**);
- Verified records from Bumble Bee Watch (BBW 2023);
- Research grade observations from iNaturalist (iNaturalist 2023);
- Confirmed nesting records and observation records from Cornell Laboratory of Ornithology's eBird database (Cornell Lab 2023); and
- Western Bat Working Group (WBWG) Species Matrix (WBWG 2023).

In addition, any special-status species that are known to occur in the region but that were not identified in any of the above database searches were also analyzed for their potential to occur within the Study Area.

For the purposes of this Biological Resources Assessment, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service
- listed as threatened or endangered and candidates for listing by CDFW
- identified as Fully Protected species, species of special concern, or Watch List species by CDFW
- identified as a Bird of Conservation Concern by the USFWS
- identified as a Medium or High priority species by the WBWG (WBWG 2022)
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1, 2, and 3]:
  - CRPR 1A: Plants presumed extinct.
  - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
  - CRPR 2A: Plants extirpated in California, but common elsewhere.
  - CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
  - CRPR 3: Plants about which the CNPS needs more information – a review list.

3.2 Field Surveys

Madrone Ecological Consulting, LLC (Madrone) senior biologist Bonnie Peterson conducted an aquatic resource delineation of an area that includes the Study Area and adjacent areas to the north on 8 December 2022. Water features and data points were mapped in the field with a GPS unit capable of sub-meter accuracy (Arrow 100). Three-parameter data (vegetation, soils, and hydrology) were collected at each data point, documenting wetland/waters or upland status, as appropriate. The delineation map was prepared in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a). The GPS data was overlaid on ortho-rectified aerial photographs (Maxar 2022). The delineation was performed in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and the Sacramento District's *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* (USACE

2016b). USACE regulations (33 CFR 328) were used to determine the presence of waters of the United States other than wetlands. The most recent National Wetland Plant List (USACE 2022) was used to determine the wetland indicator status of plants observed in the Study Area. The Jepson eFlora (Jepson Flora Project 2022) was used for plant nomenclature. The USACE issued a preliminary jurisdictional determination for the Study Area on 13 June 2023 (**Attachment C**).

Ms. Peterson also conducted a special-status plant survey of an area that included the Study Area on 10 and 13 April 2023. Ms. Peterson performed meandering pedestrian surveys conducted throughout the Study Area. The surveys were floristic in nature, which means that all plant species observed on-site were identified to the taxonomic level necessary to determine rarity. Thus, if a special-status plant was present but not on the target list, it would have been detected and documented. Plant taxonomy was based on the nomenclature in the Jepson eFlora (Jepson Flora Project 2023). Vegetation communities were classified according to the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009).

During the special status plant survey, Ms. Peterson also surveyed to the presence of elderberry shrubs (*Sambucus* spp.), which is the host plant for valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*) and milkweed (*Asclepias* spp.), which is the host plant for monarch butterfly.

Madrone biologist Dustin Brown conducted a breeding-season acoustic survey for western spadefoot on 12 April 2023. Aquatic features within the Study Area generally do not have a hydro-period long enough to support successful breeding for western spadefoot, but a perennial pond north of the Study Area could support this species. Mr. Brown's survey focused on the pond.

4.0 EXISTING CONDITIONS

The Study Area is characterized by rocky rolling terrain that gently slopes to the north. The main Project site ranges in elevations between 150 and 130 feet above mean sea level. A paved utility road and associated 20-foot-wide sewer easement runs along the northern and western edges of the Project site. Culverts beneath the utility access road enable drainage to pass from the site to the north. Surrounding properties include a vacant parcel to the south (the Estia at Rocklin site, APN 017-276-007), a vacant parcel containing a semi-natural pond and unnamed intermittent drainage to the north, University Avenue and William Jessup University to the east, and State Highway 65 to the west.

Undeveloped portions of the Study Area are comprised primarily of annual grassland dominated by non-native annual grasses and forbs including Medusa head (*Elymus caput-medusea*), soft chess (*Bromus hordeaceus*), stork's bill (*Erodium botrys*), dove's-foot crane's-bill (*Geranium molle*), wild oats (*Avena* sp.), annual ryegrass (*Festuca perennis*), and hairy vetch (*Vici villosa*). The non-native annual grassland is interspersed with vernal pools and seasonal wetland swales that flow northerly towards a pond and an unnamed intermittent tributary to Pleasant Grove Creek, both of which are outside of the Study Area. A series of minimally vegetated fire breaks cross the Study Area; these fire breaks are primarily dominated by stork's bill and dove's-foot crane's-bill.

Surface water in the Study Area is driven from south to north across the landscape by rainfall, which collects in the seasonal depressions (vernal pools), concentrates in flowing seasonal wetland swales, or sheet flows across the site towards the intermittent tributary stream and/or pond located north of (and outside of) the Study Area. The Study Area receives run-on from the undeveloped parcel to the south.

4.1 Terrestrial Vegetation Communities

During the 10 April 2023 and 31 May 2023 special status plant surveys, Ms. Peterson mapped land covers across the Study Area. As shown on **Figure 4**, most of the site supports non-native annual grassland interspersed with disturbed fire breaks and seasonal wetland habitats (seasonal wetland swales, seasonal wetlands, and vernal pools). A paved road runs along the northern and western boundaries of the site.

4.1.1 Non-Native Annual Grassland

The Study Area supports approximately 11.4 acres of non-native annual grassland. This vegetation community is dominated by non-native annual grasses and forbs including Medusa head, soft chess, stork's bill, dove's-foot crane's-bill, wild oats, prickly lettuce (*Lactuca serriola*), annual ryegrass, and hairy vetch. Soils in the area tend to be shallow and annual species in upland areas tend to be lower growing and less dense than grasslands on the Valley floor. The Study Area has been grazed and exhibits low thatch accumulation.

4.1.2 Developed and Disturbed

The Study Area includes approximately 0.5 acres of developed roads and 1.3 acres of disturbed areas. The roads consist of paved segments of the utility access road that is used and maintained by the South Placer Municipal Utility District and paved portions of University Avenue. Disturbed areas include fire breaks and road fringes throughout the Study Area that are seasonally disturbed and either unvegetated or minimally vegetated.

4.2 Aquatic Resources

The Study Area supports a total of 0.24 acre of aquatic resources (**Table 1**; **Figure 4**) as verified by the USACE on 13 June 2023 . A description of each of the aquatic resource types that occur on-site is included below.

Table 1. Aquatic Resources Mapped within the Study Area

Resource Type	Total (acres)
Wetlands	
Seasonal Wetland	<0.001
Seasonal Wetland Swale	0.13
Vernal Pool	0.11
Other Waters	
Intermittent Drainage	<0.001
Total	**0.24**

4.2.1 Seasonal Wetland

The Study Area supports two (2) small seasonal wetlands totaling 10 square feet (less than 0.001 acre). These seasonal wetlands formed as a result of water collecting in depressions left by tire ruts within a shallow upland drainage area where water sheet flows south across the Study Area. These wetlands were included in the aquatic resources delineation at the request of USACE staff. At the time they were mapped, the seasonal wetlands were dominated by annual ryegrass. The seasonal wetland tire ruts are surrounded by upland areas and are hydrologically isolated from downstream features.

4.2.2 Seasonal Wetland Swale

The Study Area supports three (3) seasonal wetland swales totaling 0.13 acre. At the time they were mapped, the seasonal wetland swales were dominated by annual hairgrass (*Deschampsia danthonioides*), annual ryegrass, winged water starwort (*Callitriche marginata*), and immature wetland plant species. The seasonal wetland swales exhibit similar soils and hydrology to the on-site vernal pools (described below) and show evidence of flow including erosion and sediment sorting. During high flow periods, these swales flow northerly, generally toward the intermittent tributary stream or pond, both of which are outside of the Study Area. The easternmost and central seasonal wetland swales generally flow northerly but did not have a direct connection to the intermittent tributary stream or the pond (both considered relatively permanent waters under the Clean Water Act) during the aquatic resources delineation in December 2022. Areas downslope of these two seasonal wetland swales exhibited upland characteristics, including a dominance of upland vegetation. Additionally, both of these seasonal wetland swales are separated from the pond and intermittent tributary stream by the utility road berm. As such, neither of these two swales have a direct connection to a relatively permanent water. The westernmost seasonal wetland swale flows northerly toward a culvert under the utility road that connects to an intermittent drainage west/northwest of the Study Area. This intermittent drainage subsequently discharges to the intermittent tributary stream (a relatively permanent water) north of the Study Area.

4.2.3 Vernal Pool

The site supports 18 vernal pools totaling 0.11 acre. The vernal pools are scattered throughout the site and are characterized as closed depressions with underlying rock or clay hardpan. Vernal pools are inundated during the wet season, and typically dry by late spring and remain dry through the summer months. Vernal pools are differentiated from depressional seasonal wetlands based upon a longer hydroperiod and resultant predominance of vernal pool endemic plant species. The majority of the pools were saturated or inundated during aquatic resources delineation in December 2022 and dominated by low cover wetland vegetation. While vegetation was immature at the time the delineation was performed, typical vernal pool plant species expected to occur within these features include goldfields (*Lasthenia* sp.), water montia (*Montia fontana*), cress (*Cardamine* sp.), and winged water starwort.

Vernal pools in the Study Area range from depressions within poorly defined low-lying topographical swales, to isolated features with minimal surface water connection to adjacent pools functioning as isolated depressions. The second type is often found within relatively flat or gently sloping landscape areas. Vernal pools were generally differentiated from the seasonal wetland swales discussed above by a lack of surface water flow between features and a dominance of vernal pool or obligate wetland species. None of the vernal pools in the Study Area exhibit a continuous surface connection to a relatively permanent water.

4.2.4 Intermittent Drainage

The Study Area supports two small portions of an intermittent drainage that mostly occurs off-site, west of the access road and Study Area. The portions of intermittent drainage that are within the Study Area are west of the access road and total 19 square feet (less than 0.001 acre). The intermittent drainage is part of a system that collects runoff from the Study Area and from Highway 65 for short periods of time after precipitation events and does not convey any groundwater flow. Because the landscape position results in the drainage receiving flow from upslope seasonal wetland swales for a longer duration than a typical ephemeral feature driven purely by road runoff, the drainage was classified as intermittent during the aquatic resources delineation for the Study Area. The portion of intermittent drainage in the Study Area is part of a drainage that appears to have been installed concurrent with Highway 65 improvements prior to 1985 and modified during highway work in 2009. The drainage flows northward to an off-site intermittent stream, which is considered a relatively permanent water.

4.3 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2022), three soil mapping units occur within the Study Area (**Figure 5**): (145) Exchequer-Rock outcrop complex, 2 to 30% slopes; (147) Fiddyment-Kaseberg loams, 2 to 9% slopes; and (154) Inks-exchequer complex, 2 to 25% slopes.

While these three soil units are not hydric, they do contain minor hydric components in depressions and drainageways. Soils in the Study Area are all well drained to excessively drain and all three soil types are characterized by unweathered bedrock at a depth of 11-34 inches and rocky outcroppings.

5.0 RESULTS

Table 2 provides a list of special-status species that were evaluated, including their listing status, habitat associations, and their potential to occur in the Study Area. The following criteria were used to determine each species' potential for occurrence in the Study Area:

- Present: Species occurs on the site based on CNDDB records, and/or was observed on the site during field surveys.
- High: The site is within the known range of the species and suitable habitat exists.
- Moderate: The site is within the known range of the species and very limited suitable habitat exists.

- Low: The site is within the known range of the species and there is marginally suitable habitat, or the species was not observed during protocol-level surveys conducted on-site.
- Absent/No Habitat Present: The site does not contain suitable habitat for the species, the species was not observed during recent protocol-level floristic surveys conducted on-site, or the site is outside the known range of the species.

Figure 2 and **Figure 3** show CNDDB occurrences within five miles of the Study Area. A discussion of all special-status plant and animal species with potential to occur on the Project site occurs after **Table 2**.

5.1 Plants

Protocol-level surveys of the Study Area targeted the following species:

- Big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)
- Dwarf downingia (*Downingia pusilla*)
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
- Woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*)
- Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)
- Legenere (*Legenere limosa*)
- Pincushion navarretia (*Navarretia myersii* ssp. *myersii*)
- Sacramento Orcutt grass (*Orcuttia viscida*)

Of the target species, only one, dwarf downingia, was located during the protocol-level surveys.

5.1.1 Dwarf Downingia

Dwarf downingia is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools and other seasonally inundated features at elevations ranging from sea level to approximately 1,500 feet (CNPS 2023). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May.

This species was observed in one vernal pool during the April 2023 protocol-level special-status plant survey of the Study Area (**Figure 4**). The CNDDB documents 14 other occurrences within five miles of the Study Area (**Figure 2**).

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Plants				
Balsamorhiza macrolepis Big-scale balsamroot	–	CRPR 1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands. Often associated with serpentine soils. Found in elevations between 150-5100 feet.	**Absent.** Suitable habitat is present, but this plant was not found during protocol-level surveys of the Study Area.
Chloropyron molle ssp. hispidum Hispid salty bird's-beak	–	CRPR 1B.1	Prefers seasonally flooded, saline-alkali soils at elevations between 5 and 510 feet. Occurs in valley and foothill grasslands.	**No Habitat Present.** No alkaline soils are present within the Study Area.
Downingia pusilla Dwarf downingia	–	CRPR 2B.2	Mesic areas in valley and foothill grassland, and vernal pools (3' – 1,460').	**Present.** Observed during protocol-level special-status plant surveys of the Study Area.
Gratiola heterosepala Boggs Lake hedge-hyssop	–	CE CRPR 1B.2	Vernal pools and margins of lakes/ponds on clay soils (35' - 7,790').	**Absent**. The vernal pools and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species. Not observed during protocol-level surveys of the Study Area.
Hibiscus lasiocarpos var. occidentalis Woolly rose-mallow	–	CRPR 1B.2	Occurs in freshwater wetlands/marshes including edges. Often in riprap on sides of levees. Found in elevations between sea level to 395 feet.	**Absent.** Rip-rap at outfall locations provides marginally suitable habitat for this species. Not observed during protocol-level surveys of the Study Area.
Juncus leiospermus var. ahartii Ahart's dwarf rush	–	CRPR 1B.2	Occurs along edges of vernal pool and other seasonally ponded features between 100 and 750 feet.	**Absent.** The vernal pools and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species. Not observed during protocol-level surveys of the Study Area.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	–	CRPR 1B.1	Occurs in vernal mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools between 115 feet and 4,100 feet elevation.	**No Habitat Present.** The Project site is outside of the geographic range of the species. The nearby CNDDB occurrence is considered to be erroneous (CNDDB 2023).
Legenere limosa Legenere	–	CRPR 1B.1	Occurs in vernal pools between 5 and 2885 feet.	**Absent.** The vernal pools and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species. Not observed during protocol-level surveys of the Study Area.
Navarretia myersii ssp. myersii Pincushion navarretia	–	CRPR 1B.1	Vernal pools (often acidic) (65' - 1,085').	**Absent.** The vernal pools and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species. Not observed during protocol-level surveys of the Study Area.
Orcuttia viscida Sacramento Orcutt grass	FE	CE CRPR 1B.1	Occurs in vernal pools between 100 and 330 feet.	**Absent.** The vernal pools and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species. Not observed during protocol-level surveys of the Study Area.
Sagittaria sanfordii Sanford's arrowhead	–	CRPR 1B.2	Emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches.	**Absent.** Seasonal wetlands within the Study Area typically do not provide suitable hydroperiods to support this species. Not observed during protocol-level surveys of the Study Area.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Invertebrates				
Bombus crotchii Crotch bumble bee	–	SC	Occurs in open grasslands and scrub habitats.	**Low.** The site supports a shallow floral profile available to the species for a short period. The site lacks ground squirrel burrows for nesting and overwintering.
Bombus occidentalis Western bumble bee	–	SC	Occurs in meadows and grasslands with blended floral resources. Historically known to occur throughout the mountains and northern coast of California, is now largely confined to high elevation sites and isolated areas on the northern California coast.	**No Habitat Present.** The Study Area is outside of the current range of this species.
Branchinecta conservatio Conservancy fairy shrimp	FE	–	Occurs in very large, turbid vernal pools.	**Low.** The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species.
Branchinecta lynchi Vernal pool fairy shrimp	FT	–	Occurs in vernal pools.	**Moderate.** The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area represent marginally suitable habitat for this species.
Danaus plexippus Monarch	FC	–	Migratory species; most prevalent in the Central Valley in summer and early fall. Dependent upon milkweed (*Asclepias* species) plants as their exclusive larval host.	**No Habitat Present.** No suitable milkweed plant patches were observed within the Study Area and the area lacks typical wintering habitat.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT	–	Dependent upon elderberry (*Sambucus* species) plant as primary host species.	**No Habitat Present.** There are no elderberry shrubs in the Study Area. A single elderberry shrub is located about 70 feet north of the Study Area (**Figure 4**); this shrub will not be affected by the Project.
Lepidurus packardi Vernal pool tadpole shrimp	FE	–	Occurs in vernal pools.	**Low.** Vernal pools and seasonal wetlands throughout the Study Area are not typical of the large, deep pools that support this species.
Fish				
Oncorhynchus mykiss irideus Steelhead – Central Valley Distinct Population Segment (DPS)	FE	–	This anadromous species requires freshwater water courses with gravelly substrates for breeding. The young remain in freshwater areas before migrating to estuarine and marine environments.	**No Habitat Present.** No suitable habitat is present in the Study Area.
Amphibians				
Rana draytonii California red-legged frog	FT	SSC	Breeds in permanent to semi-permanent aquatic habitats including lakes, ponds, marshes, creeks, and other drainages.	**No Habitat Present.** No suitable habitat is present within the Study Area.
Spea hammondii Western spadefoot	PT	SSC	Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	**Absent.** A breeding season survey of suitable habitat north of the Study Area was negative. Because the pond is not used for breeding, adjacent upland areas in the Study Area would not be used for dispersal or foraging.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Reptiles				
Actinemys marmorata Northwestern pond turtle	PT	SSC	Occurs in ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	**Moderate.** Suitable aquatic habitat is present about 160 feet north of the Study Area. Because females move overland for up to 100 meters (325 feet) to find suitable sites for egg-laying, the northern 165 feet of the Study Area provide suitable upland nesting habitat.
Thamnophis gigas Giant garter snake	FT	CT	Rivers, canals, irrigation ditches, rice fields, and other aquatic habitats with slow moving water and heavy emergent vegetation.	**No Habitat Present.** No suitable habitat is present within the Study Area.
Birds				
Agelaius tricolor Tricolored blackbird	–	CE SSC	Colonial nester in cattails (*Typha* species), bulrush (*Schoenoplectus* species), or blackberry (*Rubus* species) associated with marsh habitats.	**Moderate (foraging only).** The non-native annual grassland within the Study Area represents suitable foraging habitat for this species. No suitable nesting habitat is present within the Study Area.
Ammodramus savannarum Grasshopper sparrow	–	SSC	Typically found in expansive short to middle-height, moderately open grasslands with scattered shrubs or other song perches (Shuford and Gardali 2008).	**Moderate.** The non-native annual grassland represents suitable habitat for this species.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Athene cunicularia Burrowing owl	–	SSC	Nests in abandoned ground squirrel (*Otospermophilus beecheyi*) burrows associated with open grassland habitats.	**Low.** The non-native annual grassland within the Study Area represents suitable foraging habitat for this species. No ground squirrel burrows were observed during field surveys and the volcanic soils are not conducive to burrowing; therefore, it is unlikely that the species would nest within the Study Area.
Buteo swainsoni Swainson's hawk	–	CT	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	**Moderate (foraging only).** The non-native annual grassland within the Study Area represents suitable foraging habitat for this species. No suitable nesting habitat is present within the Study Area.
Elanus leucurus White-tailed kite	–	CFP	Open grasslands, fields, and meadows are used for foraging. Isolated trees in close proximity to foraging habitat are used for perching and nesting.	**Moderate (foraging only).** The non-native annual grassland within the Study Area represents suitable foraging habitat for this species. No suitable nesting habitat is present within the Study Area.
Lanius ludovicianus Loggerhead shrike	–	SSC	Occurs in open areas with sparse trees, shrubs, and other perches.	**Moderate (foraging only).** The non-native annual grassland within the Study Area represents marginally suitable foraging habitat for this species. No suitable nesting habitat is present within the Study Area
Laterallus jamaicensis coturniculus California black rail	–	CT	Nests and forages in salt, brackish, and fresh marshes with abundant vegetative cover.	**No Habitat Present.** Densely vegetated marshes are not present in the Study Area.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Pandion haliaetus Osprey	–	WL	Forages along open ocean and lake shores and larger streams. Nests in the top of large trees located near foraging areas.	**No Habitat Present.** No suitable foraging or nesting habitat is present within the Study Area.
Progne subis Purple martin	–	SSC	Nests in tall bridges and overpasses near water and open areas.	**No Habitat Present.** No suitable habitat is present within the Study Area.
Mammals				
Antrozous pallidus Pallid bat	–	SSC WBWG H	Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees, and various human structures including bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	**No Habitat Present.** No suitable habitat is present within the Study Area.
Lasionycteris noctivagans Silver-haired bat	–	WBWG M	Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	**No Habitat Present.** No suitable habitat is present within the Study Area.
Lasiurus blossevillii Western red bat	–	SSC WBWGH	Requires large leaf trees such as cottonwoods, willows, and fruit/nut trees for daytime roosts. Often associated with wooded habitats that are protected from above and open below. Often found in association with riparian corridors. Requires open space for foraging.	**No Habitat Present.** No suitable habitat is present within the Study Area.
Lasiurus cinereus Hoary bat	–	WBWG M	Roosts primarily in foliage of both coniferous and deciduous trees at the edges of clearings.	**No Habitat Present.** No suitable habitat is present within the Study Area.

Table 2. Special-Status Species with Potential to Occur within the University Avenue Apartments Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Status Codes				
CE – CESA Endangered			FT – FESA Threatened	
CT – CESA Threatened			FE – FESA Endangered	
CFP – CDFW Fully Protected			PT – FESA Proposed Threatened	
SSC – California Species of Concern			FC – Candidate for Listing under FESA	
CRPR – California Rare Plant Rank			WBWG M – Western Bat Working Group Medium Threat Rank	
SC – Candidate for Listing under CESA			WBWG H – Western Bat Working Group High Threat Rank	
WL – CDFW Watch List				

5.2 Invertebrates

5.2.1 Crotch Bumble Bee

Crotch bumble bee (*Bombus crotchii*) is not federally listed but is a candidate for listing under CESA. The historic range of this species extends from central California south to Baja California del Norte, Mexico, and includes coastal areas east to the edges of the deserts and the Central Valley, but largely excluding mountainous areas of California (Thorp et al., 1983, Williams et al. 2014). Recent observations indicate declines in both relative abundance and persistence (IUCN 2023). This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range (Hatfield et al. 2014).

In California, this species inhabits open grasslands and scrub habitats. Like most bumble bees, Crotch bumble bee may nest underground in abandoned rodent nests or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Bumble bees are generalist foragers and have been reported visiting a wide variety of flowering plants. They require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is generally from March to August for Crotch bumble bee (IUCN 2023). The site has a shallow floral profile that blooms for only a short period in the spring, so the site is not favorable for nesting but could be utilized for foraging.

The CNDDB does not list any occurrences of this species within five miles of the Study Area, but iNaturalist lists one Research Grade record from June 2021 approximately two miles to the northwest, in the Orchard Creek Mitigation Bank (iNaturalist 2023). No small mammal burrows suitable for nesting were observed on-site during field surveys, and the site's volcanic soils limit burrowing opportunities. As such, it is unlikely that Crotch bumble bee would nest within the Study Area.

5.2.2 Conservancy Fairy Shrimp

The Conservancy fairy shrimp (*Branchinecta conservatio*) is listed as endangered pursuant to FESA. This fairy shrimp is endemic to California and is found in vernal pools within grasslands in the northern two thirds of the Central Valley (Eriksen and Belk 1999). The historic distribution of Conservancy fairy shrimp is not known, but it likely occurred throughout a large portion of the Central Valley and Southern Coastal regions of California (USFWS 2005). Until recently, this species has only been known from a few disjunct populations in California, including four clustered populations in the Vina Plains area in Tehama and Butte Counties, Jepson Prairie Preserve in Solano County, the Sacramento National Wildlife Refuge in Glenn County, the Tule Ranch Unit of the Yolo basin Wildlife Area in Yolo County, the Grasslands Ecological Area in Merced County, one location in Stanislaus County, three locations in the Southern Sierra Foothills Vernal Pool Region, and two locations near the Santa Barbara Vernal Pool Region (USFWS 2003, USFWS 2006). In April of 2007, the USFWS reported that a single Conservancy fairy shrimp in one vernal pool was documented within the Mariner Conservation Bank in Placer County, near the City of Lincoln, California.

The life cycle of Conservancy fairy shrimp is reliant on the ephemeral conditions of its vernal habitat. It inhabits a variety of different landforms and soil types, and is often found in large, turbid pools with low conductivity, total dissolved solids, and alkalinity (USFWS 2005).

The CNDDB does not document any occurrences of conservancy fairy shrimp within five miles of the Study Area, but the vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area represent suitable habitat for this species. Wet- and dry-season branchiopod surveys conducted on an adjacent property (Estia at Rocklin site, APN 017-276-007) in 2021-2022 were negative for this species. Wet-season surveys of the Study Area are scheduled to begin in the late fall/early winter of 2023 (continuing into 2024) and dry-season sampling is scheduled for fall of 2023.

5.2.3 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to FESA. Historically, the range of vernal pool fairy shrimp extended throughout the Central Valley of California. Vernal pool fairy shrimp populations have been found in several locations throughout California, with habitat extending from Stillwater Plain in Shasta County through the Central Valley to Pixley in Tulare County, and along the Central Coast range from northern Solano County to Pinnacles National Monument in San Benito County (Eng et al. 1990, Fugate 1992). Additional populations occur in San Luis Obispo, Santa Barbara, and Riverside counties. The historic and current ranges of vernal pool fairy shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005). The life cycle of vernal pool fairy shrimp is adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales. Fairy shrimp embryos survive the dry season in cyst form. Cysts "hatch" soon after pools become inundated during the wet season. Fairy shrimp complete their life cycle quickly and feed on small particles of detritus, algae, and bacteria (Eriksen and Belk 1999).

The CNDDB documents 33 occurrences of vernal pool fairy shrimp within five miles of the Study Area (**Figure 3**). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area represent suitable habitat for this species. Wet- and dry-season branchiopod surveys conducted on an adjacent property (Estia at Rocklin site, APN 017-276-007) in 2021-2022 were negative for this species. Wet-season surveys of the Study Area are scheduled to begin in the late fall/early winter of 2023 (continuing into 2024) and dry-season sampling is scheduled for fall of 2023.

5.2.4 Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp (*Lepidurus packardi*) is listed as endangered pursuant to FESA. The historic range of the vernal pool tadpole shrimp likely extended throughout the Central Valley of California and has been documented from east of Redding in Shasta County south to Fresno County, and from the San Francisco Bay Wildlife Refuge in Alameda County. The historic and current ranges of vernal pool tadpole shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005).

This species is associated with long-duration seasonal pools in grasslands throughout the northern and eastern portions of the Central Valley (USFWS 2005). Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone. Much like vernal pool fairy shrimp, vernal pool tadpole shrimp are adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales (USFWS 2005).

The CNDDB documents two occurrences of vernal pool tadpole shrimp within five miles of the Study Area (**Figure 3**). The vernal pools and seasonal wetland swales throughout the Study Area are generally not deep enough to support this species. Wet- and dry-season branchiopod surveys conducted on an adjacent property (Estia at Rocklin site, APN 017-276-007) in 2021-2022 were negative for this species Wet-season surveys of the Study Area are scheduled to begin in the late fall/early winter of 2023 (continuing into 2024) and dry-season sampling is scheduled for the fall of 2023.

5.3 Reptiles

5.3.1 Northwestern Pond Turtle

The northwestern pond turtle (Actine*mys marmorata*) is proposed for listing as threatened under FESA and is designated as a CDFW species of special concern. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites. Although the turtles must live near water, they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals and some plants. Northwestern pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks.

The CNDDB does not document any occurrences of northwestern pond turtle within five miles of the Study Area. The Study Area lacks permanent water to support this species, but the pond approximately 160 feet to the north of the Study Area may provide suitable aquatic habitat. Because females move overland for up to 100 meters (325 feet) in the spring and summer to find suitable sites for egg-laying, the northern 165 feet of the Study Area could support dispersing turtles. However, due to the soils type (volcanic soils not suitable for burrowing), the Study Area would not provide suitable nesting habitat/substrate.

5.4 Birds

5.4.1 Tricolored Blackbird

Tricolored blackbirds (*Agelaius tricolor*) are not federally listed but are listed as threatened under CESA and identified as a CDFW species of special concern. This species is a colonial nester that prefers to nest in dense stands of cattails, bulrush, or blackberry thickets associated with perennial water (Shuford and Gardali 2008). Most tricolored blackbirds forage within 3.1 miles of their colony sites (Shuford and Gardali 2008). Proximity to suitable foraging habitat appears to be extremely important for the establishment of colony sites, as tricolored blackbirds usually forage, at least initially, in the field containing the colony site (Shuford and Gardali 2008).

The CNDDB documents nine occurrences of tricolored blackbird nesting within five miles of the Study Area (**Figure 3**), the closest of which is approximately 2.3 miles to the northeast, in the area of the Twelve Bridges development (Occurrence #907). This record notes that nesting was anecdotally reported in 1994, but subsequent observations did not record nesting (CNDDB 2023). The next closest nesting colony was recorded in the Antonio Mountain Ranch Mitigation Bank area in 2017 (Occurrence #917; CNDDB 2023). The Cornell Laboratory of Ornithology's (Cornell Lab's) eBird database lists several observations of small and large flocks utilizing areas near the pond north of the Study Area between 2020 and 2022 (Cornell Lab 2023). The non-native annual grassland throughout and adjacent to the Study Area represents marginally suitable foraging habitat for this species. No nesting habitat for tricolored blackbird is present within the Study Area.

5.4.2 Grasshopper Sparrow

The grasshopper sparrow (*Ammodramus savannarum*) is not listed pursuant to either the CESA or FESA, but it is designated as a species of special concern by CDFW. The grasshopper sparrow is an uncommon and local summer resident and breeder along the western edge of the Sierra Nevada and most coastal counties south to Baja California (Small 1994, Vickery 1996). This species generally inhabits moderately open grasslands and prairies with patchy bare ground and scattered shrubs (Vickery 1996). Grasshopper sparrows are more likely to occupy large tracts of habitat than small fragments (Vickery 1996). Breeding generally occurs from early May through August.

The CNDDB documents one occurrence of grasshopper sparrow within five miles of the Study Area (**Figure 3**). This occurrence was recorded in 1998 in the Eastland Wetland Preserve (Occurrence #8; CNDDB 2023). The grasslands throughout the Study Area represent marginally suitable habitat for this species.

5.4.3 Burrowing Owl

Burrowing owl (*Athene cunicularia*) is not listed pursuant to either the CESA or FESA; however, it is designated as a species of special concern by the CDFW. They typically inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 1995). The breeding season extends from February 1 through August 31 (CBOC 1993, CDFG 1995).

The CNDDB documents two occurrences of burrowing owl within five miles of the Study Area (**Figure 3**), the closest of which is approximately 3.5 miles to the northwest on the Moore Ranch Conservancy property (CNDDB 2023). Cornell Lab's eBird indicates that at least one owl wintered in the area around the pond north of the Study Area in 2021 (Cornell Lab 2023). The grasslands throughout the Study Area represent suitable foraging habitat for this species. However, no ground squirrel burrows or debris piles suitable for nesting were observed during field surveys and the volcanic soils limit burrowing opportunities, so it is

unlikely that the species would breed within the Study Area. However, adjacent off-site areas to the north provide better conditions for nesting.

5.4.4 Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a raptor species that is not federally listed but is listed as threatened under CESA. Breeding pairs typically nest in tall trees associated with riparian corridors, and forage in grassland, irrigated pasture, and cropland with a high density of rodents (Shuford and Gardali 2008). The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter (Shuford and Gardali 2008).

The CNDDB documents four occurrences of Swainson's hawk nests within five miles of the Study Area (**Figure 3**). All four occurrences are west of State Highway 65 and the CNDDB notes that one (Occurrence #791, first recorded in 2001) is possibly extirpated due to development in the area and lack of activity in subsequent years (CNDDB 2023). Of the three other records, the closest is about two miles southwest of the Study Area, in the vicinity of William Hughes Park along Pleasant Grove Creek (Occurrence #2115, recorded in 2009; CNDDB 2023). eBird records indicate regular foraging activity in the area around the pond from 2019-2023 and show the nearest recent nesting activity occurring in 2020 in the vicinity of Veterans Memorial Park in Roseville (eBird checklist S70714306, approximately three miles to the southwest; Cornell Lab 2023). The eBird nesting record from 2020 occurs in the same general location as one of the CNDDB records from 2009 (Occurrence #952; CNDDB 2023). Though no nesting habitat is present in the Study Area, the grasslands throughout the Study Area represent suitable foraging habitat for and appear to be regularly used by this species.

5.4.5 White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is not federally or state listed but is a CDFW fully protected species. This species is a yearlong resident in the Central Valley and is primarily found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands (Shuford and Gardali 2008). White-tailed kites typically nest from March through June in trees within riparian, oak woodland, and savannah habitats of the Central Valley and Coast Range (Shuford and Gardali 2008).

The CNDDB lists one occurrence of white-tailed kite within five miles of the Study Area (**Figure 3**). This record (Occurrence #56; CNDDB 2023), from 1999, indicates that the site was used for nesting in 1998 but that nesting did not occur in 1999. eBird lists numerous sightings and foraging behavior in the area around the pond. Though no nesting habitat is present in the Study Area, the grasslands throughout the Study Area represent suitable foraging habitat for and appear to be regularly used by this species.

5.4.6 Loggerhead Shrike

The loggerhead shrike *(Lanius ludovicianus)* is not listed and protected pursuant to either the CESA or FESA; but is a CDFW species of special concern. Loggerhead shrikes nest in small trees and shrubs in woodland

and savannah vegetation communities, and forage in open habitats throughout California (Shuford and Gardali 2008). The nesting season ranges from March through June.

The CNDDB does not document any occurrences of loggerhead shrike within five miles of the Study Area. However, the grasslands throughout the Study Area represent marginally suitable foraging habitat for this species.

6.0 IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

This section details potential impacts to the sensitive biological resources discussed above. The impact area consists of 12.6 acres within the overall Study Area.

6.1 Terrestrial Vegetation

6.1.1 Vegetation Communities

Table 3 and **Figure 6** summarize the anticipated terrestrial vegetation impacts within the Study Area.

Table 3. Terrestrial Vegetation Community Impacts within the Study Area

Resource Type	Impacted Acreage	Avoided Acreage	Total Acreage
Non-Native Annual Grassland	11.1	0.3	11.4
Developed (Road)/Disturbed	1.4	0.4	1.8
Total	**12.5**	**0.7**	**13.2**

6.1.2 Protected Trees

The Project does not require the removal of any trees, so no trees subject to regulation under the City's tree ordinance would be affected.

6.2 Aquatic Resources

The Project would impact seasonal wetland, seasonal wetland swale, and vernal pool wetlands. **Table 4** on the following page and **Figure 6** summarize the anticipated aquatic resource impacts within the Study Area.

Table 4. Aquatic Resource Impacts within the Study Area

Resource Type	Impacted (acres)	Avoided (acres)	Total (acres)
Wetlands			
Seasonal Wetland	<0.001	0.00	<0.001
Seasonal Wetland Swale	0.13	0.00	0.13
Vernal Pool	0.11	0.00	0.11
Other Waters			
Intermittent Drainage	0.00	<0.001	<0.001
Totals	**0.24**	**<0.001**	**0.24**

Note that, consistent with the City of Rocklin's General Plan Open Space, Conservation, and Recreation Element Action Step OCRA 11, the development area is at least 50 feet away from the off-site intermittent tributary north of the Study Area. The intermittent drainage west/northwest of the Study Area is not a natural drainage, having been created to intercept storm water from State Highway 65. The Project would not affect setbacks and/or open space easements associated with perennial or intermittent streams.

6.3 Special-Status Plant Species

The results of a protocol-level special status plant survey of the Study Area indicate that the Study Area supports a population of dwarf downingia. None of the other target species listed in **Section 5.1** above were observed during the protocol-level surveys. Project activity that would result in permanent impacts to the area where dwarf downingia was observed would likely eliminate this population. Dwarf downingia is a CRPR 2B.2 species, meaning it is rare, threatened, or endangered in California (but more common elsewhere). According to the CNPS, this species is moderately threatened in California (20-80% of occurrences are threatened and/or have a moderate degree and immediacy of threat; CNPS 2023).

6.4 Crotch Bumble Bee

Given the general absence of suitable burrows for nesting, Crotch bumble bee is unlikely to nest in the Study Area. However, it could utilize the site for foraging and nests could be established in burrows created since the time of the Study Area surveys. If individuals of this species or their nests are present in the Study Area at the time of construction, they could be injured or killed.

6.5 Vernal Pool Branchiopods

The vernal pools and seasonal wetland swales throughout the Study Area represent suitable habitat for conservancy fairy shrimp and vernal pool fairy shrimp. The vernal pools and seasonal wetland swales are generally not suitable for vernal pool tadpole shrimp. The results of planned wet- and dry-season sampling will be used to determine whether the Project may affect any listed vernal pool branchiopods (conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp). In the interim, this report assumes that if these species are present in the Study Area, fill of their wetland habitat would result in the loss of individuals utilizing the area.

6.6 Northwestern Pond Turtle

The Study Area does not support suitable aquatic habitat for northwestern pond turtle, but this species may occur in a perennial pond north of the Study Area and could use the northern portion of the Project site for dispersal. If individual pond turtles were present within the impact area during construction, they could be injured or killed.

6.7 Birds

6.7.1 Burrowing Owl

While the Study Area does not provide suitable nesting habitat for burrowing owl, adjacent areas to the north provide better potential nesting conditions and/or refugia. Additionally, culverts under the utility access road could be utilized by this species as refugia. If burrowing owls were nesting on-site, disturbance or removal of burrows could adversely impact these species. Additionally, burrowing owls nesting in avoided areas adjacent to construction could be disturbed by construction, which could result in nest abandonment.

6.7.2 Nesting Raptors and Migratory Birds

Grasshopper sparrow has the potential to nest within the Study Area, as do other more common bird species protected by the MBTA. If migratory birds and raptors were nesting on-site, removal of their nests would impact these species. Furthermore, birds nesting in avoided areas adjacent to construction could be disturbed by construction, which could result in nest abandonment.

6.7.3 Foraging Raptors

The non-native annual grassland within the Study Area provides suitable foraging habitat for Swainson's hawk, white-tailed kite, burrowing owl, and other more common raptors. Approximately 12.4 acres of suitable foraging habitat within the Study Area will be impacted during Project implementation (**Figure 6**).

7.0 AVOIDANCE, MINIMIZATION, AND IMITIGATION FOR IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

The following are suggested measures to avoid and/or minimize sensitive biological resource impacts that may be associated with Project construction.

7.1 Aquatic Resources

The Project would directly impact a total of 0.238 acre of aquatic resources in the Study Area. The Northwest Rocklin Annexation EIR includes the following mitigation measure, which applies to the Project:

- QMM-3(b) – City shall require the Project Applicant and/or any developers filing tentative maps to mitigate impacts to ensure the avoidance of any net loss of seasonal wetlands and

jurisdictional waters of the United States, or the bed, channel, or bank of any stream. Such avoidance may be achieved by implementing and complying with the provisions of the Clean Water Act, as administered by the U.S. Army Corps of Engineers, under Section 404 of the Clean Water Act, and under Sections 1600-1607 of the California Fish and Game Code, as administered by the California Department of Fish and Game (CDFG), which includes obtaining all required permits from the U.S. Army Corps of Engineers and entering into a Streambed Alteration Agreement with CDFG and complying with all terms and conditions of those permits and agreements.

However, as noted above, some of the wetlands within the impact area may not be jurisdictional under Section 404 of the Clean Water Act. As such, we recommend the following additional measure:

- If the USACE determines that the seasonal wetlands are not jurisdictional, then a permit from the USACE is not required. To compensate for impacts to non-jurisdictional aquatic resources, the Project proponent shall file a Report of Waste Discharge with the RWQCB. The Project proponent shall adhere to the Waste Discharge Requirements issued as a result.

7.2 Special-Status Plant Species

The Project would directly impact a mapped population of dwarf downingia, a CRPR List 2B.2 species. The Northwest Rocklin Annexation EIR includes the following mitigation measures, which apply to the Project:

- QMM-l(b) – Disturbed special-status plant populations shall be transplanted to an approved mitigation site and/or mitigation credits shall be purchased in an approved mitigation bank to ensure no net loss of rare plant populations.

- QMM-1 (c) – Transplanted populations will be monitored by a qualified biologist/botanist for a period of 5 years. If there is greater than 80 percent survival of transplanted individuals the mitigation will be considered a success. Additional plants will be required if the 80 percent survival goal is not met.

No additional avoidance, minimization, or mitigation measures are recommended.

7.3 Crotch Bumble Bee

Crotch bumble bee could utilize the impact area for foraging or for nesting if suitable burrows form between the present and the start of construction. Crotch bumble bee was designated as a candidate for listing under the CESA in 2019, but no decision on listing has been published. If, at the time of project implementation, the species is not a CESA candidate or CESA listed, and it does not fall into any of the other special-status categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary.

Because Crotch bumble bee is a candidate species, appropriate mitigation measures are still being developed and refined. Madrone has developed the following measures based on current literature and research and CDFW's *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). If at a later date a different mitigation measure is determined to be more appropriate, that can be submitted to the City at that time for review and approval.

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) shall take place between 1 September and 31 March (i.e., outside the colony active period), if feasible, to avoid impacts on Crotch bumble bee.
- If completing all initial ground-disturbing work between 1 September and 31 March is not feasible, then a senior biologist with 10 or more years of experience conducting biological resource surveys within California shall conduct a pre-construction survey for Crotch bumble bee in the area proposed for impact no more than 14 days prior to the commencement of construction activities. The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65° F and 90° Fahrenheit, with low wind and no rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast and shall survey at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact and the level of effort shall be based on the metric of a minimum of one person-hour of searching per three acres of suitable floral resources/foraging habitat. A meandering pedestrian survey shall be conducted throughout the area proposed for impact in order to identify patches of suitable floral resources. Suitable floral resources for Crotch bumble bee include species in the following families: Apocynaceae, Asteraceae, Boraginaceae, Fabaceae, and Lamiaceae.
- At a minimum, pre-construction survey methods shall include the following:
    - Search areas with floral resources for foraging bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging bumble bees are present.
    - If bumble bees are observed, attempt to photograph the individual and identify it to species.
    - If Crotch bumble bees are observed, watch the individuals and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.
    - Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
    - If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of no less than 4 inches to assist with locating the nest.
    - Look for concentrated special-status bumble bee activity.
    - Listen for the humming of a nest colony.

- The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed bumble bee activity, a list of bumble bee species observed, a description of any vegetation removed to facilitate the survey, and their determination of if survey observations suggest a special-status bumble bee nest(s) may be present or if construction activities could otherwise harm special-status bumble bees. The report shall be submitted to the City prior to the commencement of construction activities.
- If no bumble bees are located during the pre-construction survey or the bumble bees located are definitively identified as common (i.e., not special-status) species, then no further mitigation or coordination with the City and/or CDFW is required.
- If any sign(s) of a bumble bee nest is observed, and/or if it cannot be established the species present is not a special-status bumble bee, then construction shall not commence until either 1) the bumble bees present are positively identification as common (i.e., not special status) by an experienced bumble bee taxonomist, or 2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include but not be limited to waiting until the colony active season ends; establishment of nest buffers; or obtaining an Incidental Take Permit (ITP) from CDFW.
- It is recommended, but not required, that the Project proponent also survey the proposed impact areas the year before construction begins in order to avoid potential last-minute delays associated with identifying special-status bumble bees on-site immediately prior to construction activities. To be most effective, this optional survey should follow the protocol outlined above.
- If, after coordination with CDFW, impacts to Crotch bumble bee cannot be avoided, the Project proponent shall obtain an ITP from CDFW prior to the City's approval of permits authorizing construction, and the Project proponent shall implement all conditions identified in the ITP. Mitigation required by the ITP may include but will not be limited to, the Project proponent translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources on areas of the Project site that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

7.4 Vernal Pool Branchiopods

The Project would result in the fill of seasonal wetlands, seasonal wetland swales, and vernal pools that may provide habitat for federally-listed vernal pool branchiopods. The Northwest Rocklin Annexation EIR includes the following mitigation measures, which apply to the Project:

- QMM-7(b) – The project will ensure no net loss of vernal pool crustaceans and their habitat. This may be achieved through the Section 404/Section 7 Consultation permit process, in accordance with typical standards used by the U.S. Fish and Wildlife Service. This requirement shall be implemented prior to approval of improvement plans or a use permit. The applicant has three options for mitigation of project-related impacts to vernal pool crustacean habitat.

- Option 1: The applicant shall establish a USFWS-approved mitigation bank. The applicant shall reconstruct vernal pool crustacean habitat at a replacement ratio of 1:1 for vernal pool crustacean habitat creation AND 2:1 for vernal pool crustacean habitat preservation for each acre of vernal pool crustacean habitat impacted. The applicant shall permanently protect the agreed-upon acreage of vernal pool crustacean habitat within the mitigation bank via a USFWS-approved conservation easement, to be held by a USFWS-approved entity.
- Option 2: The applicant shall pay into the USFWS vernal pool crustacean mitigation fund. Tue replacement ratio would be 1:1 for vernal pool crustacean habitat creation AND 2:1 for vernal pool crustacean habitat preservation for each acre of vernal pool crustacean habitat impacted.
- Option 3: The applicant shall purchase vernal pool crustacean mitigation credits from an existing mitigation bank. The replacement ratio would be 1:1 for vernal pool crustaceans habitat creation AND 2:1 for vernal pool crustacean habitat preservation for each acre of vernal pool crustacean habitat impacted.

Note that the above mitigation measures would only apply if federally-listed vernal pool branchiopods are found during the scheduled wet- and dry season surveys of the Project site and/or the Project proponent assumes presence of the species on-site. No additional avoidance, minimization, or mitigation measures are recommended.

7.5 Northwestern Pond Turtle

While the Project would not impact northwestern pond turtle aquatic and nesting habitat, the species could use the Project impact area for dispersal. To mitigate for potential impacts to northwestern pond turtle, we recommend the following measures:

- The Project proponent shall install temporary exclusion fencing along the northern boundary of the Project impact area to prevent northwestern pond turtles from entering the active construction area. The fencing shall be inspected and repaired if necessary, at least weekly. The fencing may be removed following the completion of construction.
- After the exclusion fencing is installed, a northwestern pond turtle survey shall be conducted no more than 24 hours prior to construction in areas within 325 feet of the limits of the perennial pond north of the Study Area. If no northwestern pond turtles are found, no further mitigation is necessary. If a northwestern pond turtle is observed within the proposed impact area, a qualified biologist shall relocate the individual to suitable habitat outside of the proposed impact area prior to construction.

7.6 Nesting Birds

7.6.1 Burrowing Owl

Though there is no suitable burrowing owl nesting habitat in the Study Area, the species may nest in adjacent areas and/or may use culverts under the utility access road as refugia. The Northwest Rocklin Annexation EIR does not contain mitigation measures that apply specifically to burrowing owl but does require pre-construction surveys for raptors/birds of prey, and the EIR identifies burrowing owls as a member of that category. As such, the following mitigation measure from the EIR would apply:

- QMM-6(a) – The project applicant, in consultation with the City of Rocklin and CDFG *[CDFW]*, shall conduct a pre-construction breeding-season survey (approximately February 15 through August 1) of the project site during the same calendar year that construction is planned to begin. The survey shall be conducted by a qualified raptor biologist to determine if any birds-of-prey are nesting on or directly adjacent to the Proposed Project site. No surveys would be needed if construction activities occur outside of the dates shown.

  If phased construction procedures are planned for the Proposed Project, the results of the above survey shall be valid only for the season when it is conducted. A new survey shall be conducted for construction occurring in subsequent seasons.

  A report shall be submitted to the City of Rocklin, following the completion of the raptor nesting survey that includes, at a minimum, the following information: A description of methodology including dates of field visits, the names of survey personnel with resumes, and a list of references cited and persons contacted. A map showing the location(s) of any raptor nests observed on the project site.

  If the above survey does not identify any nesting raptor species on the project site, no further mitigation shall be required. However, should any raptor species be found nesting on the project site, the following mitigation measure (QMM-6[b]) shall be implemented.

- QMM-6(b) – The project applicant, in consultation with the City of Rocklin and CDFG *[CDFW]*, shall avoid all birds-of-prey nest sites located in the project site during the breeding season while the nest is occupied with adults and/or young. The occupied nest shall be monitored by a qualified raptor biologist to determine when the nest is no longer used. Avoidance shall include the establishment of a non-disturbance buffer zone around the nest site. The size of the buffer zone will be determined in consultation with the City and CDFG *[CDFW]*. Highly visible temporary construction fencing shall delineate the buffer zone.

- QMM-6(c) – If a legally-protected species nest is located in a tree designated for removal, the removal shall be deferred until after August 30th, or until the adults and young are no longer dependent on the nest site as determined by a qualified biologist.

Additionally, we recommend the following measure to supplement the EIR requirements:

- To minimize the need for coordination with CDFW, standard survey buffers of accessible areas within 0.5 mile (2,640 feet) for raptors and 500 feet for burrowing owl, tricolored blackbird and other migratory birds are recommended.

See **Section 7.6.3** below for measures related to pre-construction surveys for non-raptor birds.

7.6.2 Swainson's Hawk

Though there is no suitable Swainson's hawk nesting habitat in the Study Area, the species may nest in adjacent areas that do support suitable nest trees. The Northwest Rocklin Annexation EIR does not contain mitigation measures that apply specifically to Swainson's hawk but does require pre-construction surveys for raptors/birds of prey, as outlined in Section 7.5.1 above. Application of the same EIR mitigation measures listed in Section 7.5.1, QMM-6(a), QMM-6(b), and QMM-6(c), would apply to the Project. No additional avoidance, minimization, or mitigation measures are recommended.

7.6.3 Other Migratory Birds

The Northwest Rocklin Annexation EIR does not contain mitigation measures that apply specifically to non-raptor nesting birds. To supplement EIR measures QMM-6(a), QMM-6(b), and QMM-6(c), we recommend the following measures to avoid and minimize impacts to nesting migratory birds:

- If construction activity begins during the active migratory bird nesting season (generally February 1 through September 1), a qualified biologist shall conduct a pre-construction nesting bird survey throughout the Project Area and all accessible areas within a 500-foot radius of proposed construction areas no more than 14 days prior to the start of construction. If there is a break in construction activity of more than 14 days, then subsequent surveys shall be conducted.
- If active tricolored blackbird nests are found, no construction activities shall take place within 500 feet of the nest/colony until the young have fledged. If active nests for any other bird covered under the MBTA are found, a 100-foot no disturbance buffer will be established until the young have fledged. These no-disturbance buffers may be reduced if a smaller buffer, along with nest monitoring (if applicable), is proposed by the qualified project biologist and approved by the City. The reduced buffer distance will take into consideration the natural history of the species of bird nesting, the proposed activity level adjacent to the nest, habituation to existing or ongoing activity, and nest concealment (are there visual or acoustic barriers between the proposed activity and the nest). The qualified project biologist can visit the nest as needed to determine when the young have fledged the nest and are independent of the site or the nest can be left undisturbed until the end of the nesting season.

- Construction activities may only resume within the buffer zone after a follow-up survey by the qualified project biologist has been conducted and a report has been prepared indicating that the nest (or nests) are no longer active.
- Should construction activities cause a nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest in a manner that would be considered a result of construction activities, then then the established exclusionary buffer shall be increased such that activities are far enough from the nest to stop agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by the qualified project biologist in consultation with the City.
- Results of the nesting migratory bird survey shall be included in the survey report outlined in Northwest Rocklin Annexation EIR mitigation measure QMM-6(a).

7.7 Swainson's Hawk Foraging Habitat

Approximately 12.4 acres of suitable foraging habitat for Swainson's hawk would be lost as a result of the Project. The Northwest Rocklin Annexation EIR does not include mitigation measures that require compensation for the loss of Swainson's hawk foraging habitat. As such, we recommend the following measure to compensate for impacts to foraging habitat:

- Within the six (6) months prior to construction, a qualified biologist familiar with the Project and Project site shall search the CNDDB, coordinate with the California Department of Fish and Wildlife (CDFW) regarding Swainson's hawk nesting records that have been received but not entered into the CNDDB, and search the Cornell Lab of Ornithology's eBird database for confirmed nesting records to determine the closest active nest to the Project Area. An active nest is defined as a nest with documented Swainson's hawk use within the past five (5) years. Depending on the distance from the closest active nest to the Project site, the Project proponent shall mitigate for the loss of suitable Swainson's hawk foraging habitat by implementing one of the following measures:
    - Active nest identified within one (1) mile of the Project Area: One (1) acre of suitable foraging habitat shall be protected for each acre of suitable foraging habitat developed. Protection shall be via purchase of mitigation bank credits or other land protection mechanism acceptable to the City.
    - Active nest identified within five (5) miles (but greater than 1 mile) of the Project Area: 0.75 acre of suitable foraging habitat shall be protected for each acre of suitable foraging habitat developed. Protection shall be via purchase of mitigation bank credits or other land protection mechanism acceptable to the City.
    - Active nest identified within 10 miles (but greater than 5 miles) of the Project Area: 0.5 acre of suitable foraging habitat shall be protected for each acre of suitable foraging habitat developed. Protection shall be via purchase of mitigation bank credits or other land protection mechanism acceptable to the City.
    - If there are no active nests within 10 miles of the Project, no foraging habitat mitigation is required.

Implementation of this measure would also provide compensation for the loss of foraging habitat for burrowing owl and other special-status raptors that rely on annual grassland foraging habitat.

7.8 Worker Environmental Awareness Training

We recommend the following measure to ensure that the Project construction crew(s) are aware of potential resources on-site and the required avoidance and minimization measures.

- Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will include the following: discussion of the state and federal Endangered Species Act, the Clean Water Act, the Project's permits and CEQA documentation, and associated mitigation measures; consequences and penalties for violation or noncompliance with these laws and regulations; identification of special-status wildlife, location of any avoided Waters of the U.S; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status wildlife species. The WEAT will also discuss the different habitats used by the species' different life stages and the annual timing of these life stages. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed. Workers will be shown the Project limits during the WEAT training; worker access should be restricted along undeveloped Project limits to minimize the potential for inadvertent environmental impacts.

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Figures

Figure 1. Site and Vicinity

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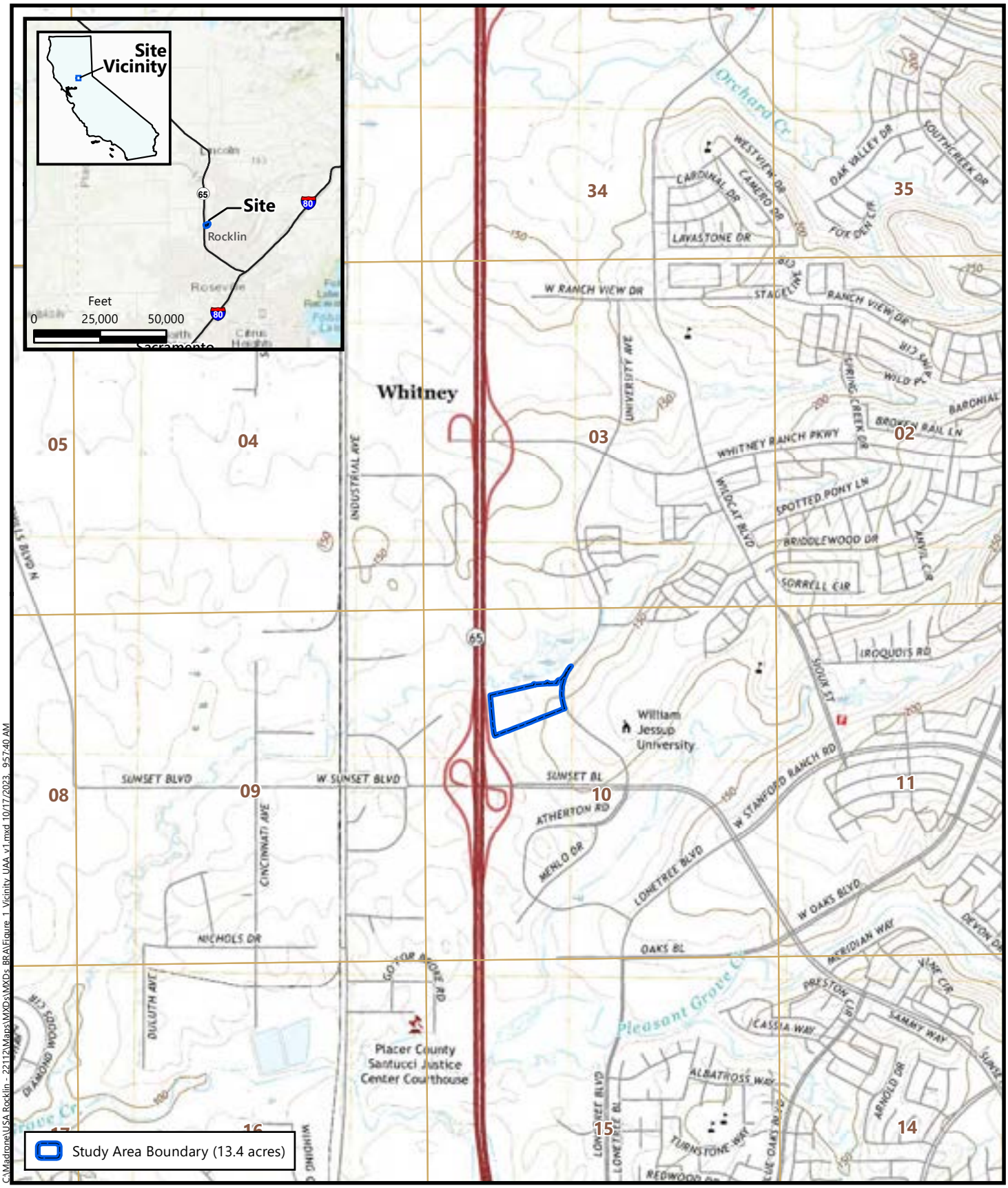
Figure 3. California Natural Diversity Database Occurrences of Special-Status Wildlife Species

Figure 4. Vegetation Communties and Aquatic Resources

Figure 5. Natural Resources Conservation Service Soils

Figure 6. Vegetation Community and Aquatic Resources Impacts



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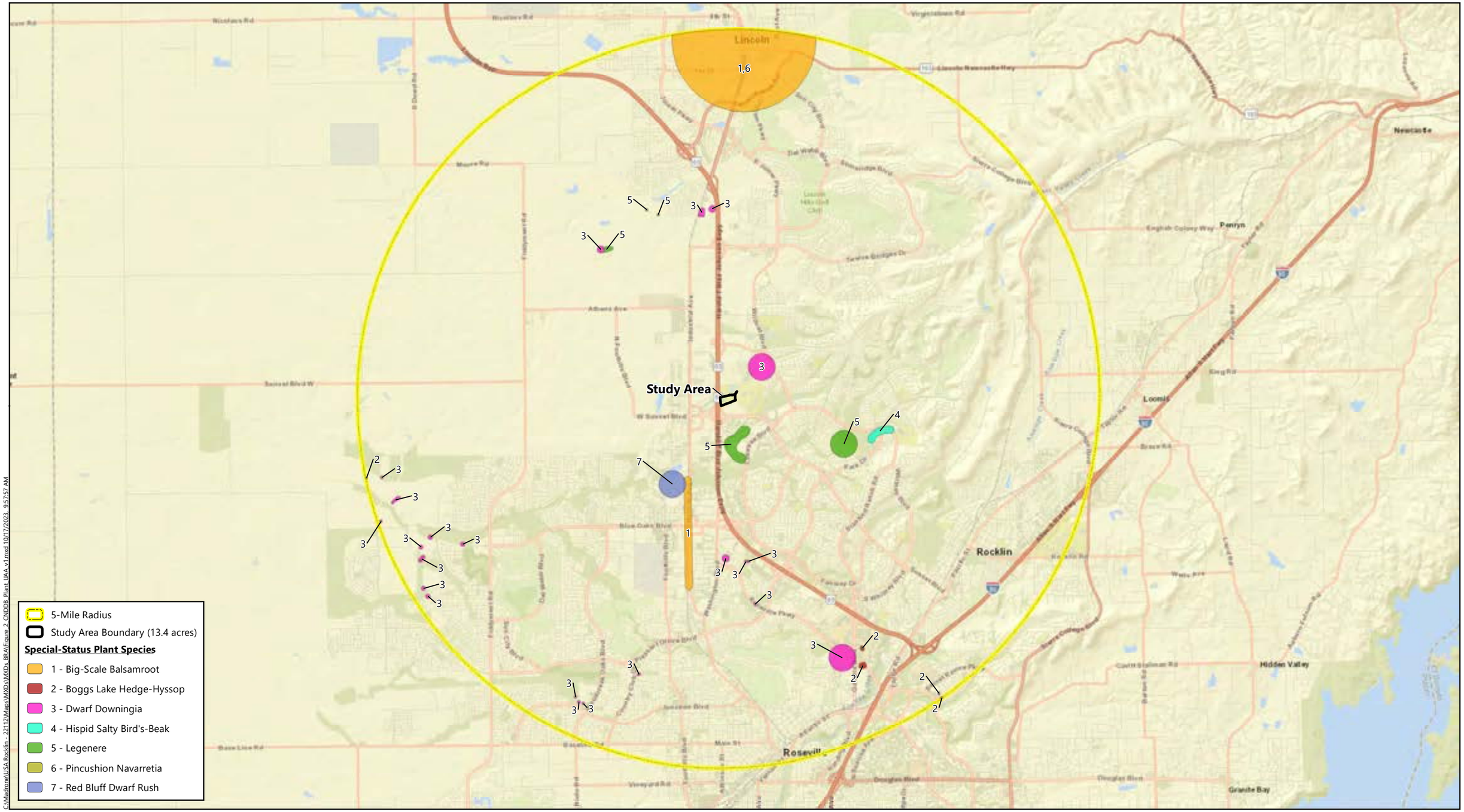
Source: United States Geologic Survey, 2021.
"Roseville, California" 7.5-Minute Topographic Quadrangle
Section 10, Township 11 North, Range 6 East.
Latitude 38.820622, Longitude -121.297655

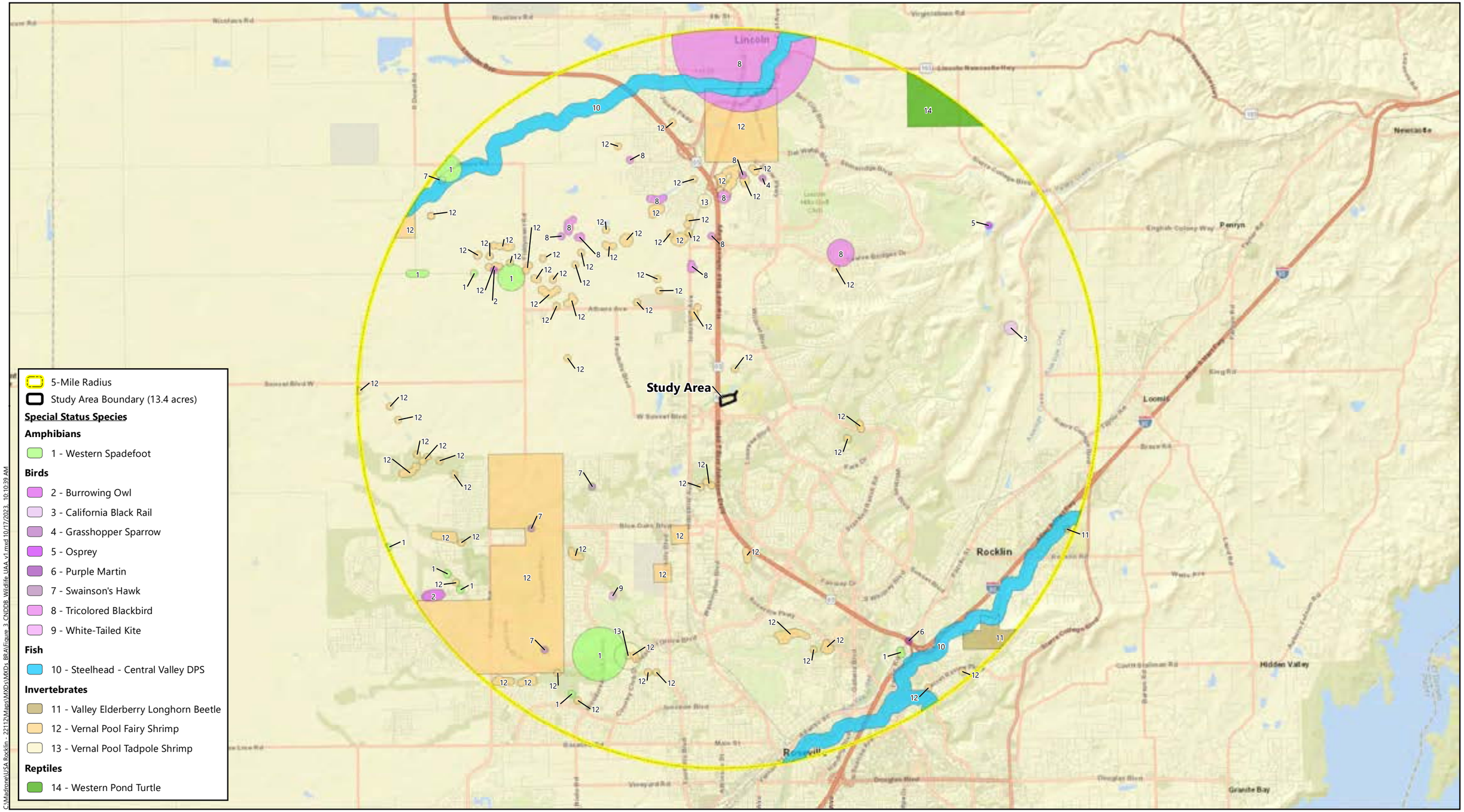
Figure 1
Site and Vicinity

University Avenue Apartments
Rocklin, Placer County, California



Source: *California Department of Fish and Wildlife*, September 2023.
Basemap Source: *National Geographic* and *ESRI*

Figure 2
California Natural Diversity Database Occurrences of Special-Status Plant Species
University Avenue Apartments
Rocklin, Placer County, California



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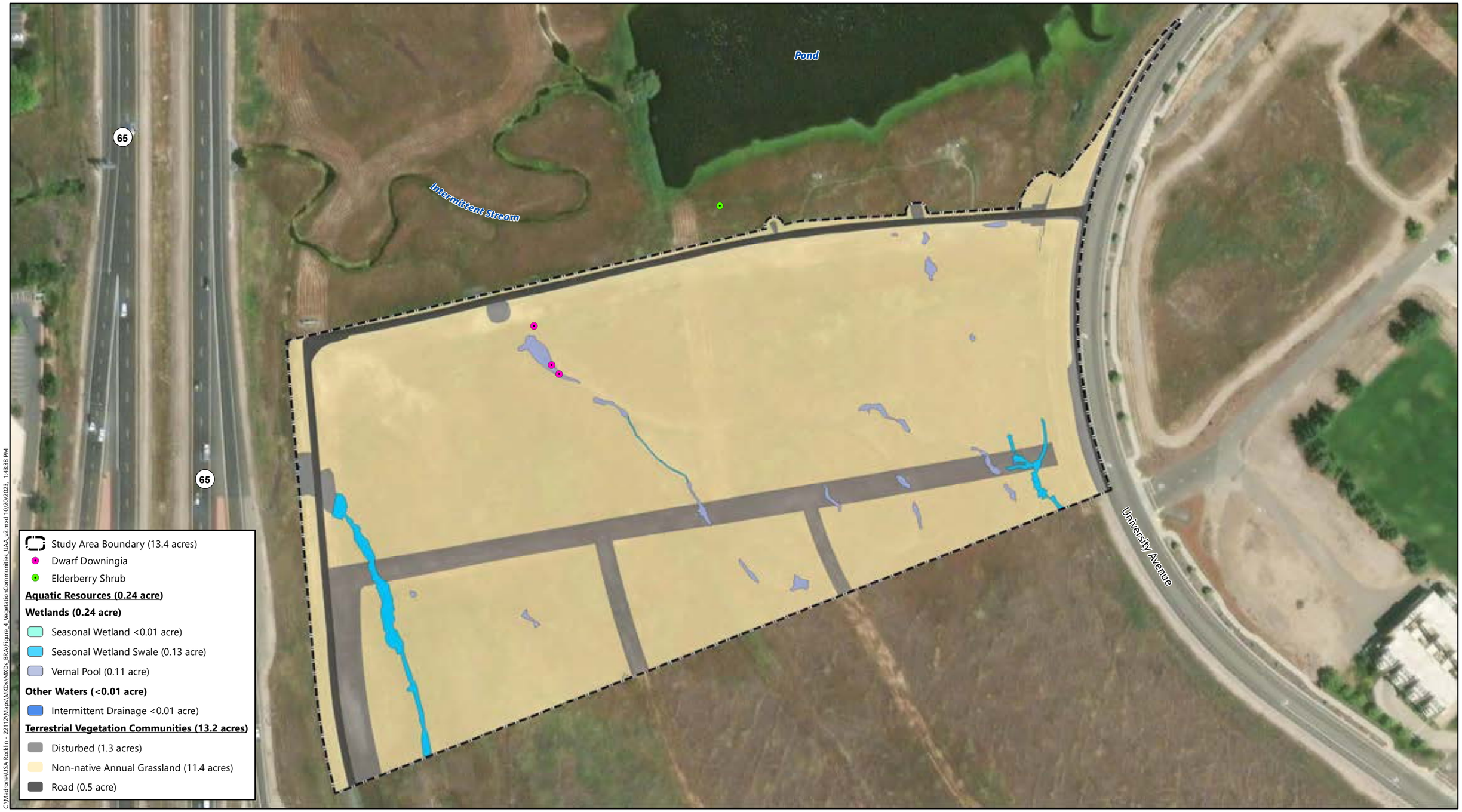
Source: *California Department of Fish and Wildlife*, September 2023.
Basemap Source: *National Geographic* and *ESRI*

Figure 3
California Natural Diversity Database Occurrences of Special-Status Wildlife Species
University Avenue Apartments
Rocklin, Placer County, California



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Note: Small summation errors may occur due to rounding.
Aerial Source: Maxar, 26 April 2022.

Figure 4
Vegetation Communities and Aquatic Resources

University Avenue Apartments
Rocklin, Placer County, California

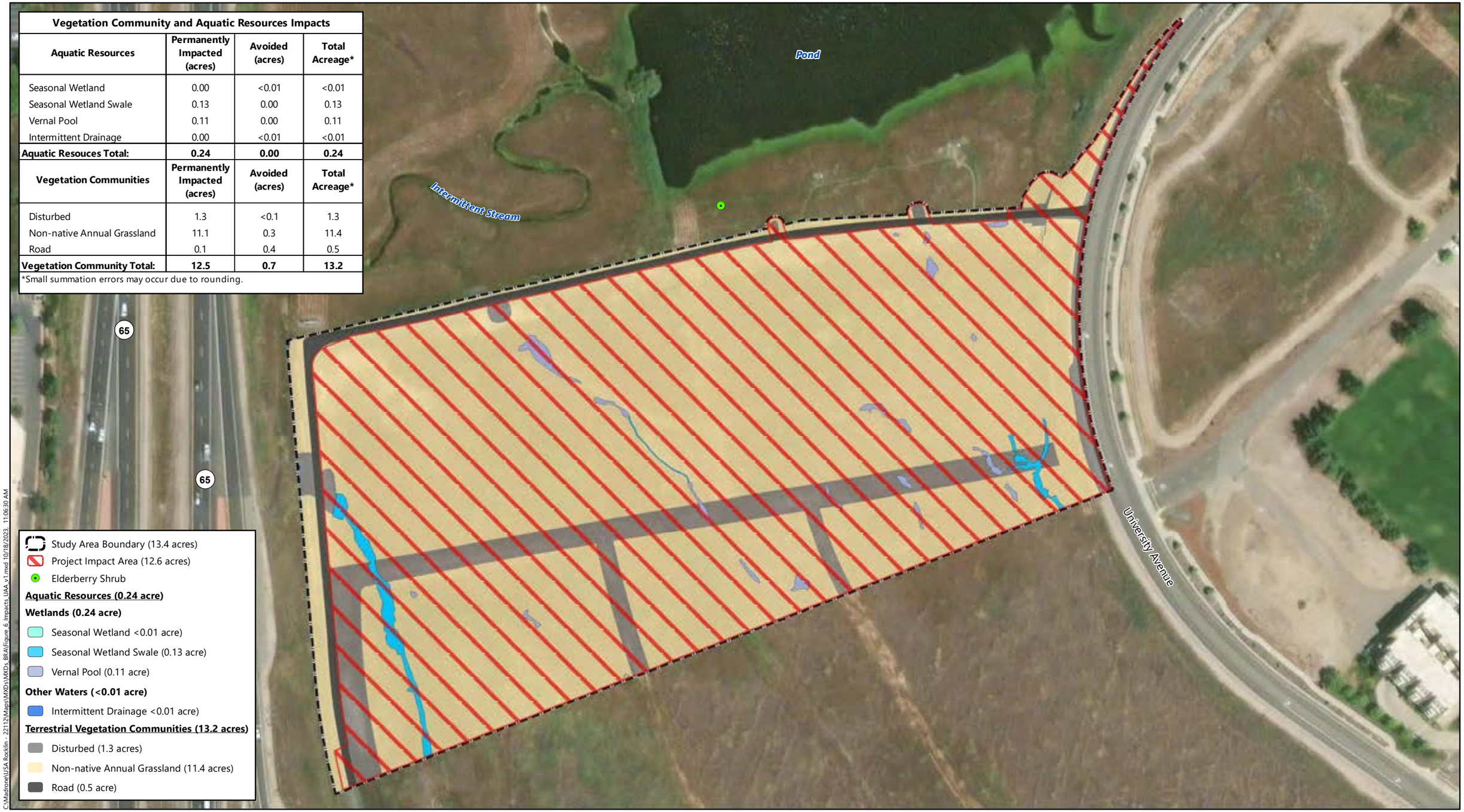
Soil Survey Source: *USDA, Soil Conservation Service. Soil Survey Geographic (SSURGO) database for Placer County, California, Western Part*
Aerial Source: Maxar, 26 April 2022.

Figure 5
Natural Resources Conservation Service Soils

University Avenue Apartments
Rocklin, Placer County, California

Vegetation Community and Aquatic Resources Impacts			
Aquatic Resources	**Permanently Impacted (acres)**	**Avoided (acres)**	**Total Acreage***
Seasonal Wetland	0.00	<0.01	<0.01
Seasonal Wetland Swale	0.13	0.00	0.13
Vernal Pool	0.11	0.00	0.11
Intermittent Drainage	0.00	<0.01	<0.01
Aquatic Resouces Total:	**0.24**	**0.00**	**0.24**
Vegetation Communities	**Permanently Impacted (acres)**	**Avoided (acres)**	**Total Acreage***
Disturbed	1.3	<0.1	1.3
Non-native Annual Grassland	11.1	0.3	11.4
Road	0.1	0.4	0.5
Vegetation Community Total:	**12.5**	**0.7**	**13.2**

*Small summation errors may occur due to rounding.



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Note: Small summation errors may occur due to rounding.
Aerial Source: Maxar, 26 April 2022.

Figure 6
Vegetation Community and Aquatic Resources Impacts

University Avenue Apartments
Rocklin, Placer County, California

Attachments

Attachment A.	IPaC Trust Resource Report for the Study Area
Attachment B.	CNPS Inventory of Rare and Endangered Plants Query for the "Roseville, California" USGS Quadrangle and Eight Surrounding Quadrangles
Attachment C.	Preliminary Jurisdictional Determination for the USA Rocklin Property

Attachment A

IPaC Trust Resource Report for the Study Area

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Placer County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species.	
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Vernal Pool Tadpole Shrimp *Lepidurus packardi*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Bald and Golden Eagle information is not available at this time

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory bird information is not available at this time

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, specimen, and publication records and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Avian Knowledge Network (AKN) Explorer (AKN Explorer).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, specimen, and publication records.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or the potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternatively, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Prediction (ISAMP) Model of Marine Bird Distribution and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Gallemore or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project, not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
PEM1Fh

RIVERINE
R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Attachment B

CNPS Inventory of Rare and Endangered Plants Query for the "Roseville, California" USGS Quadrangle and Eight Surrounding Quadrangles

University Avenue Apartments
CNPS Rare Plant Inventory

ScientificName	CommonName	Family	Lifeform	CRPR	CESA	FESA	BloomingPeriod	Habitat	Elevation Low (ft)	Elevation High (ft)
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	None	None	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	150	5100
Chloropyron molle ssp. hispidum	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	None	None	Jun-Sep	Meadows and seeps, Playas, Valley and foothill grassland	5	510
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	None	None	Mar-May	Valley and foothill grassland (mesic), Vernal pools	5	1460
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	CE	None	Apr-Aug	Marshes and swamps (lake margins), Vernal pools	35	7790
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	1B.2	None	None	Jun-Sep	Marshes and swamps (freshwater)	0	395
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	None	None	Mar-May	Valley and foothill grassland (mesic)	100	750
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	1B.1	None	None	Mar-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland, Vernal pools	115	4100
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	None	None	Apr-Jun	Vernal pools	5	2885
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	None	None	Apr-May	Vernal pools	65	1085
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	CE	FE	Apr-Jul(Sep)	Vernal pools	100	330
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	1B.2	None	None	May-Oct(Nov)	Marshes and swamps (shallow freshwater)	0	2135

Attachment C

Preliminary Jurisdictional Determination for the USA Rocklin Property

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

June 13, 2023

Regulatory Division (SPK-2023-00275)

USA Properties Fund
Attn: Mr. Milo Terzich
3200 Douglas Blvd
Roseville, California 95661-4237
mterzich@usapropfund.com

Dear Mr. Terzich:

We are responding to your April 11, 2023, request for a preliminary jurisdictional determination (JD) for the USA Rocklin Property site. The approximately 22-acre project site is located near Highway 65, southwest of the intersection of Larkspur Drive and University Avenue, Latitude 38.82106°, Longitude -121.29747°, Rocklin, Placer County, California.

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed June 7, 2023 *Aquatic Resources Delineation Report* drawing(s) prepared by Madrone Ecological Consulting (enclosure 1). The approximately 0.111 acre of vernal pool, 0.132 acre of seasonal wetland swale, 0.044 acre of intermittent drainage, 0.122 acre of intermittent stream, and 1.342 acres of pond present within the survey area are potential jurisdictional aquatic resources ("waters of the United States") regulated under Section 404 of the Clean Water Act. This letter verifies that the location and boundaries of wetlands were delineated consistent with the wetland definition at 33 CFR §328.3(c)(16), the 1987 *Corps of Engineers Wetlands Delineation Manual* (Wetlands Research Program Technical Report Y-87-1) and the applicable regional supplements; and the location and boundaries of non-tidal waters conform with the ordinary high water mark definition at 33 CFR §328.3(c)(7), Regulatory Guidance Letter 05-05, and any applicable regional guide.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (enclosure 2). Please sign and return the completed form to the address listed below within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

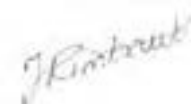
The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries for the particular site identified in this request. This preliminary jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made. To request an approved JD for this site, complete the attached *Request for Aquatic Resources Delineation or Jurisdictional Determination Form* (enclosure 3) and return it to this office at the address listed below. A *Notification of Appeal Process and Request for Appeal Form* is enclosed to notify you of your options with this determination (enclosure 4).

We appreciate feedback, especially about interactions with our staff and processes.

Please refer to identification number SPK-2023-00275 in any correspondence concerning this project. If you have any questions, please contact Kyler Walsh by email at kyler.j.walsh@usace.army.mil, or telephone at (916) 577-6704. For program information or to complete our Customer Survey, visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,



Julie Rimbault
Senior Project Manager
California North Section

Enclosures

cc:
Sarah VonderOhe, Madrone Ecological Consulting, svonderohe@madroneeco.com

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: USA Properties Fund, Attn: Mr. Milo Terzich	File No.: SPK-2023-00275	Date: June 13, 2023

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
→	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

U.S. Army Corps of Engineers
1325 J Street, Room 1827
Sacramento, CA 95814

Phone: (916) 577-6704, FAX 916-557-7803
Email: kyler.j.walsh@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Travis Morse
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX: 415-503-6646)
Email: w.travis.morse@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 2023-06-12

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Milo Terzich, USA Properties Fund, 3200 Douglas Blvd., Suite 200, Roseville, CA 95661

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: USA Rocklin Property, SPK-2023- 00275

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: 22-acre study area located near Highway 65, southwest of the intersection of Larkspur Drive and University Avenue

State: CA County: Placer County City: Rocklin

Center coordinates of site (lat/long in degree decimal format):

Lat.: 38.82106 Long.: -121.29747

Universal Transverse Mercator: 647800.13, 4298297.51

Name of nearest waterbody: Pleasant Grove Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 2023-06-12

☒ Field Determination. Date(s): 2023 – 05 - 19

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
VP-1	38.82010405	-121.2989187	0.001-acre	Wetland	404
VP-2	38.82000841	-121.2983579	0.003-acre	Wetland	404
VP-3	38.82099859	-121.2982923	0.027-acre	Wetland	404

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
VP-4	38.82080665	-121.2979595	0.006-acre	Wetland	404
VP-5	38.82042444	-121.2975352	0.008-acre	Wetland	404
VP-6	38.82017874	-121.2973046	0.004-acre	Wetland	404
VP-7	38.82013133	-121.2970603	0.007-acre	Wetland	404
VP-8	38.82045298	-121.296905	0.005-acre	Wetland	404
VP-9	38.82076939	-121.2966508	0.011-acre	Wetland	404
VP-10	38.82051367	-121.2965597	0.004-acre	Wetland	404
VP-11	38.82039018	-121.2964924	0.004-acre	Wetland	404
VP-12	38.82058355	-121.2961469	0.007-acre	Wetland	404
VP-13	38.82047001	-121.2960429	0.003-acre	Wetland	404
VP-14	38.82144295	-121.2965902	0.001-acre	Wetland	404
VP-15	38.82162431	-121.2965503	0.006-acre	Wetland	404
VP-16	38.8214285	-121.2964424	0.002-acre	Wetland	404
VP-17	38.82131573	-121.296421	0.007-acre	Wetland	404
VP-18	38.82147769	-121.2961018	0.004-acre	Wetland	404
VP-19	38.8210531	-121.2962208	0.001-acre	Wetland	404

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
SWS-1	38.82004678	-121.2990586	0.098-acre	Wetland	404
SWS-2	38.82063124	-121.2977502	0.004-acre	Wetland	404
SWS-3	38.82056141	-121.2959314	0.03-acre	Wetland	404
ID-1	38.82098807	-121.2995237	0.041-acre	Non-wetland	404
ID-2	38.82060668	-121.299503	0.003-acre	Non-wetland	404
IS-1	38.8215761	-121.2989487	0.122-acre	Non-wetland	404
Pond-1	38.82269037	-121.2954596	1.342-acres	Non-wetland	404
SW-1	38.81979237	-121.29790930	0.00018-acre	Wetland	404
SW-2	38.81978926	-121.29789383	0.00054-acre	Wetland	404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: Figures 1 and 3: January 2023, *Aquatic Resources Delineation Report* and the June 2023, *Revised Aquatic Resources Delineation*, prepared by Madrone Ecological Consulting.

☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report. Rationale:

☐ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☒ U.S. Geological Survey Hydrologic Atlas: 180201610302 Pleasant Grove Creek.

☐ USGS NHD data.

☒ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Roseville.

☒ Natural Resources Conservation Service Soil Survey. Citation: NRCS (May 8, 2023) *Custom Soil Resource Report for Placer County, California, Western Part, Rocklin USA (SPK-2023-00275).* Natural Resources Conservation Service, U.S. Department of Agriculture. Retrieved from https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

☒ National wetlands inventory map(s). Cite name: USFWS. (n.d.) National Wetland Inventory. Project Area Rocklin, California. Source imagery dated: 1984. Washington, D.C.: U.S. Fish and Wildlife Service, Dept. of the Interior. Retrieved May 8, 2023, from Wetland Mapper: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands- mapper/.

☐ State/local wetland inventory map(s): .

☒ FEMA/FIRM maps: FEMA. (Effective November 2, 2018) FEMA Flood Map Service Center. National Flood Hazard Layer 06061C0933H. Federal Emergency Management Agency, U.S. Dept. of Homeland Security. Retrieved May 8, 2023, from https://msc.fema.gov/portal/search?AddressQuery=-121.194838%2C%2038.786521#searchresultsanchor.

☐ 100-year Floodplain Elevation is:

☒ Photographs: ☒ Aerial (Name & Date): Google Earth 7.3.3.7692 (April 22, 2023, and February 2, 2022). Rocklin, California, Latitude: 38.82106N, Long: -121.29747W, eye alt: 3281. Retrieved May 8, 2023, from http://www.earth.google.com.

Or ☒ Other (Name & Date): *Attachment D, Representative Site Photographs*, January 2023, *Aquatic Resources Delineation Repor*t prepared by

Madrone Ecological Consulting; LiDAR: *USA Rocklin PJD*, [map]. 1:4500. Generated by the US Army Corps of Engineers, May 8, 2023.

☐ Previous determination(s). File no. and date of response letter: .

☒ Other information (please specify): USGS Topographic Map NGA REF NO. USGSX24K38632, Rocklin, California (2021), 1:24,000, Reston VA, USA: U.S. Dept. of the Interior. Retrieved from https://ngmdb.usgs.gov/topoview/viewer/#14/38.82106/-121.29747.

The U.S. Army Corps of Engineers' Antecedent Precipitation Tool (APT) indicated that the consultants December 8, 2022, field delineation was conducted in the wet season, during normal field site conditions and mild wetness conditions regionally. The APT indicated that the February 2, 2022, Google Earth imagery was acquired during the wet season, during drier than normal field site conditions and extreme drought conditions regionally. The APT indicated that the April 22, 2023, aerial imagery was obtained during the dry season, during normal field site conditions with moderate wetness conditions regionally.

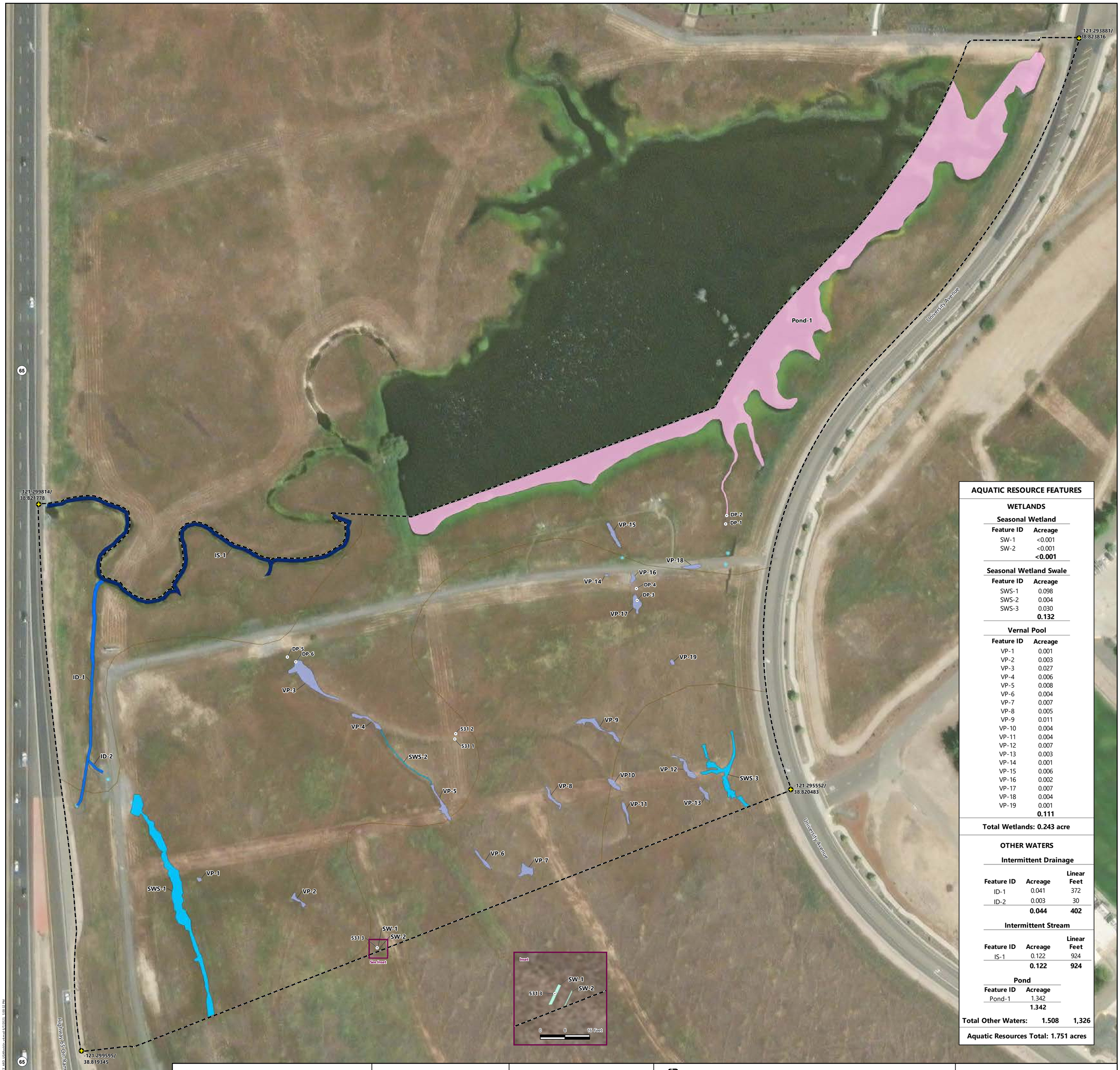
IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

6/13/2023

Signature and date of Regulatory staff member completing PJD

Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.



AQUATIC RESOURCE FEATURES

WETLANDS

Seasonal Wetland

Feature ID	Acreage
SW-1	<0.001
SW-2	<0.001
	<0.001

Seasonal Wetland Swale

Feature ID	Acreage
SWS-1	0.098
SWS-2	0.004
SWS-3	0.030
	0.132

Vernal Pool

Feature ID	Acreage
VP-1	0.001
VP-2	0.003
VP-3	0.027
VP-4	0.006
VP-5	0.008
VP-6	0.004
VP-7	0.007
VP-8	0.005
VP-9	0.011
VP-10	0.004
VP-11	0.004
VP-12	0.007
VP-13	0.003
VP-14	0.001
VP-15	0.006
VP-16	0.002
VP-17	0.007
VP-18	0.004
VP-19	0.001
	0.111

Total Wetlands: 0.243 acre

OTHER WATERS

Intermittent Drainage

Feature ID	Acreage	Linear Feet
ID-1	0.041	372
ID-2	0.003	30
	0.044	**402**

Intermittent Stream

Feature ID	Acreage	Linear Feet
IS-1	0.122	924
	0.122	**924**

Pond

Feature ID	Acreage
Pond-1	1.342
	1.342

Total Other Waters: 1.508 1,326

Aquatic Resources Total: 1.751 acres

Notes:
Overall Map Scale: 1 inch = 75 feet
Inset Map Scale: 1 inch = 16 feet
Coordinate System: NAD 1983 State Plane California II
Datum: NAD83 (North American Datum 1983)
Projection: Lambert Conformal Conic
Vertical Data: NAVD88 (North American Vertical Datum 1988)
Aerial Base Sources: Maxar, 26 April 2022
Topographic Contours: USGS NED 1/3 arc-second Contours for Sacramento W, California. 1 October 2018

Delineation Performed by: B. Peterson
Date Map Prepared: 25 January 2023
Date Map Updated: 7 June 2023
Map Prepared by: N. Bente
Definitions:
NAD = North American Datum
NAVD = North American Vertical Datum
NED = National Elevation Database
USGS = United States Geological Survey

Prepared For:
USA Properties Fund
3200 Douglas Boulevard, Suite 200
Roseville, CA 95661

N
0 37.5 75 Feet
Overall Extent
0 8 16 Feet
Inset Extent

Study Area Boundary (22 acres)
Reference Point
Data Point
Culvert
Ground Surface Elevation, 10 foot contour

Aquatic Resources (1.751 acres)
Wetlands (0.243 acre)
Seasonal Wetland (<0.001 acre)
Seasonal Wetland Swale (0.132 acre)
Vernal Pool (0.111 acre)
Other Waters (1.508 acres)
Intermittent Drainage (0.044 acre)
Intermittent Stream (0.122 acre)
Pond (1.342 acres)

USA Rocklin
Aquatic Resources Delineation
Placer County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3220 | www.madroneeco.com

C:\Madrone\USA Rocklin - 22112\Maps\MXDs\MXDs_AR\DUSACE_ARD_USARocklin_v4.mxd 6/7/2023, 5:00:32 PM

Enclosure 1

REQUEST FOR AQUATIC RESOURCES DELINEATION VERIFICATION

OR JURISDICTIONAL DETERMINATION

A separate jurisdictional determination (JD) is not necessary to process a permit. An Approved Jurisdictional Determination (AJD) is required to definitively determine the extent of waters of the U.S. and is generally used to disclaim jurisdiction over aquatic resources that are not waters of the U.S., in cases where the review area contains no aquatic resources, and in cases when the recipient wishes to challenge the water of the U.S. determination on appeal. Either an Aquatic Resources Delineation Verification or a Preliminary Jurisdictional Determination (PJD) may be used when the recipient wishes to assume that aquatic resources are waters of the U.S. for the purposes of permitting. In some circumstances an AJD may require more information, a greater level of effort, and more time to produce. If you are unsure which product to request, please speak with your project manager or call the Sacramento District's general information line at (916) 557-5250.

I am requesting the product indicated below from the U.S. Army Corps of Engineers, Sacramento District, for the review area located at:

Street Address: None, University Ave City: Rocklin County: Placer
State: CA Zip: _____ Section: 10 Township: 11 N Range: 6 E
Latitude (decimal degrees): 38.82112 Longitude (decimal degrees): -121.463168 121.297366
The approximate size of the review area for the JD is 22 acres. **(Please attach location map)**

Choose one:
- ◉ I own the review area
- ◉ I hold an easement or development rights over the review area
- ◉ I lease the review area
- ◉ I plan to purchase the review area
- ◉ I am an agent/consultant acting on behalf of the requestor
- ◉ Other: _____

Choose one product:
- ◉ I am requesting an Aquatic Resources Delineation Verification
- ◉ I am requesting an Approved JD
- ◉ I am requesting a Preliminary JD
- ◉ I am requesting additional information to inform my decision about which product to request

Reason for request: (check all that apply)
- ☑ I need information concerning aquatic resources within the review area for planning purposes.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities in this review area which would be designed to avoid those aquatic resources determined to be waters of the U.S.
- ☐ I intend to construct/develop a project or perform activities in this review area which may require authorization from the Corps; this request is accompanied by my permit application.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district's list of navigable waters under Section 10 of the Rivers and Harbors Act of 1899 and/or is subject to the ebb and flow of the tide.
- ☐ My lender, insurer, investors, local unit of government, etc. has indicated that an aquatic resources delineation verification is inadequate and is requiring a jurisdictional determination.
- ☐ I intend to contest jurisdiction over particular aquatic resources and request the Corps confirm that these aquatic resources are or are not waters of the U.S.
- ☐ I believe that the review area may be comprised entirely of dry land.
- ☐ Other: _____

Attached Information:
- ☑ Maps depicting the general location and aquatic resources within the review area consistent with Map and Drawing Standards for the South Pacific Division Regulatory Program (Public Notice February 2016, http://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/)
- ☑ Aquatic Resources Delineation Report, if available, consistent with the Sacramento District's Minimum Standards for Acceptance (Public Notice January 2016, http://1.usa.gov/1V68IYa)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the review area. Your signature shall be an affirmation that you possess the requisite property rights for this request on the subject property.

*Signature: _____ Date: _____
Name: Milo Terzich Company name: USA Properties Fund
Address: 3200 Douglas Blvd., Suite 200, Roseville CA 95661

Telephone: _____ Email: _____

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

APPENDIX F

SECTION 106 CONSULTATION PACKAGE

COMMUNITY DEVELOPMENT DEPARTMENT
CITY OF ROCKLIN
3970 Rocklin Road
Rocklin, California 95677
(916) 625-5160

September 18, 2025

Julianne Polanco
State Historic Preservation Officer
California Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816-7100

Subject: University Avenue Apartments Project in Rocklin, California

Dear Ms. Polanco,

The U.S. Department of Housing and Urban Development (HUD) is providing federal funding for the University Avenue Apartments Project (proposed project), located in the City of Rocklin, thereby making the project subject to environmental review under the National Environmental Policy Act (NEPA). The City of Rocklin is the Responsible Entity and HUD is the NEPA Lead Agency for the proposed project. The City of Rocklin, as the Responsible Entity, is preparing an Environmental Assessment (EA) for the proposed project.

The 12.72-acre project site is located northeast of the intersection of State Route (SR) 65 and Sunset Boulevard in the City of Rocklin, California, within the SR 65 Corridor of the Northwest Rocklin General Development Plan area (see Attachments 1 and 2). The site is identified by Assessor's Parcel Numbers (APNs) 017-276-005 and -006. Currently, the project site is undeveloped and contains approximately 0.238-acre of wetland resources. Additionally, a paved utility road, sewer, and drainage improvements are located along the northern and western boundaries of the site as part of a South Placer Municipal Utility District Project. Surrounding existing uses include undeveloped land, open space, and a pond to the north; William Jessup University to the east, across University Avenue; a light industrial business park to the west, across SR 65; and the under-construction Estia at Rocklin Residential Project and University Square Retail Project to the south. The City of Rocklin General Plan designates the site as Mixed Use (MU) and the site is zoned Planned Development Light Industrial (PD-LI) within the Northwest Rocklin General Development Plan area.

The proposed project would include the development of eight, three-story apartment buildings with a total of 324 units. The units would be 100 percent affordable consisting of 77 one-bedroom units, 166 two-bedroom units, and 81 three-bedroom units ranging in size from 550 net square feet (sf) to 1,119 net sf. Three additional two-bedroom units would be reserved for on-site managers. The proposed project would also include the development of a 5,686-sf single-story clubhouse consisting of lounge areas, meeting space, fitness room, and leasing office. Other on-site amenities would include a swimming pool with bar seating and tables, playground, outdoor game and lawn area, dog park, pet wash station, patio with an outdoor kitchen, two outdoor seating and barbeque areas, and bicycle parking. In addition, a total of 562 uncovered surface parking spaces would be

provided throughout the project site. The 562 on-site parking spaces would include 225 electrical vehicle (EV) parking spaces, 57 EV charging station (EVCS) compatible parking spaces, and 23 Americans with Disabilities Act (ADA) compliant parking spaces. Site access would be provided by a driveway off University Avenue, which would connect to an internal roadway system. Emergency vehicle access would be provided by a drive aisle along the western boundary of the site.

A Cultural Resources Inventory Report was prepared for the project site by ECORP Consulting, Inc. to assess potential impacts to historic resources that could occur as a result of project construction activities (see Attachment 3). The Cultural Resources Inventory Report included a records search of the California Historical Resources Information System (CHRIS) at the North Central Information Center (NCIC) at Sacramento State University. According to the CHRIS search results, previously recorded resources do not occur within the project site or in the immediate site vicinity. Five previously recorded pre-contact and historic-era cultural resources are located within 0.5-mile of the project area: the California Central Railroad (CA-PLA-690H/P-31-816); an Isolated Stone Tool (P-31-1433); the Historic Highway 99E Alignment (CA-PLA-1123H/P-31-1450); Sunset Secondary Road (CA-PLA-1148H/P-31-1482); and an Isolated Stone Flake (P-31-5908). The Cultural Resources Inventory Report concluded that the foregoing historic-period or pre-contact cultural resources are not located in the project area and would not be impacted by project buildout. Thus, known historic properties under Section 106 of the National Historic Preservation Act (NHPA) would not be affected by the proposed project.

To ascertain the potential of tribal cultural resources occurring within the project site, a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed and returned negative results. Thus, the discovery of tribal cultural resources is not anticipated to occur during development of the proposed project. According to the Cultural Resources Inventory Report, alluvial deposits tend to preserve archaeological material and create an increased likelihood of pre-contact archaeological sites located along perennial waterways. Multiple aquatic features are present on-site and in the project site vicinity. However, according to the Cultural Resources Inventory Report, the alluvial soils in the western portion of the project area (Fiddyment-Kaseberg loams) are the result of deposits that are too old to have buried evidence of human occupation. Additionally, the on-site seasonal wetlands would not be likely to contribute to alluvial deposits, especially considering that the project area is more than 15 feet above the level of the drainage. Furthermore, despite development in the project site vicinity, and previous cultural surveys on the project site and in the project site vicinity, pre-contact cultural resources have not been discovered within 0.25-mile of the project area. Within the City of Rocklin, the discovery of pre-contact cultural resources in the project vicinity is limited to two isolated stone tools which were both located more than 0.25-mile away from the project site and more than 0.5-mile away from each other. Therefore, the Cultural Resources Inventory Report concluded that the likelihood of encountering undiscovered pre-contact cultural resources on the project site is low.

Pursuant to Section 106 of the National Historic Preservation Act, the City distributed project notification letters to the applicable Native American tribes identified by the NAHC on August 15, 2025 (see Attachment 5). The United Auburn Indian Community (UAIC) of the Auburn Rancheria responded on August 26, 2025, requesting to consult. UAIC requested to conduct a tribal survey for additional identification efforts for resources of cultural and religious significance on the

project site and requested an escort for such efforts (see Attachment 6). Consultation is currently ongoing. Responses from all other tribes contacted through the project notification letters were not received.

Based on the search results and the mitigation measures included within the EA, the City has determined that the undertaking would result in **No Historic Properties Affected.**

I look forward to receiving your response. If you have any questions regarding the project, please feel free to contact me by email at David.Mohlenbrok@rocklin.ca.us or by phone at (916) 625-5162. Thank you for your time and attention to this matter.

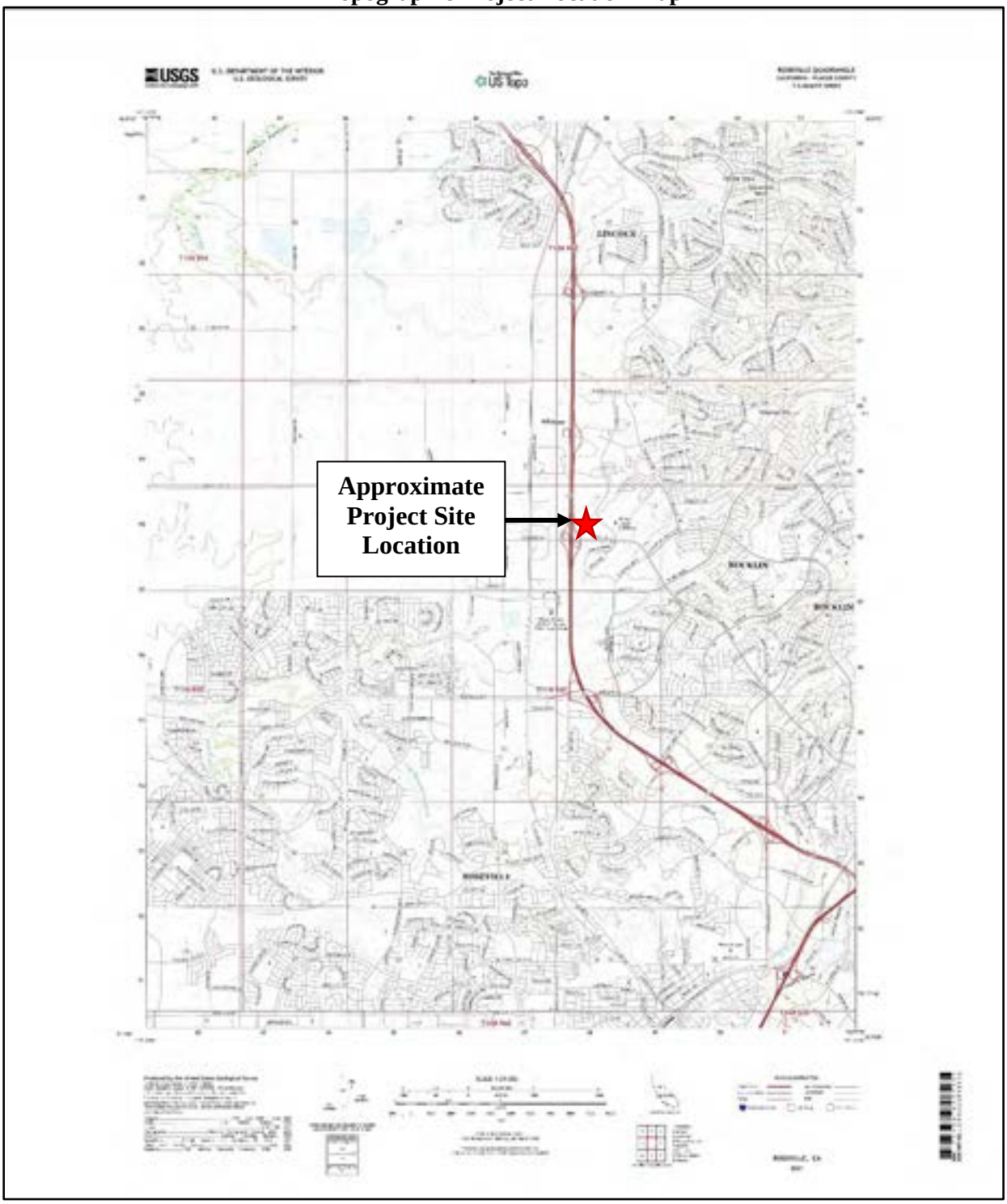
Sincerely,

David Mohlenbrok
Community Development Director, Community Development Department
City of Rocklin
3970 Rocklin Road,
Rocklin, CA 95677

Attachments:

1. Topographic Project Location Map
2. Project Site Boundaries
3. Cultural Resources Study
4. NAHC Sacred Lands File Results
5. NAHC Tribal Consultation List
6. UAIC Consultation Request

Attachment 1
Topographic Project Location Map



Attachment 2
Project Site Boundaries

Attachment 3
Cultural Resources Study

Not Included due to
Confidential Information

Attachment 4
NAHC Sacred Lands File Results

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
REGINALD PAGALING
CHUMASH

VICE-CHAIRPERSON
BUFFY MCQUILLEN
YOKAYO POMO, YUKI, NOMLAKI

SECRETARY
ISAAC BOJORQUEZ
OHLONE-COASTANOAN

PARLIAMENTARIAN
WAYNE NELSON
LUISEÑO

COMMISSIONER
SARA DUTSCHKE
MIWOK

COMMISSIONER
STANLEY RODRIGUEZ
KUMEYAAY

COMMISSIONER
BENNAE CALAC
PAUMA-YUIMA BAND OF LUISEÑO INDIANS

COMMISSIONER
VACANT

COMMISSIONER
VACANT

ACTING EXECUTIVE SECRETARY
MICHELLE CARR

NAHC HEADQUARTERS
1550 HARBOR BOULEVARD
SUITE 100
WEST SACRAMENTO,
CALIFORNIA 95691
(916) 373-3710
NAHC@NAHC.CA.GOV

August 6, 2025

Stephanie McMindes
Raney Planning & Management

Submitted via Electronic
Via Email to: smcmindes@raneymamangement.com

Re: University Avenue Apartments Project, Placer County

To Whom It May Concern:

As requested, a search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed based on information submitted for the above referenced project. The results were negative. Be aware that tribes do not always record their sacred sites in the SLF, nor are they required to do so. As such, an SLF search is not a substitute for consultation with all tribes that are traditionally and culturally affiliated with a project's geographic area.

Attached is a list of Native American tribes that are traditionally and culturally affiliated with the project's geographic area. Please contact all of the listed tribes as they may have information about sacred sites within the project area that is not listed with the NAHC.

If within two weeks of notification, a response has not been received, the Commission requests that you follow up with a telephone call or email to ensure that the project information was received.

If you receive notification of a change of address or phone number from a tribe, please inform the NAHC so that we can assure that our lists contain current information.

In addition to engaging in tribal consultation, you should consult the appropriate regional California Historical Research Information System (CHRIS) information center to determine whether it has information regarding the presence of recorded archaeological sites within the project area.

If you have any questions or need additional information, please contact me at: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Attachment 5
NAHC Tribal Consultation List

Native American Heritage Commission
Native American Contact List
Placer County
8/6/2025

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Placer	Colfax-Todds Valley Consolidated Tribe	N	CTVCT Preservation, Cultural Preservation Dept.	P.O. Box 4884 Auburn, CA, 95604	(530) 320-6032		ctvctpreservation@gmail.com	Maidu Nisenan Miwok	Amador,El Dorado,Nevada,Placer,Sacramento,Yuba	3/28/2023
	Colfax-Todds Valley Consolidated Tribe	N	Clyde Prout, Chairperson	P.O. Box 4884 Auburn, CA, 95604	(916) 577-3558		cprout@colfaxrancheria.com	Maidu Nisenan Miwok	Amador,El Dorado,Nevada,Placer,Sacramento,Yuba	3/28/2023
	Colfax-Todds Valley Consolidated Tribe	N	Pamela Cubbler, Vice Chairperson	P.O. Box 4884 Auburn, CA, 95604	(530) 320-3943		pcubbler@colfaxrancheria.com	Maidu Nisenan Miwok	Amador,El Dorado,Nevada,Placer,Sacramento,Yuba	3/28/2023
	Nevada City Rancheria Nisenan Tribe	N	Richard Johnson, Chairman	10338 Park Avenue Nevada City, CA, 95959	(530) 265-6563		richard@nevadacityrancheria.org	Nisenan	Butte,Nevada,Placer,Sierra,Sutter,Yuba	4/30/2025
	Nevada City Rancheria Nisenan Tribe	N	Shelly Covert, Tribal Secretary	P.O. Box 2624 Nevada City, CA, 95959	(530) 460-8494		info@chirpca.org	Nisenan	Butte,Nevada,Placer,Sierra,Sutter,Yuba	4/30/2025
	Nevada City Rancheria Nisenan Tribe	N	Saxon Thomas, Tribal Council Member	P.O. Box 2624 Nevada City, CA, 95959	(530) 210-3590		saxon@chirpca.org	Nisenan	Butte,Nevada,Placer,Sierra,Sutter,Yuba	4/30/2025
	TSI-AKIM Maidu of the Taylorsville Rancheria	N	Richard Cunningham, Vice Chairman	P.O. Box B-111 Greenville, CA, 95947	(530) 250-9584			Maidu	Alpine,Amador,Butte,El Dorado,Nevada,Placer,Plumas,Sacramento,Sierra,Sutter,Yolo,Yuba	4/3/2024
	TSI-AKIM Maidu of the Taylorsville Rancheria	N	Donald Ryberg, Chairman	17886 Oak Way Grass Valley, CA, 95945	(530) 955-5998		Siakumne@gmail.com	Maidu	Alpine,Amador,Butte,El Dorado,Nevada,Placer,Plumas,Sacramento,Sierra,Sutter,Yolo,Yuba	4/3/2024
	TSI-AKIM Maidu of the Taylorsville Rancheria	N	Ben Cunningham-Summerfield, Cultural Advisor	4933 Ponderosa Way Medpines, CA, 95345	(209) 966-8062		brftcrtn@sti.net	Maidu	Alpine,Amador,Butte,El Dorado,Nevada,Placer,Plumas,Sacramento,Sierra,Sutter,Yolo,Yuba	4/3/2024
	TSI-AKIM Maidu of the Taylorsville Rancheria	N	James Moon Jr, Tribal Member	342 American Hill Road Nevada City, CA, 95959	(530) 913-7257		wemoons@yahoo.com	Maidu	Alpine,Amador,Butte,El Dorado,Nevada,Placer,Plumas,Sacramento,Sierra,Sutter,Yolo,Yuba	4/3/2024
	TSI-AKIM Maidu of the Taylorsville Rancheria	N	Ben Cunningham, Tribal Council Member	P.O. Box 577 Greenville, CA, 95947	(530) 249-7692			Maidu	Alpine,Amador,Butte,El Dorado,Nevada,Placer,Plumas,Sacramento,Sierra,Sutter,Yolo,Yuba	4/3/2024
	United Auburn Indian Community of the Auburn Rancheria	F	Josef Fore, Tribal Historic Preservation Officer	10720 Indian Hill Road Attn: Tribal Preservation Auburn, CA, 95603	(530) 492-9508		THPO@auburnrancheria.com	Nisenan (Southern Maidu) Miwok	Amador,Butte,El Dorado,Nevada,Placer,Plumas,Sacramento,San Joaquin,Sierra,Solano,Sutter,Yolo,Yuba	9/5/2024
	Wilton Rancheria	F	Steven Hutchason, Tribal Historic Preservation Officer	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000		shutchason@wiltonrancheria-nsn.gov	Nisenan Miwok	Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San Joaquin,Solano,Stanislaus,Sutter,Yolo,Yuba	2/12/2025
	Wilton Rancheria	F	Michelle St. Clair, Executive Director of Cultural Preservation	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000		mstclair@wiltonrancheria-nsn.gov	Nisenan Miwok	Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San Joaquin,Solano,Stanislaus,Sutter,Yolo,Yuba	2/12/2025
	Wilton Rancheria	F	Cultural Preservation Department,	9728 Kent Street Elk Grove, CA, 95624	(916) 313-4493		cpd@wiltonrancheria-nsn.gov	Nisenan Miwok	Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San Joaquin,Solano,Stanislaus,Sutter,Yolo,Yuba	2/12/2025

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed University Avenue Apartments Project, Placer County.

Record: PROJ-2025-004336
Report Type: List of Tribes
Counties: Placer
NAHC Group: All

Attachment 6
UAIC Consultation Request

From: Anna Starkey <astarkey@auburnrancheria.com>
Sent: Tuesday, August 26, 2025 3:51 PM
To: David Mohlenbrok <David.Mohlenbrok@rocklin.ca.us>
Subject: Section 106: University Avenue Apartments Project

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good afternoon,
On behalf of the United Auburn Indian Community, Tribal Historic Preservation Department, thank you for the notification and opportunity to consult on the University Avenue Apartments Project. UAIC conducted project review for the identification of resources of cultural and religious significance and determined that the APE is potentially culturally sensitive, and we request to consult under Section 106.

We request to conduct a tribal survey for additional identification efforts for resources of cultural and religious significance. Are there any restrictions to the APE and would we require to have an escort?

What is the timeline for completion of the environmental review?

Thank you,
Anna

Anna M. Starkey, M.A., RPA
Cultural Regulatory Manager
Tribal Historic Preservation Department
United Auburn Indian Community (UAIC)
auburnrancheria.com/programsservices/tribalpreservaion
10720 Indian Hill Road
Auburn, CA 95603

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State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
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calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

September 30, 2025
[VIA EMAIL]

Refer to HUD_2025_0918_001

David Mohlenbrok
Community Development Director
City of Rocklin
Community Development Department
3970 Rocklin Road
Rocklin, CA 95677

Re: University Avenue Apartments Project at the Intersection of State Route 65 and Sunset Boulevard, Rocklin, CA

Dear Mr. Mohlenbrok:

The State Historic Preservation Officer (SHPO) received the consultation submittal from the City of Rocklin for the above referenced undertaking on September 18, 2025. As Responsible Entity (RE) for the US Department of Housing and Urban Development (HUD), the City of Rocklin is initiating consultation with SHPO for review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36 CFR Part 800. The regulations and advisory materials are located at www.achp.gov.

Undertaking

The University Avenue Apartments Project (Undertaking) proposes to construct eight, three-story apartment buildings with a total of 324 units. The units would be 100 percent affordable consisting of 77 one-bedroom units, 166 two-bedroom units, and 81 three-bedroom units ranging in size from 550 net square feet (sf) to 1,119 net sf. Three additional two-bedroom units would be reserved for on-site managers. The proposed undertaking would also include the development of a 5,686-sf single-story clubhouse consisting of lounge areas, meeting space, fitness room, and leasing office. Other on-site amenities would include a swimming pool with bar seating and tables, playground, outdoor game and lawn area, dog park, pet wash station, patio with an outdoor kitchen, two outdoor seating and barbeque areas, and bicycle parking. In addition, a total of 562 uncovered surface parking spaces would be provided throughout the project site. The 562 on-site parking spaces would include 225 electrical vehicle (EV) parking spaces, 57 EV charging station (EVCS) compatible parking spaces, and 23 Americans with Disabilities Act (ADA) compliant parking spaces. Site access would be provided by a driveway off University Avenue, which would connect to an internal roadway system. Emergency vehicle access would be provided by a drive aisle along the western boundary of the site.

Area of Potential Effects (APE)

The City of Rocklin has delineated the APE for the undertaking as the 12.72-acre project site located northeast of the intersection of State Route (SR) 65 and Sunset Boulevard in Rocklin, identified as Assessor Parcel Numbers (APNs) 017-276-005 and -006. The vertical APE for the undertaking is ten feet.

- Pursuant to 36 CFR § 800.4(a)(1), I have no comment on the City of Rocklin's APE.

Identification of Historic Properties
The City of Rocklin efforts to identify and consider historic properties include a records search at the North Central Information Center (NCIC), a search request of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF), an intensive field survey, a review of the Built Environmental Resources Directory (BERD) file, the National Register Information System, Office of Historic Preservation, California Historical Landmarks, California Points of Historical Interest, Caltrans Local and State Bridge surveys, historical map and aerial images review, property-specific research, and consultation with five Native American Tribes.

The records search at the NCIC, conducted on September 27, 2023, indicated that while resources have been previously identified in the vicinity of the project area, none have been previously recorded within the APE. The intensive survey conducted on September 29, 2023, did not identify any potential historic properties.

Consultation
The City of Rocklin initiated consultation on this undertaking with five Tribes on August 15, 2025. As part of the consultation process, the City proposed mitigation measures addressing the unanticipated discovery of archaeological resources and possible human remains within the APE. The City received one response to the tribal consultation requests on August 26, 2025, from the United Auburn Indian Community of the Auburn Rancheria to initiate formal consultation with the lead agency and to request a tribal survey of the APE. Consultation is ongoing.

The City of Rocklin also initiated consultation on this undertaking with the Placer County Historical Society and the Rocklin Historical Society and Museum on October 5, 2023. No response has been received.

- Pursuant to 36 CFR § 800.4(a)(4), I have no comment on the City of Rocklin's consultation efforts.

SHPO's comment on the finding below is conditioned upon the acceptance by the applicant of requested tribal survey for this undertaking. The SHPO requests that the City of Rocklin provide a summary of the results of the ongoing consultation efforts with the United Auburn Indian Community of the Auburn Rancheria. In so doing, SHPO reserves the right to resume Section 106 consultation and respond to new information, as necessary.

Finding of Effect
Pursuant to 36 CFR Part 800.4(d), SHPO **does not object** to the City of Rocklin's finding of *No Historic Properties Affected* for the U.S. Department of Housing and Urban Development (HUD)-funded University Avenue Apartments Project at the intersection of SR 65 and Sunset Boulevard in Rocklin.

SHPO appreciates the City of Rocklin's consideration of historic properties in the project planning process. If you have questions, please contact Chris Wendt, Historian II, with the Architectural Review & Environmental Compliance Unit at chris.wendt@parks.ca.gov.

Please note that we are only sending this letter in electronic format. Please confirm receipt of this letter.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

APPENDIX G

ENVIRONMENTAL NOISE ASSESSMENT

ENVIRONMENTAL NOISE ASSESSMENT
UNIVERSITY AVENUE APARTMENTS
Rocklin, CA

September 25, 2023
Updated February 5, 2024

Prepared for:

USA Properties
3200 Douglas Blvd. Ste 200
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Prepared by:

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I&R Project No.: 23-076

INTRODUCTION

The proposed project involves the development of a 324-unit apartment project on a 12.72-acre site located between Hwy 65 and University Avenue north of Sunset Boulevard in Rocklin, California. The site is undeveloped and bordered by University Avenue to the East, a bike path and riparian/lake area to the north, a bike path and Hwy 65 to the west, and undeveloped lands and Sunset Blvd in the distance to the south. The four buildings proposed by the project will be of three-story construction, and the site will include ground level shared community open spaces, a clubhouse, and surface parking. The site and its surroundings are shown in Figure 1.

Figure 1: Project Site and Surroundings

This report assesses the compatibility of the proposed project in relation to the site noise environment. A discussion of the Fundamentals of Environmental Noise and Vibration are provided to assist those unfamiliar with these concepts. Policies and standards applicable to the project and the results of noise measurements made at the project site are presented. Impacts on the residential development of the site relative to these Local and State noise criteria are then assessed and mitigation measures are presented as needed to allow project development to comply with these standards.

SETTING

FUNDAMENTALS OF ENVIRONMENTAL NOISE

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (*frequency*) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is the intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

TABLE 1 Definitions of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn}	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA).* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, September 2013.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate

artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level* (*CNEL*) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level* (L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Propagation of Sound

The most dominant physical effect is due to the spreading out of sound waves with distance. Depending on ground absorption conditions noise from traffic noise sources can be considered to attenuate at 3 to 4.5 dB per doubling of distance from the source while noise from fixed project source can be considered to attenuate at a rate of 6 to 7.5 dB per doubling of distance from the source. In areas where with vegetative cover occupies the area between the source and receiver, attenuation rates of 4.5 dB per distance doubling are used for traffic noise sources and distance attenuation rates of 7.5 dB per distance doubling are used for fixed noise sources in this analysis. Other effects can modify these fall-off rates such as partial shielding from buildings or topography, atmospheric attenuation of sound, and meteorological effects. These effects almost always reduce the noise in addition to that due to sound divergence. As most of these effects will vary with time due to changing environmental conditions, it is most conservative to assume only attenuation due to divergence for outdoor uses, with minimum terrain or building shielding factors (6 dBA) where intervening terrain or structures break the line of sight from source to receiver, realizing that the actual noise level will be at or, most likely, below those predicted using these assumptions at any one time.

Effects of Noise

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and

interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA L_{dn}. At a L_{dn} of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a L_{dn} of 60-70 dBA. Between a L_{dn} of 70-80 dBA the percentage of the population highly annoyed noise increases by about 3 percent per each decibel increase.

REGULATORY BACKGROUND

The State of California, and the City of Rocklin have established plans and policies designed to limit noise exposure at noise sensitive land uses. These plans and policies are contained in the following documents: (1) the California Building Code, and (2) the City of Rocklin General Plan.

2022 California Building Code, Title 24, Part 2.

Section 1206.4 of the current (2022) California Building Code (CBC) states that interior noise levels attributable to exterior sources shall not exceed 45 dB(A) L_{dn} or CNEL (consistent with the noise element of the local general plan) in any habitable room. Though this section does to not explicitly apply this interior limit to multifamily residential buildings, per the scope discussion in Section 1206.1 and in keeping with the requirements of prior editions of the CBC this limit is applied to any habitable room for new attached (e.g., multifamily) dwellings, and not detached single-family dwellings.

City of Rocklin General Plan

The City of Rocklin General Plan sets forth Goals and Policies to limit the exposure of the community to excessive noise levels. The following policies are applicable to the proposed project:

N-1 Determine noise compatibility between land uses, and to provide a basis for developing noise mitigation, an acoustical analysis shall be required as part of the environmental review process for all noise-sensitive land uses which are proposed in areas exposed to existing or projected exterior noise levels exceeding the level standards contained within this Noise Element.

N-2 Emphasize site planning and project design to achieve the standards of this Noise Element. The use of noise barriers shall be considered a means of achieving the noise standards; however, the construction of aesthetically intrusive wall heights shall be discouraged.

N-3 Ensure that stationary noise sources do not interfere with sleep by applying an interior hourly maximum noise level design standard of 45 dBA in the enclosed sleeping areas of residences affected by stationary noise sources. This standard assumes doors and windows are closed.

N-4 Restrict development of noise-sensitive land uses where the noise levels due to existing or planned stationary noise sources will exceed the exterior stationary noise level design standards of the Noise Element unless effective noise mitigation measures have been incorporated into the project.

N-5 Evaluate and mitigate, as appropriate, noise created by proposed stationary noise sources so that the exterior stationary noise level design standards of the Noise Element are not exceeded.

N-6 Apply the noise level design standards contained within Table 2-1 of the Noise Element to Policies N-4 and N-5 of the Noise Element.

N-7 Restrict development of noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation noise sources that exceed the noise level standards contained within the Noise Element, unless the project design includes effective mitigation that results in noise exposure which meets standards.

N-8 Evaluate and mitigate as appropriate, noise created by new roadway noise sources (e.g., truck routes and new roadways) not contained within the General Plan, so as not to exceed the noise level standards of the Noise Element.

N-9 Apply the noise level design criteria contained within Table 2-2 of the Noise Element to Policies N-7 and N-8 of the Noise Element.

Table 2-1: Exterior Noise Level Design Standards for New Projects Affected by or Including Stationary Noise Sources

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	**55 dBA**	**45 dBA**

The City can impose noise level standards that are more restrictive than those specified above based upon determination of existing low ambient noise levels.

"Fixed" noise sources which are typically of concern include, but are not limited to the following:

HVAC Systems	Cooling Towers/Evaporative Condensers
Pump Stations	Lift Stations
Emergency Generators	Boilers
Steam Valves	Steam Turbines
Generators	Fans
Air Compressors	Heavy Equipment
Conveyor Systems	Transformers
Pile Drivers	Grinders
Drill Rigs	Gas or Diesel Motors
Welders	Cutting Equipment
Outdoor Speakers	Blowers

The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities including pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, businesses using amplified sound systems, car washes, loading docks, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, schools, playgrounds, and athletic fields.

NOTE: The point of measurement for noise levels is at a location at least 5 feet inside the property line of the receiving land use and at a point 5 feet above ground level. In the case of lots where the noise-sensitive use has a reasonable outdoor activity area for outdoor enjoyment, the stationary noise source criteria can be applied at a designated outdoor activity area (at the discretion of the Community Development Director).

Table 2-2: Maximum Allowable Noise Exposure Transportation Noise Sources

Affected/Receiving Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dBA	Interior Spaces	
		L_{dn}/CNEL, dBA	L_{eq}, dBA[2]
Residential	60[3]	45	--
Transient Lodging	65	45	--
Hospitals, Nursing Homes	60[3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Non-Commercial Places of Public Assembly	60[3]	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

[1] The outdoor activity area is generally considered to be the location where individuals may generally congregate for relaxation, or where individuals may require adequate speech intelligibility. Such places may include patios of residences, picnic facilities, or instructional areas.

Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.

At the discretion of the City, where no outdoor activity areas are provided or known, only the interior noise level criteria can be applied to the project.

[2] As determined for a typical worst-case hour during periods of use.

[3] Where it is not possible to reduce noise in outdoor activity areas to 60 dBA L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dBA L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Note: Existing dwellings and new single-family dwellings on existing lots are not subject to further City review with respect to compliance with the standards of the Noise Element. As a consequence, such dwellings may be constructed in areas where noise levels exceed the standards of the Noise Element.

EXISTING NOISE ENVIRONMENT

A noise monitoring survey was conducted between 11:00 a.m. on Tuesday, June 6, 2023, and 10:00 a.m. on Thursday, June 8, 2023, to quantify the existing noise environment on the project site. The monitoring survey included two long-term continuous noise measurements (LT-1 and LT-2), and two short-term 10-minute duration noise measurements (ST-1 and ST-2) as shown in Figure 2.

The noise environment at the site and in the surrounding areas results primarily from vehicular traffic on Highway 65 to the west and University Avenue to the east with noise from more distant traffic on Sunset Blvd, occasional overhead aircraft and grassland/riparian wildlife and insects also contributing to the noise environment in the area. The long-term and short-term noise measurements were conducted with Larson Davis Laboratories (LDL) Type I Model LXT Sound Level Meters fitted with a ½-inch pre-polarized condenser microphone and windscreen. The meters were calibrated with a Larson Davis Model CA250 precision acoustic calibrator prior to and following the measurement survey.

The noise monitor at location LT-1 was positioned at a height of approximately 12 feet above the road grade of University Avenue on a light standard at approximately 30 feet from the centerline of the roadway. The measured noise levels at this location, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 1, following. The L_{eq} noise level is typically considered the average noise level, while the L_1 is considered the intrusive level, the L_{50} is considered the median noise level and the L_{90} is considered the background or ambient noise level.

A review of Chart 1 indicates that the noise levels at site LT-1 followed a diurnal pattern characteristic of traffic noise, with the average daytime noise levels ranging from 62 to 68 dBA L_{eq} and the average nighttime noise levels ranging from 51 to 65 dBA L_{eq}. The Day/Night Average Noise Level (L_{dn}) over the measurement period at the location LT-1 was calculated to be 66 dBA.

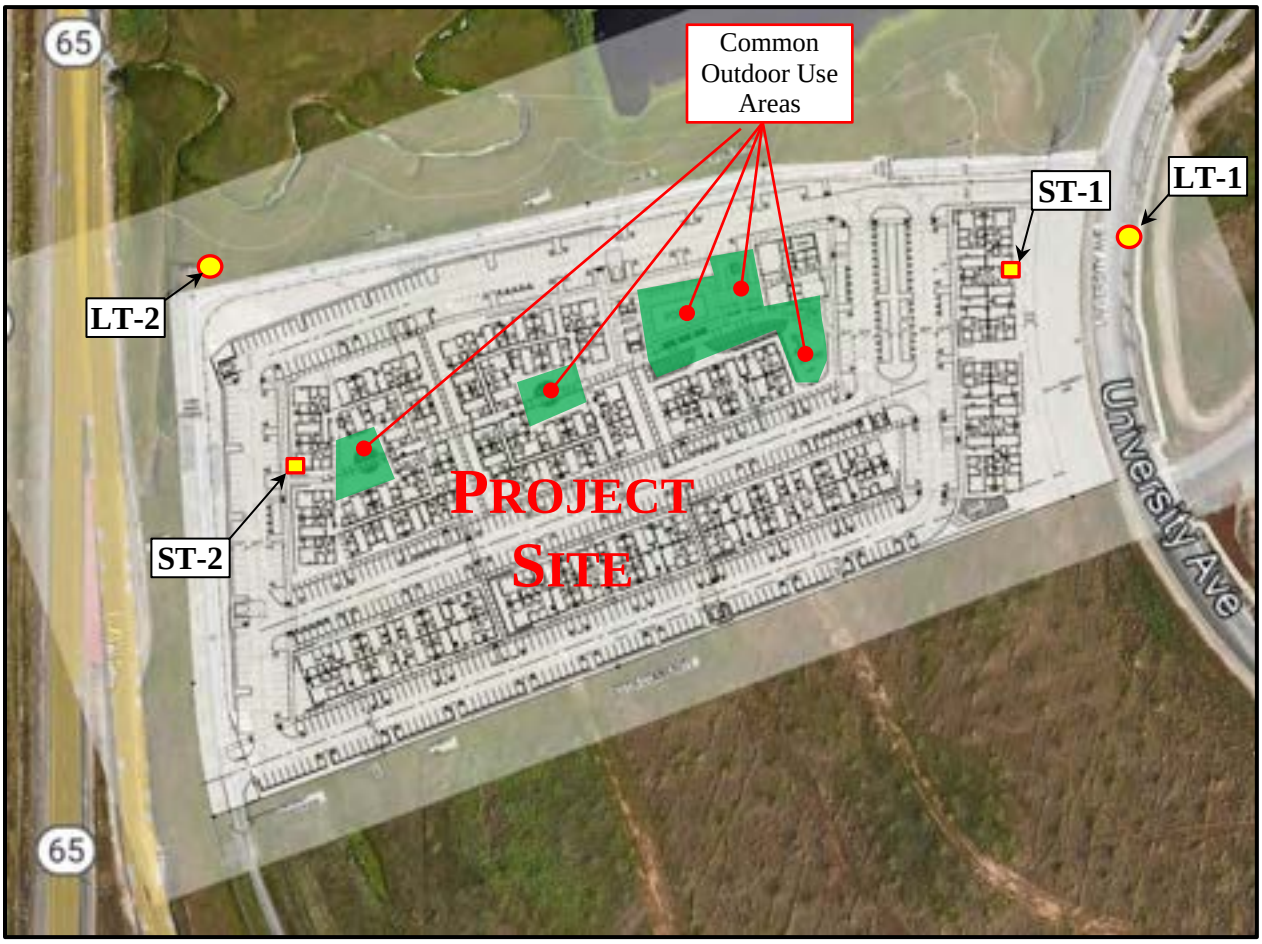


Figure 2: Project Site & Noise Measurement Locations

The noise monitor at location LT-2 was positioned at a height of approximately 10 feet above existing grade on the frame of an unused billboard at approximately 210 feet east of the Hwy 65 centerline. The measured noise levels at this location, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 2, following.

A review of Chart 2 indicates that the noise levels at site LT-2 also followed a diurnal pattern characteristic of traffic noise, with the average daytime noise levels ranging from 62 to 66 dBA L_{eq} and the average nighttime noise levels ranging from 54 to 64 dBA L_{eq}. The Day/Night Average Noise Level (L_{dn}) over the measurement period at the location LT-2 was calculated to be 67 dBA.

Chart 1: LT-1 Hourly Noise Measurement Data

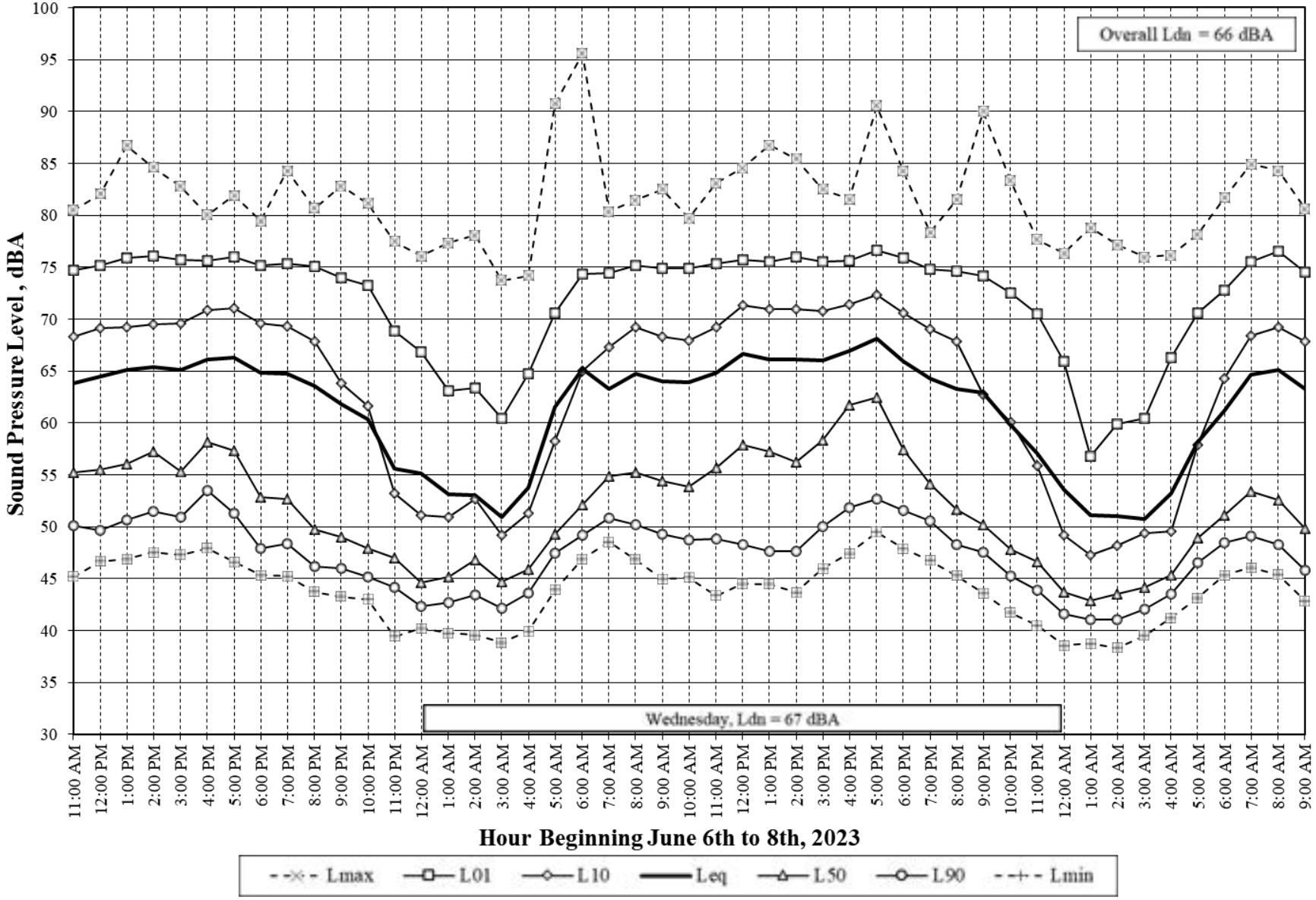
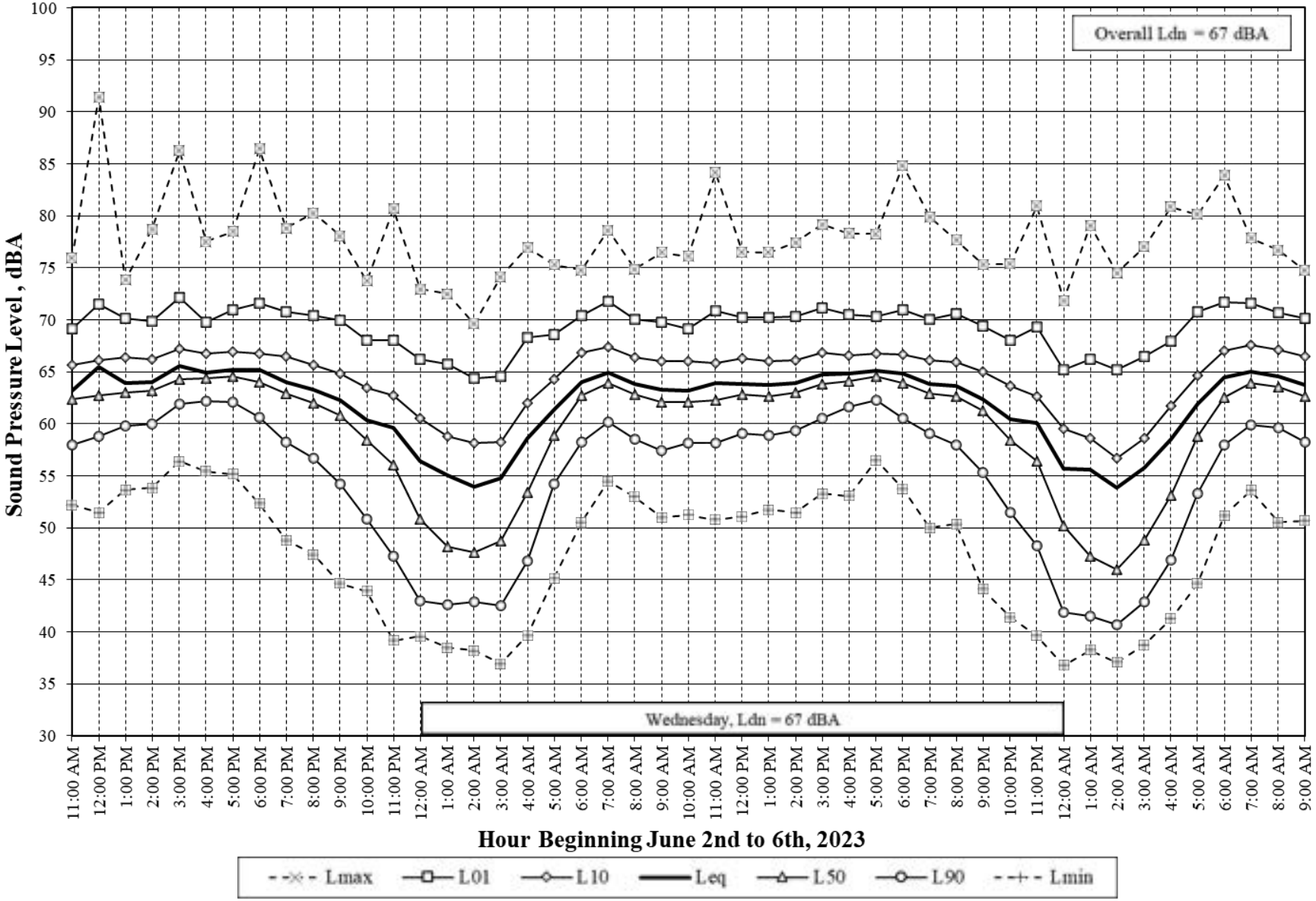


Chart 2: LT-2 Hourly Noise Measurement Data



Two attended short-term noise measurement were made simultaneously with the long-term measurements. The first of these was conducted at 5 feet above grade and approximately 100 feet west of the University Avenue to the centerline, a distance which represents the setback of the closest residential façades to this roadway. The second short term measurement was conducted at 5 feet above grade and approximately 320 feet east of the Hwy 65 centerline, a distance which represents the setback of the closest residential façades to the highway.

The short-term measurements were made between 11:10 and 11:40 am on June 6th to evaluate the existing noise environment at the project facades closest to University Avenue and Hwy 65. Table 3 summarizes the results of these measurements. The simultaneous measurements at the long term monitor closest to the short-term measurement is also shown to demonstrate the sound level correlation at these positions.

TABLE 3: Summary of Short-term Noise Measurement Data

Noise Measurement Location and Time Period	L_{max}	$L_{(1)}$	$L_{(10)}$	L_{eq}	$L_{(50)}$	$L_{(90)}$	L_{dn}
ST-1: ~100 ft. from the University Ave. Centerline (6/6/23,11:30 a.m.-11:40 am)	**64**	**60**	**55**	**52**	**50**	**48**	**55**
LT-1: ~30 ft. from the University Ave. Centerline (6/6/23,11:30 a.m.-11:40 am)	78	75	68	64	55	49	66
ST-2: ~320 ft. from the Highway 65 Centerline (6/6/23,11:10 a.m.-11:20 am)	**65**	**63**	**59**	**57**	**56**	**53**	**61**
LT-2: ~210 ft. from the Highway 65 Centerline (6/6/23,11:10 a.m.-11:20 am)	72	69	65	63	62	57	67

Note: The L_{dn} at the short-term site is approximated by correlating data to that at the long-term site.

FUTURE NOISE ENVIRONMENT

The predominant noise source affecting the project site is expected to continue to be traffic on Hwy 65 and University Avenue. In the future the California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the City of Rocklin proposes to widen Hwy 65 adjacent to the project site. Based on the results of the noise study completed for this roadway widening project[1], future noise levels to the Hwy 65 project frontage will increase by 5 dBA under future conditions with the highway widening project completed. Based on this noise level increase, future sound levels at the first-floor level residential facades and ground level private outdoor areas at the apartments closest to Hwy. 65 will be exposed to sound levels of 66 dBA L_{dn} under future conditions.

There is no available information of future roadway improvements or associated traffic volume increase for University Avenue, however assuming an annual traffic growth rate of between 1% and 2% per year, traffic noise levels along University Avenue would be expected to increase by about 1 dBA under future conditions. Based on this increase the 1st level residential facades and ground level private outdoor areas at the apartments closest to University Avenue will be exposed to sound levels of 56 dBA L_{dn} under future noise conditions.

These first-floor sound levels are based on the results of our short-term measurements which were conducted on the undeveloped, grass covered site such that these sound levels were reduced by additional attenuation from intervening ground cover. Because this ground effect attenuation would not occur at the second and third levels of the closest residential facades to Hwy 65 and University Avenue, and to a conservative worst-case scenario with only atmospheric (distance) at the upper floors, we have calculated the future sound exposure at the 2nd and 3rd level facades

[1] ICF International, "Noise Study Report, SR 65 Capacity and Operational Improvements Project", Caltrans, EA 03-1F170, January 2016

closest to University Avenue and Hwy. 65 without the effect of ground attenuation to be 62 dBA L_{dn} and 70 dBA L_{dn}, respectively.

The project also includes a central common use area with a pool, BBQ area, playground and a clubroom which will be approximately 720 feet from the centerline of Hwy 65 and 330 feet from the centerline of University Avenue. Based on these distances and the ground level sound attenuation with distance from the roadways determined from the long- and short-term measurements, the findings of the Hwy 65 Widening project Noise study, and future traffic projections for University Avenue, future noise environment in this central common use area will be 56 dBA L_{dn} or less. Common areas are also provided in the central courtyards of Buildings C and D. While these courtyards are closer to Hwy 65 than the central common use area, the surrounding structure of these buildings will act as a barrier to roadway noise and provide sufficient attenuation to reduce levels in these courtyards to 60 dBA L_{dn} or less.

NOISE AND LAND USE COMPATIBILITY ASSESSMENT

EXTERIOR NOISE ENVIRONMENT

Based on the results of the noise measurement survey and analysis discussed above, the residential units closest to Hwy. 65 would be exposed to future exterior noise levels of up to 66 dBA L_{dn} at the first level and 70 dBA L_{dn} at the second and third levels, while residential units closest to University Avenue would be exposed to future exterior noise levels of up to 56 dBA L_{dn} at the first level and 62 dBA L_{dn} at the second and third levels. Additionally, the pool, BBQ area, and playground in the project's common outdoor use area and the common courtyards of Buildings C and D would be exposed to future exterior noise levels of 60 dBA L_{dn} or less.

Based on this finding, while noise levels at private patios the upper floor apartments closest to University Avenue and at all floor levels of the apartments closest to Hwy. 65 will be exposed to sound levels over 60 dBA L_{dn}, noise levels, in the projects common use areas will meet the City's criteria for Outdoor activity areas at residential uses. Therefore, in keeping with the City requirement that, "where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area", it is found that the projects common use areas, without the need for any noise barriers or other sound attenuation measures, will sufficient to allow the project to meet the City of Rocklin's Outdoor Noise and Land Use compatibility standards.

INTERIOR NOISE ENVIRONMENT

Based on the results of the noise measurement survey and analysis discussed above, under future conditions, the facades of Buildings B and C closest to Hwy 65 may be exposed to exterior noise levels of between 66 and 70 dBA L_{dn}, while the facades of Building A closest to University Avenue will be exposed to exterior noise levels of between 56 and 62 dBA L_{dn}

A review of current building plans indicates that the exterior walls of the residential units will be finished with stucco siding. Based on information from the project architect the standard exterior walls will be an internally insulated single 2x6 wood stud assembly with one layer of gypsum board at the interior face and 7/8" thick stucco over a layer of sheathing at the exterior. The sound isolation rating of this exterior wall assembly with consideration of the sheathing layer would be STC 46[2]. Considering this exterior wall and the exterior window and door areas as a percentage of the total exterior wall area of residences, we have determined that exterior noise levels will be reduced within the residential interiors by 27 to 29 dBA with the standard thermal insulating

[2] Based on laboratory test number W-50-71 published by the U.S. National Bureau of Standards.

windows and/or weather sealed doors[3] maintained closed. Nonetheless, as discussed previously with windows partially open, interior noise levels are generally only 12 to 17 dBA lower than exterior noise levels.

Considering this level of noise reduction, closed standard thermal insulating windows and/or weather sealed doors would be sufficient to meet the City and State interior noise standards of 45 dBA L_{dn} in all residential units on the site. Therefore, we find that standard thermal insulating windows will be acceptable for use at all project residences.

However, though the interior noise standards are expected to be met in all apartments on the project site with closed standard thermal insulting windows and weather sealed doors, based on the overall noise exposure on the site, 1st level units within Buildings B, C, and D which have a view of Hwy 65 and all upper level apartments with a view of either Hwy 65 or University Avenue traffic will require the inclusion of a mechanical ventilation system to supply fresh air to the units, satisfactory to the local building official, to allow occupants to keep windows closed and doors to control noise. Based on this consideration, Figures 3 and 4, following, show the locations of the 1st and upper-level residences requiring mechanical ventilation.

Such mechanical ventilation systems can include an acoustically rated straight air transfer duct such as the Fresh 80, 90 or 100-dB units by Fresh Ventilation or equal. In our experience a standard central air conditioning and/or a central heating system with adequate fresh air supply, equipped with a 'summer switch' that allows the fan to circulate air without furnace operation, can also provide adequate mechanical ventilation to provide a habitable interior environment.

Considering the above, the following Interior Noise Mitigation Measures are recommended at the project:

1. 1st level units within Buildings B, C, and D which have a view of Hwy 65 and all 2nd level apartments with a view of either Hwy 65 or University Avenue traffic will require the inclusion of a mechanical ventilation system to supply fresh air to the units to allow occupants to keep windows closed and doors to control noise,
2. All 1st floor unit windows and doors with views towards Hwy 65 shown in Figure 3 shall be specified with a minimum STC rating of 26, and
3. All 2nd floor windows and doors with views towards Hwy 65 or University Avenue shown in Figure 4 shall be specified with a minimum STC rating of 26.

[3]Though such windows and doors commonly do not have a specific sound rating, due to CSBC energy requirements they typically have equivalent STC values of between 24 and 26.

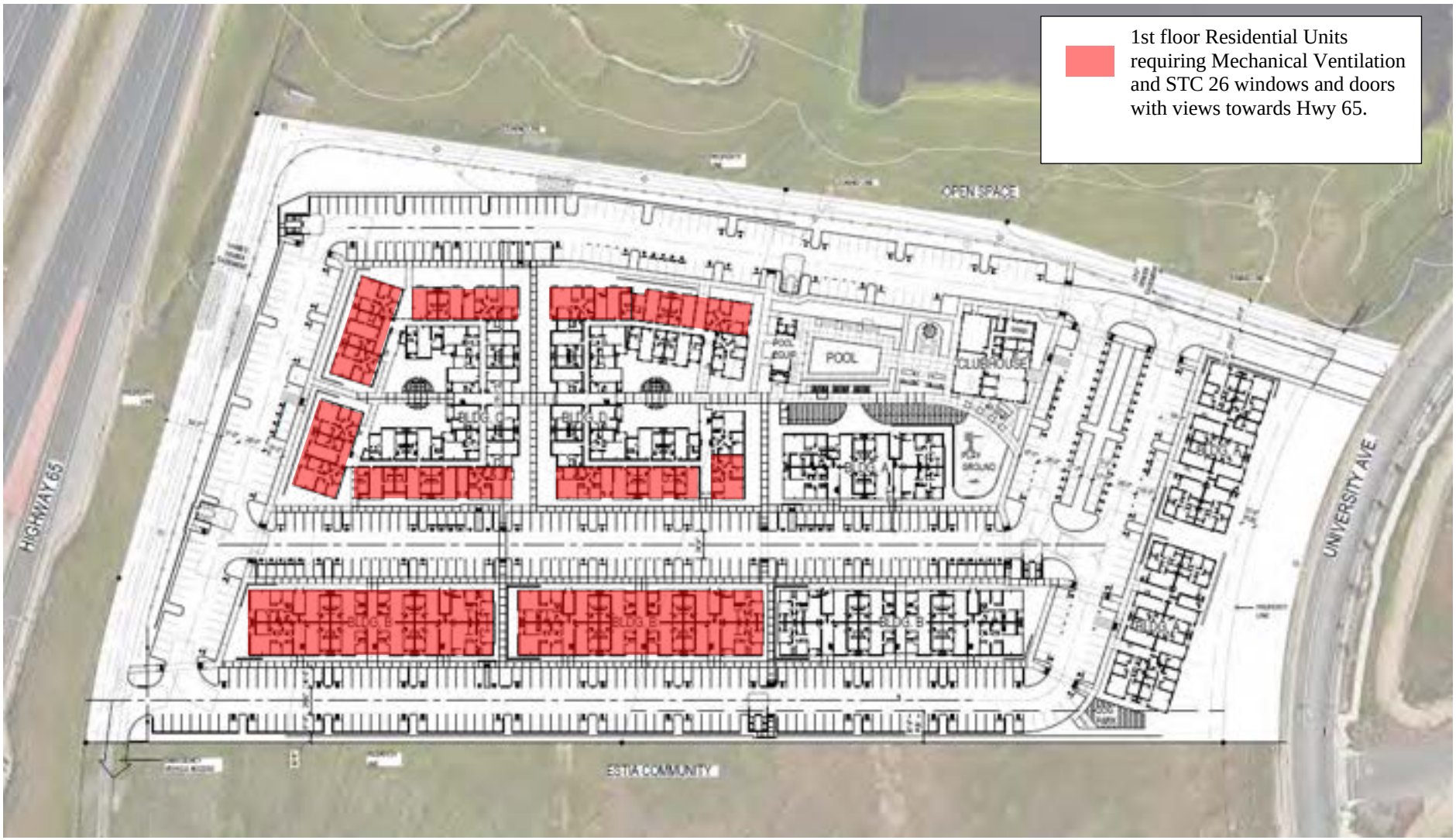


Figure 3: 1st floor Units Requiring Mechanical Ventilation and STC 26 doors and windows

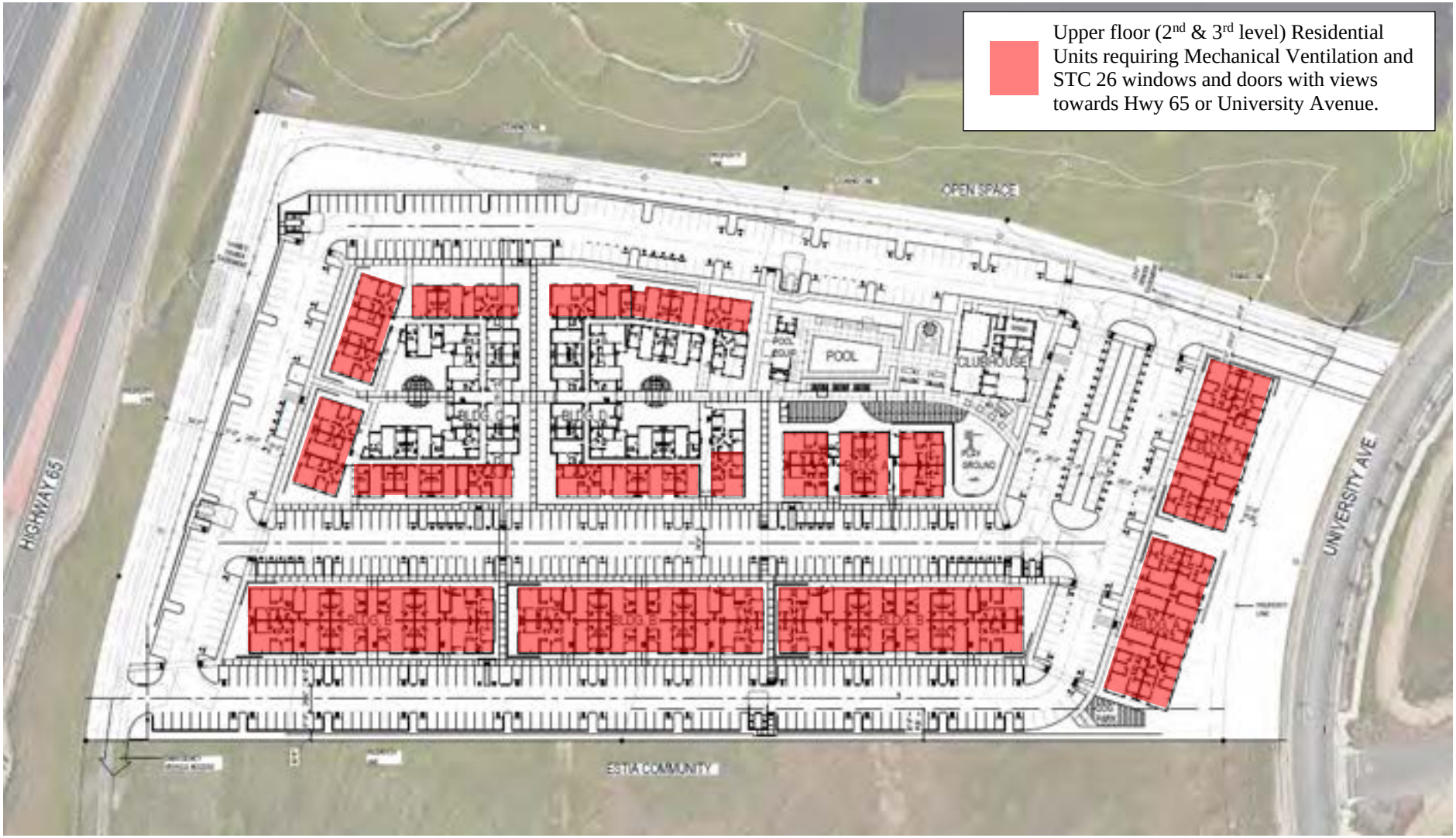


Figure 3: Upper floor (2nd and 3rd level) Units Requiring Mechanical Ventilation and STC 26 doors and windows

APPENDIX H

FLOODPLAIN MANAGEMENT DETERMINATION, STEP 3: ALTERNATIVE SITE ANALYSIS

FLOODPLAIN MANAGEMENT DETERMINATION
STEP 3: ALTERNATIVE SITE ANALYSIS

INTRODUCTION

The primary intent of the Floodplain Management Determination Step 3, as stated in Title 44, Section 9.9 b of the Code of Federal Regulation, is to "[…] identify and evaluate practicable alternatives to carrying out a proposed action in floodplains or wetlands, including; (1) Alternative sites outside the floodplain or wetland; (2) Alternative actions which serve essentially the same purpose as the proposed action, but which have less potential to affect or be affected by the floodplain or wetlands; and (3) No action."

An Aquatic Resources Delineation Report (ARD) was prepared for the University Avenue Apartments Project (proposed project) by Madrone Ecological Consulting (Madrone) in January 2023. Pursuant to the ARD, approximately 1.751 acres of aquatic resources were mapped on the project site, including 0.243-acre of wetlands and 1.342 acres of other waters (see Figure 1). In a verification letter provided by the United States Army Corps of Engineers (USACE) on June 13, 2023, the USACE concurred that the on-site aquatic resources are potential jurisdictional aquatic resources regulated under Section 404 of the Clean Water Act. Because of the presence of wetlands on-site, development of the project site through assistance provided by the U.S. Department of Housing and Urban Development (HUD) is subject to the 8-Step Decision-Making Process for Executive Order 11988.

PROJECT DESCRIPTION SUMMARY

The 12.72-acre project site is located northeast of the intersection of State Route (SR) 65 and Sunset Boulevard in the City of Rocklin, California, and is identified by Assessor's Parcel Numbers (APNs) 017-276-005 and -006. The project site is also located within the Northwest Rocklin General Development Plan area within the SR 65 Corridor. The City of Rocklin General Plan designates the site as Mixed Use (MU) and the site is zoned Planned Development Residential 22 Units Per Acre Minimum (PD-22+) within the Northwest Rocklin General Development Plan area. Currently, the project site is undeveloped and contains approximately 0.237-acre of wetland resources. Additionally, a paved utility road, sewer, and drainage improvements are located along the northern and western boundaries of the site as part of a South Placer Municipal Utility District Project.

The proposed project would consist of eight, three-story apartment buildings with a total of 324 multi-family residential units. In addition to the proposed residential units, the project would consist of various amenities including a clubhouse, swimming pool, cabana, playground, dog park, and multiple outdoor cooking and recreational areas. Site access would be provided by a two-lane entry and exit driveway off University Avenue in the northeast corner of the project site which would connect to a 26-foot-wide internal roadway system. Emergency Vehicle Access (EVA) would be provided from the existing paved utility roads surrounding the project site which ultimately connect to University Avenue to the north and south of the project site. From the entrance/exit drive aisles, the internal 26-foot-wide drive aisle would loop within the project site to provide vehicle access to surface parking areas and the proposed residential buildings. A total of 562 uncovered surface parking spaces would be provided throughout the project site.

Figure 1
Wetland Delineation Map

ALTERNATIVES

The alternatives evaluated in this section are included for discussion in order to attempt to minimize or eliminate impacts associated with wetlands. The alternatives to the proposed project evaluated in this section are as follows (see Figure 2):

1. Locate the Project in the Wetland Area;
2. Locate the Project Outside of the Wetland Area; and
3. No Action Alternative.

1. Locate the Project in the Wetland Area

Alternative 1 would be located immediately southeast of the intersection of Standford Ranch Road and Park Drive and would implement the same components of the proposed project, including the construction of eight, three-story apartment buildings with a total of 324 multi-family residential units and the associated amenities and on-site parking. The Alternative 1 site is currently vacant, undeveloped, and relatively flat with ruderal grasses throughout and trees located around the perimeter of the site. The site features a seasonal wetland located in the center of the site and views of ponded water on-site are visible looking west towards the site from Park Drive (see Figure 3 and Figure 4). However, the Federal Emergency Management Agency (FEMA) designates the site as Zone X, which is an area of minimal flood hazard.[1] Furthermore, the Alternative 1 site is among the few locations within close proximity to the project site that is developable, would not require demolition of existing structures, and is within relatively close proximity to existing commercial uses and healthcare facilities.

Natural Environment

The Alternative 1 site is currently vacant and relatively flat, with a seasonal wetland in the center, ruderal grasses throughout, and trees located along the perimeter of the site. Existing uses in the site vicinity include additional undeveloped land and commercial uses, west across Park Drive; commercial uses north across Standford Ranch Road; multi-family residential units to the east and Rocklin High School further east across Stanford Ranch Road; and multi-family residential units to the south.

Based on the natural environment, occupants of the Alternative 1 site would be subject to potential adverse effects related to noise impacts due to the site's proximity to Standford Ranch Road and Park Drive. In addition, construction of Alternative 1 could result in potential adverse effects related to potentially protected wetlands; endangered species, due to the presence of trees around the site perimeter; and historic preservation, due to the potential for unknown subsurface resources. Based on the above, potential adverse effects related to the natural environment would be similar to or greater than those associated with development of the proposed project.

Social Concerns

Based on the location, the Alternative 1 site could be subject to potential environmental justice impacts, specifically related to equal protection from environmental and health hazards and equal access to a healthy environment in which to live.

[1] Federal Emergency Management Agency. *FEMA's National Flood Hazard Layer (NFHL) Viewer*. Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed August 2025.

Figure 2
Alternative Site Locations

Figure 3
Aerial View of the Alternative 1 Site

Figure 4
View of Alternative 1 Site Looking West from Park Drive

Consistent with HUD guidance, environmental justice adverse effects would occur predominantly due to potential air pollution and noise adverse effects associated with the site's proximity to Standford Ranch Road and Park Drive, which are located along the northern and western boundary of the project site, respectively. Pursuant to HUD guidance, a development project within 1,000 feet of a major roadway must demonstrate exterior noise levels at the proposed development site would not exceed 65 dB. As such, given the close proximity of the Alternative 1 site to Standford Ranch Road and Park Drive, adverse effects related to noise would reasonably be expected to occur.

Economic Aspects

The Alternative 1 site is not owned by the project applicant. Purchase of the Alternative 1 site could render the proposed multi-family housing improvements economically infeasible due to the lack of available funding.

Legal Constraints

Unlike the proposed project site, the Alternative 1 site is designated Recreational/Conservation (R-C) and is zoned Wetland (W). The R-C land use designation allows for existing or future recreational uses primarily related to outdoor facilities or areas of important environmental or ecological qualities. While the City does not currently have a zoning code defining the W designation, Title 8, Health and Safety, as well as Title 15, Building and Construction, of the Rocklin Municipal Code provide regulations regarding wetlands within the City. As such, Alternative 1 would require City approval of a General Plan Amendment (GPA) and Rezone, as well as approval of other entitlements already obtained by the proposed project as part of the previous CEQA environmental review, to allow for development of the project on the Alternative 1 site.

Conclusion

As discussed above, the Alternative 1 site is not designated or zoned to allow for development of multi-family residential housing. Development of the Alternative 1 site with the proposed uses could expose future residents to potential impacts related to environmental justice, historic preservation, air pollution, and excessive noise that would be equal to or potentially greater than those associated with the proposed project. Furthermore, construction of Alternative 1 could result in potential adverse effects related to endangered species, wetlands protection, erosion, drainage, and stormwater runoff equal to or potentially greater than those associated with the proposed project. To address such impacts, development of Alternative 1 would require mitigation measures similar to those set forth in the Environmental Assessment prepared for the proposed project. Finally, considering that the Alternative 1 site is not owned by the project applicant, purchase of the site could render development of the housing project on the Alternative 1 site economically infeasible. Overall, Alternative 1 would not diminish the number of substantial environmental adverse effects that would occur, relative to those associated with the proposed project, such that the merits of the Alternative would override the economic infeasibility and lack of community benefits of the Alternative.

2. Locate the Project Outside of the Wetland Area

Alternative 2 would be located approximately 660 feet southwest of the intersection of Sunset Boulevard and West Stanford Ranch Road, along the north side of Lonetree Boulevard, and would implement the same components of the proposed project, including the construction of eight, three-story apartment buildings with a total of 324 multi-family residential units and the associated amenities and on-site parking. The Alternative 2 site is currently vacant, undeveloped, and

relatively flat with ruderal grasses throughout. The site features a pile of rock or debris located in the southeast corner of the project site, as well as a tributary to Pleasant Grove Creek located along the northern boundary of the site. FEMA designates the majority of the Alternative 2 site as Zone X, which is an area of Minimal Flood Hazard. However, the northern portion of the site containing the tributary to Pleasant Grove Creek is designated as Zone D, an Area of undetermined Flood Hazard, and as a Regulatory Floodway with a base flood elevation between 125.7 feet and 126.7 feet.

Natural Environment

The Alternative 2 site is currently vacant and relatively flat with regularly mowed ruderal grasses and a tributary of Pleasant Grove Creek flowing along the northern site boundary. Based on the presence of a large pile of rock or debris in the southeastern corner of the site and aerial photography showing previous construction activity on-site, previous site disturbance can be reasonably assumed. Existing uses in the site vicinity include the Stanford Business Park to the west, across the Pleasant Grove Creek tributary; additional wetland area to the north; commercial and industrial uses to the west and south, across Stanford Ranch Road; and industrial uses to the south, across Lonetree Boulevard.

Based on the natural environment, occupants of the Alternative 2 site would be subject to potential impacts related to flooding, as well as noise impacts due to the site's proximity to Standford Ranch Road. Construction of Alternative 2 has the potential to result in adverse effects to endangered species and historic preservation, due to the existing trees adjacent to the project site, the riparian area associated with the Pleasant Grove Creek tributary located in the northern portion of the site, and the potential for unknown subsurface resources. In addition, due to the presence of rock or debris in the southeast corner of the site and the potential historical construction activity on the project site, construction of Alternative 2 has the potential to result in adverse effects due to potentially hazardous materials on-site. Based on the above, potential adverse effects related to the natural environment would be similar to or greater than those associated with development of the proposed project.

Social Concerns

Based on the location, the Alternative 2 site could be subject to potential environmental justice impacts, specifically related to equal protection from environmental and health hazards and equal access to a healthy environment in which to live. Consistent with HUD guidance, environmental justice adverse effects would occur predominantly due to potential air pollution and noise adverse effects associated with the site's proximity to Standford Ranch Road, located along the southern boundary of the project site. Pursuant to HUD guidance, a development project within 1,000 feet of a major roadway must demonstrate exterior noise levels at the proposed development site would not exceed 65 dB. As such, given the close proximity of the Alternative 2 site to Standford Ranch Road, noise adverse effects would reasonably be expected to occur.

Economic Aspects

The Alternative 2 site is not owned by the project applicant. Purchase of the Alternative 2 site could render the proposed multi-family housing improvements economically infeasible due to the lack of available funding.

Legal Constraints

Unlike the proposed project site, the Alternative 2 site is designated Business Professional/Commercial/Light Industrial and is zoned Planned Development Light Industrial (PD-

LI), Planned Development Industrial Park (PD-IP), and W. The Business Professional/Commercial/Light Industrial land use designation allows for professional office development with a floor area yield (FAR) between 25 to 50 percent of the lot area, compatible commercial and quasi-public uses, and non-intensive manufacturing and storage facilities concentrated for public convenience and mutual benefit. Various land uses may be combined in a PD combining zone including combinations of residential, commercial, industrial, utility, institutional, educational, cultural, recreational and other uses. LI and IP combining uses include typical industrial uses. While the City does not currently have a zoning code defining the W designation, Title 8, Health and Safety, as well as Title 15, Building and Construction, of the Rocklin Municipal Code provide regulations regarding wetlands within the City. As such, Alternative 2 would require City approval of a GPA and Rezone, as well as approval of other entitlements already obtained by the proposed project as part of the previous CEQA environmental review, to allow for development of the project on the Alternative 2 site.

Conclusion

The Alternative 2 site is not designated to allow for the proposed uses. In addition, development of the Alternative 2 site could expose future residents to potential impacts related to environmental justice, historic preservation, hazardous materials, air pollution, and excessive noise that would be equal to or potentially greater than those associated with the proposed project. Furthermore, construction of Alternative 2 could result in potential adverse effects related to endangered species, wetlands protection, erosion, drainage, and stormwater runoff equal to or potentially greater than those associated with the proposed project. To address such impacts, development of Alternative 2 would require mitigation measures similar to those set forth in the Environmental Assessment prepared for the proposed project. Considering that the Alternative 2 site is not owned by the project applicant, purchase of the site could render development of the housing project on the Alternative 2 site economically infeasible. Overall, Alternative 2 would not diminish the number of substantial environmental adverse effects that would occur, relative to those associated with the proposed project, such that the merits of the Alternative would override the economic infeasibility and lack of community benefits of the Alternative.

3. No Action Alternative

Under the No Action Alternative, the project site would not be developed with the proposed 100 percent affordable multi-family housing development. However, the project site has already received approval from USACE to fill the on-site wetlands under Section 404 of the Clean Water Act. As such, any project proponent could choose to develop the project site in accordance with the site's existing MU land use designations and PD-22+ zoning designations, including filling the existing on-site wetlands. Considering that the proposed project is generally consistent with the uses allowed under the site's land use and zoning designations, development of the project site facilitated by the No Action Alternative would likely result in similar potential adverse effects and require similar mitigation measures as those identified in the Environmental Assessment prepared for the proposed project. Furthermore, because the 2024 Addendum was approved in December 2024, which approved development of the project site with 12 three-story apartment buildings with a total of 324 units, identical to the development proposed by the current proposed project, the project site would likely be developed with a project similar or identical to the proposed project. Any future structures built at the project site in accordance with the existing land use and zoning designations could require measures to prevent potential adverse effects related to historic preservation, hazardous materials, and excessive noise or other CEQA topics at the site. Thus, any future potential development of the site facilitated by the No Action Alternative would likely result in similar potential adverse effects relative to those identified for the proposed project.

Finally, the Housing Element 2021-2029 of the City of Rocklin General Plan establishes the existing housing needs in Rocklin, with the City's housing needs not confined to only lower-income residents, but also extending to middle-class households.[2] The No Action Alternative could hinder the City's ability to achieve its affordable housing goals identified in the City's General Plan, if, in the event that future redevelopment of the site would be multi-family residential, and such development is not affordable. Furthermore, the proposed project would consist of 100 percent affordable housing units restricted for households 30 to 70 percent of the area median income (AMI) for Placer County. Even if future development was affordable, such development may not provide the same amount of affordable housing and, thus, would meet the City's need for affordable housing to a lesser extent.

[2] City of Rocklin. *Housing Element 2021-2029.* November 2020.

APPENDIX I

GEOTECHNICAL INVESTIGATION

GEOTECHNICAL INVESTIGATION

William Jessup University
Proposed Multi-Family Development
University Avenue
Rocklin, California

PREPARED FOR:
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GEOCON PROJECT NO. S2486-05-02

MARCH 2023

Project No. S2486-05-02
March 8, 2023

VIA ELECTRONIC MAIL

Milo Terzich
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Subject: GEOTECHNICAL INVESTIGATION
WILLIAM JESSUP UNIVERSITY
PROPOSED MULTI-FAMILY DEVELOPMENT
UNIVERSITY AVENUE
ROCKLIN, CALIFORNIA

Mr. Terzich:

In accordance with authorization of our proposal (Geocon Proposal No. LS-22-318, dated October 4, 2022) and issuance of a Professional Services Agreement (dated October 6, 2022), we performed a geotechnical investigation for the proposed multi-family development project located near William Jessup University on the west side of University Avenue in Rocklin, California.

The accompanying report presents our findings, conclusions, and recommendations for the project as presently proposed. In our opinion, no adverse geotechnical conditions were encountered that would preclude development at the site provided recommendations of this report are incorporated into the design and construction of the project.

Please contact us if you have any questions regarding this report or if we may be of further service.

Respectfully submitted,

GEOCON CONSULTANTS, INC.

Alice M. Orton, PG
Project Geologist

Jeremy J. Zorne, PE, GE
Senior Engineer

REGISTERED PROFESSIONAL ENGINEER
JEREMY J. ZORNE
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STATE OF CALIFORNIA

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GEOTECHNICAL INVESTIGATION

1.0 PURPOSE AND SCOPE

This report presents the results of our geotechnical investigation for the proposed multi-family apartment complex development near William Jessup University on the west side of University Avenue north of Sunset Boulevard in Rocklin, California. The approximate site location is depicted on the Vicinity Map, Figure 1.

The purpose of our investigation was to evaluate subsurface soil and geologic conditions at the site and provide conclusions and recommendations relative to the geotechnical aspects of designing and constructing the project as presently proposed.

To prepare this report, we performed the following scope of services:

- Performed a limited geologic literature review to aid in evaluating the geologic conditions present at the site. A list of referenced material is included in Section 9.0 of this report.
- Reviewed available design plans to select test pit and percolation test locations.
- Performed a site reconnaissance to review project limits, determine equipment access, and mark out exploratory test pit locations for subsequent utility clearance.
- Retained the services of California C57-licensed excavation subcontractor to excavate test pits.
- Notified subscribing utility companies via Underground Service Alert (USA) a minimum of two working days (as required by law) prior to performing exploratory excavations at the site.
- Observed the excavation of 12 test pits (TP1 through TP12) within the project limits to investigate subsurface conditions.
- Obtained representative soil samples from the test pits.
- Logged the test pits in accordance with the Unified Soil Classification System (USCS).
- Upon completion, backfilled the test pits with excavated soil and compacted using the backhoe bucket.
- Performed three additional shallow excavations (P1 through P3) within potential stormwater basin/swale areas for the purposes of field percolation testing.
- Performed field percolation testing in each of the shallow excavations (P1 through P3) using an Aardvark permeameter.
- Performed laboratory tests to evaluate pertinent geotechnical parameters.
- Prepared this report to summarize our findings, conclusions, and recommendations with respect to design and construction of the project.

Approximate locations of our test pits and infiltration tests are shown on the Site Plan, Figure 2, and Proposed Development Plan, Figure 3. Details of our field exploration program including test pit logs and infiltration test data sheets are presented in Appendix A. Details of our laboratory testing program and test results are summarized in Appendix B.

2.0 SITE AND PROJECT DESCRIPTION

The approximately 12.74-acre site is located on the west side of University Avenue between Larkspur Drive and Sunset Boulevard in Rocklin, California. The site is further identified as Placer County assessor parcel numbers (APNs) 017-276-005 and 017-276-006. The site generally consists of undeveloped land that is vegetated with seasonal grasses and brush. Site topography includes gentle hilly slopes separated by natural drainages with ground surface elevations ranging from approximately 140 to 155 feet above mean sea level (MSL) (USGS, 2021). A paved pedestrian pathway exists along the northern and western site boundaries and unimproved roadways cross the central portion of the site. A piped drainage system has been installed on the north and west to move water from natural drainages within the site under the pedestrian pathway to surrounding drainages within the wetland area north of the site. The current site configuration is shown on the Site Plan, Figure 2.

Site geology is mapped as Oligocene/Miocene rhyolitic sandstone, ash, tuff, and claystone; Miocene/Pliocene mudflow tuff and breccia; and Miocene/Pliocene cemented cobble conglomerate (Gutierrez, 2011). Groundwater in the project vicinity was estimated at 50 to 60 feet below ground surface (BGS) in the spring of 2022 (CA DWR, 2022).

We understand that development at the site will consist of constructing approximately 336 one-, two-, and three-bedroom units within 10 three-story apartment buildings. The concept plan shows each apartment building will have a 10,000- to 15,000-square-foot footprint. The project will also include a clubhouse/amenity building, a swimming pool and pool house, and surrounding parking/driveway areas and pedestrian walkways. The current concept plan indicates that stormwater entering the site at the south may be piped through the site to locations west and north of the site.

We assume the buildings will be of wood-framed construction supported on shallow foundations and will be constructed at-grade without basements or below-grade levels. Additional associated improvements may include underground utility infrastructure, concrete flatwork, common areas, and trash enclosures. We expect that site grading will include cuts and fills on the order of 5 feet or less and that no retaining walls will be required. Some utilities may require deeper excavations.

The proposed site configuration is shown on the Proposed Development Plan, Figure 3.

3.0 SOIL AND GEOLOGIC CONDITIONS

We identified geologic and soil conditions by observing and sampling exploratory excavations and reviewing the referenced geologic literature (Section 9.0). Soil descriptions below include the USCS symbol where applicable. Site geology generally consists of a relatively thin layer of residual soil overlying Miocene and early Pliocene-aged Mehrten Formation (MPmb and MPmc) and Oligocene to Miocene-aged Valley Springs Formation (OMvs) (Gutierrez, 2011). The Mehrten Formation is composed of angular andesitic rock ranging from gravel to boulder size embedded in a cemented matrix of ash and sand. Valley Springs Formation is a fluvial sequence of rhyolitic ash, sandy clay, and siliceous gravel.

3.1 Residual Soil

We encountered residual soil in each test pit (TP1 through TP12 and P1 through P3) to depths ranging from less than 6 inches to about 8½ feet. The residual soil generally consists of stiff to hard sandy lean clay (CL) and silt (ML), and loose to very dense clayey sand (SC), silty clayey sand (SC-SM), and silty sand (SM) with varying amounts of gravel, cobbles, and boulders weathered in-place from underlying bedrock formations. Cobbles and boulders up to approximately 3 feet in diameter are visible at ground surface across the site.

3.2 Mehrten Formation

Below the residual soil in Test Pits TP2 through TP11 we encountered Mehrten Formation (MPmb and MPmc on the Generalized Geologic Map, Figure 4) to depths of approximately ½ to 10 feet, the maximum depth excavated. The Mehrten Formation as encountered in our test pits consists of completely to slightly weathered volcanic tuff caprock, mudflow breccia, and cemented, poorly bedded cobble and boulder conglomerate and excavates as very stiff to hard sandy lean clay (CL) and dense well-graded sand (SW), clayey sand (SC), and silty sand (SM), with varying amounts of gravel, cobbles, and boulders to approximately 14 inches in diameter. We encountered excavation refusal at depths of approximately 6 inches to 5 feet into the Mehrten Formation.

3.3 Valley Springs Formation

Below the residual soil in Test Pits TP12 and P2, we encountered Valley Springs Formation (OMvs) to depths of approximately 1½ to 2½ feet. Onsite, the Valley Springs Formation consists of a combination of completely to slightly weathered rhyolitic sandstone, ash, interbedded tuffs, and claystone and excavates as a cemented volcanic tuff or a hard sandy lean clay (CL) with varying amounts of gravel. We encountered excavation refusal at depths of approximately 6 inches to 1 foot into the Valley Springs Formation.

Soil conditions described in the previous paragraphs are generalized. The excavation logs included in Appendix A detail soil type, color, moisture, consistency, and USCS classification of the soils encountered at specific locations and elevations.

3.4 Infiltration Testing

We performed field infiltration tests using a SoilMoisture Corp. Aardvark Permeameter to evaluate infiltration characteristics within potential stormwater basin or swale areas. The infiltration tests were intended to provide preliminary infiltration data so that stormwater management methods for the project could be determined. The tests were generally performed as follows:

1. Three shallow infiltration test pits (P1 through P3) were excavated to depths of 18 to 24 inches using a 24-inch-wide backhoe bucket. These test pits were approximately 4 feet long.
2. Within the central portion of each infiltration test pit, a 2- to 4-inch-deep (as possible), 4-inch-diameter depression was hand-augered and a 4-inch diameter perforated PVC pipe was placed within the depression. This was intended to guide water toward a low point for infiltration purposes, allowing less infiltration into disturbed surrounding soil. The infiltration test pits were backfilled with excavated soil which was tamped down around the PVC pipe using the backhoe bucket.
3. Each PVC pipe was filled to the surface with water to allow surrounding soil to pre-saturated for approximately 18 hours prior to infiltration testing.
4. For each test, the permeameter was set within a test pipe and arranged to allow a constant flow of water from a water jug set on a digital scale.
5. The original water weight was recorded and the system opened to maintain a constant head within the test pipe.
6. The change in water weight was measured at regular intervals until a stabilized infiltration rate was obtained.
7. Upon test completion, the test pipes were removed and the holes were backfilled with excavated soil.

The approximate infiltration test locations are shown on the Site Plan, Figure 2, and Proposed Development Plan, Figure 3. Stabilized infiltration rates and the USCS classification of the soil types encountered at the infiltration test locations are summarized in Table 3.4. Infiltration test data sheets are included in Appendix A.

TABLE 3.4
SUMMARY OF INFILTRATION TEST RESULTS

Test ID	Approximate Test Depth (feet)	USCS Classification	Fines Content (%)	Stabilized Infiltration Rate (in/hr)	Factored Infiltration Rate[1] (in/hr)
P1	2	Sandy Silt (ML)	52.6	0.4	0.2
P2	1½	Silty Sand (SM)	43.9	0.3	0.15
P3	2	Silty Clayey Sand (SC-SM)	45.9	0.1	0.05

Notes:
1. A Factor of Safety of 2 was applied to account for soil variability.

Soil infiltration rates are strongly influenced by soil type (percentage of fines), density, moisture content, and other factors. A small change in clay/silt content and/or compaction can greatly reduce or increase infiltration rates. Therefore, the factored infiltration rate includes a factor of safety of 2 to account for variability in the measured infiltration rates. Based on the factored infiltration rates, the soil at the locations tested has a very slow infiltration rate. This should be considered in the stormwater basin design. Similar conditions are expected across the site due to the presence of shallow bedrock.

4.0 GROUNDWATER

We did not encounter groundwater in our exploratory excavations performed on October 24, 2022, to a maximum depth of approximately 10 feet. A seasonal wetland area adjacent to the north of the site was dry at the time of our site investigation.

We reviewed available depth-to-groundwater data on the California Department of Water Resources (CA DWR) *Sustainable Groundwater Management Act (SGMA) Data Viewer* (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels). The SGMA Data Viewer website indicates that depth to groundwater near the site was approximately 50 to 60 feet BGS in January 2022 (CA DWR, 2022).

It should be noted that fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors. Depth to groundwater can also vary significantly due to localized pumping, irrigation practices, and seasonal fluctuations. Therefore, it is possible that groundwater may be higher or lower than the levels observed during our investigation. Additionally, perched groundwater may develop seasonally above caliche or cemented horizons within residual soil and near the contact between residual soil and hard formational material. Recommendations related to perched groundwater/seepage are provided in this report.

5.0 SEISMICITY AND GEOLOGIC HAZARDS

5.1 Regional Active Faults

Based on our research, analyses, and observations, the site is not located on any known “active” earthquake fault trace. In addition, the site is not contained within an Alquist-Priolo Earthquake Fault Zone. Therefore, we consider the potential for ground rupture due to onsite active faulting to be low. In order to determine the distance of known active faults within 50 miles of the site, we used the 2013 Caltrans Fault Database KML overlay file for Google Earth. Principal references used within the 2013 Caltrans Fault Database are Jennings and Bryant Fault Activity Map of California (2010) and Working Group on California Earthquake Predictions (WGCEP) Uniform California Earthquake Rupture Forecast Version 3. Results are summarized in Table 5.1.

TABLE 5.1
REGIONAL ACTIVE FAULTS

Fault Name	Approximate Distance from Site(miles)	Maximum Moment Magnitude, M_W
Foothills Fault System – north central reach section (Deadman Fault)	12.1	6.2
Foothills Fault System – northern reach section (Spenceville Fault)	12.5	6.5
Foothills Fault System – north central reach section (DeWitt Fault)	13.1	6.3
Foothills Fault System – north central reach section (Hwy 49 Fault)	15.9	6.2
Dunnigan Hills Fault	30.7	6.4
Great Valley 03a Dunnigan Hills	33.8	6.4
Foothills Fault System – northern reach section (Swain Ravine Fault Zone)	37.8	6.5
Foothills Fault System – south central reach section (Ione Fault)	39.0	6.1
Great Valley 03 Mysterious Ridge	41.6	7.0
Great Valley 04a Trout Creek	42.8	6.5
Great Valley 04b Gordon Valley	45.3	6.7
Foothills Fault System – south central reach section (Poorman Gulch Fault)	46.6	6.3
Great Valley 06 (Midland) alt2	49.2	6.8

5.2 Historical Earthquakes and Ground Shaking

The Sacramento region has a history of relatively low seismicity in comparison with more active seismic regions such as the San Francisco Bay Area or Southern California. The two most commonly referred to earthquakes that resulted in some reported building damage in Sacramento are the Winters and Vacaville events in 1892. There are no reported occurrences of seismic-related ground failure in the Sacramento region due to earthquakes.

We used the United States Geological Survey (USGS) *Unified Hazard Tool* (https://earthquake.usgs.gov/hazards/interactive/) to determine the deaggregated seismic source parameters including controlling magnitude and fault distance. The USGS estimated modal magnitude is 5.5 and the estimated Peak Ground Acceleration (PGA) for the Maximum Considered Earthquake (MCE) with a 2,475-year return period is 0.23g.

5.3 Liquefaction

Liquefaction is a phenomenon in which loose, saturated, cohesionless soil deposits located beneath the groundwater table lose strength when subjected to intense and prolonged ground shaking. The seismic excitation increases pore water pressure creating a buoyant effect of the loose soil. When

liquefaction occurs, building foundations may sink or tilt and differential ground settlement may occur. Other effects may include sand boils (ground loss) and lateral spreading if the liquefiable soil is located adjacent to a steep free face. The areas that have the greatest potential for liquefaction are those in which the water table is less than 50 feet below ground surface and the soils are predominately clean, poorly graded sand deposits of loose to medium-dense relative density.

The site is not located in a currently established State of California Seismic Hazard Zone for liquefaction. Based on the subsurface conditions encountered at the site, including shallow bedrock and a lack of groundwater in the top 50 feet, liquefaction is not a hazard for the site. Mitigation and specific design measures with respect to liquefaction are not necessary for the project.

5.4 Expansive Soil

Laboratory Plasticity Index (PI) and Expansion Index (EI) tests on selected near-surface soil samples indicate low to medium plasticity and low expansion potential (Appendix B). Mitigation and specific design measures with respect to expansive soil are not necessary for the project.

5.5 Soil Corrosion Screening

We performed pH, resistivity, chloride, and sulfate tests on one sample to generally evaluate the corrosion potential of the soil with respect to proposed subsurface structures. These tests were performed in accordance with California Test Method (CTM) Nos. 643, 422, and 417. The results are presented in Table 5.5A and should be considered for design of underground structures.

TABLE 5.5A
SOIL CORROSION PARAMETER TEST RESULTS
(CALIFORNIA TEST METHODS 643, 417, AND 422)

Sample No.	Sample Depth (ft.)	pH	Minimum Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)
TP7 BULK	0-0.5	5.8	1,980	13.2	18.5

Soil with a low pH (higher acidity) is considered corrosive as it can react with lime in cement to leach out soluble reaction products and result in a more porous and weaker concrete. Per Caltrans Corrosion Guidelines (Caltrans, 2021), soil with a pH of 5.5 or lower may be corrosive to concrete or steel in contact with the ground.

Soil resistivity is the measure of the soil's ability to transmit electric current. Corrosion of buried ferrous metal is proportional to the resistivity of the soil. A lower resistivity indicates a higher propensity for transmitting electric currents that can cause corrosion of buried ferrous metal items. In general, the higher the resistivity, the lower the rate for corrosion. Per Caltrans Corrosion Guidelines (Caltrans, 2021), resistivity serves as an indicator parameter for the possible presence of soluble salts

and it is not included as a parameter to define a corrosive area for structures. A minimum resistivity value for soil less than 1,500 ohm-cm may indicate the presence of high quantities of soluble salts and a higher propensity for corrosion.

Based on the laboratory minimum resistivity test results and Caltrans criteria, soil at the location tested does not have a higher propensity for corrosion.

Table 5.5B presents a summary of concrete requirements set forth by the California Building Code (CBC) Section 1904 and American Concrete Institute (ACI) 318 for possible chloride exposure. Chlorides can break down the protective oxide layer on steel surfaces resulting in corrosion. Sources of chloride include, but are not limited to, deicing chemicals, salt, brackish water, seawater, or spray from these sources.

TABLE 5.5B
REQUIREMENTS FOR CONCRETE EXPOSED TO CHLORIDE-CONTAINING SOLUTIONS
(AFTER ACI 318 TABLES 19.3.1.1 and 19.3.2.1)

Chloride Severity	Exposure Class	Condition	Maximum Water to Cement Ratio by Weight	Minimum Compressive Strength (psi)
Not Applicable	C0	Concrete dry or protected from moisture	N/A	2,500
Moderate	C1	Concrete exposed to moisture but not to external sources of chlorides	N/A	2,500
Severe	C2	Concrete exposed to moisture and an external source of chlorides	0.40	5,000

The appropriate Chloride Severity/Exposure Class should be determined by the project designer based on the specific conditions at the location of the proposed structure. Further guidance is provided in ACI 318.

Table 5.5C presents a summary of concrete requirements set forth by CBC Section 1904 and ACI 318 for sulfate exposure. Similar to chlorides, sulfates can break down the protective oxide layer on steel leading to corrosion. Sulfates can also react with lime in cement to soften and crack concrete.

TABLE 5.5C
REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS
(AFTER ACI 318 TABLES 19.3.1.1 and 19.3.2.1)

Sulfate Severity	Exposure Class	Water-Soluble Sulfate (SO_4) Content		Cement Type (ASTM C 150)	Maximum Water to Cement Ratio by Weight[1]	Minimum Compressive Strength (psi)
		Percent By Mass	Parts Per Million (ppm)			
Not Applicable	**S0**	**SO_4 < 0.10**	**SO_4 < 1,000**	**No Type Restriction**	**N/A**	**2,500**
Moderate	S1	0.10 ≤ SO_4 < 0.20	1,000 ≤ SO_4 < 2,000	II	0.50	4,000
Severe	S2	0.20 ≤ SO_4 ≤ 2.00	2,000 ≤ SO_4 ≤ 20,000	V	0.45	4,500
Very Severe	S3	SO_4 > 2.00	SO_4 > 20,000	V+Pozzolan or Slag	0.45	4,500

Notes:
1. Maximum water to cement ratio limits are different for lightweight concrete; see ACI 318 for details.

Based on the laboratory test results, the Sulfate Severity is classified as "Not Applicable" and the Exposure Class is S0. The concrete mix design(s) should be developed accordingly. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

Geocon does not practice in the field of corrosion engineering and the above information is provided as screening criteria only. If corrosion sensitive improvements are planned, we recommend that further evaluations by a corrosion engineer be performed to incorporate the necessary precautions to avoid premature corrosion on buried metal pipes and metal or concrete structures in direct contact with the soils.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 General

6.1.1 No soil or geologic conditions were encountered during our investigation that would preclude development of the site as planned, provided the recommendations contained in this report are incorporated into the design and construction of the project.

6.1.2 The primary geotechnical constraints identified in our investigation are the presence of cemented and caliche horizons within the residual soil and weakly to strongly cemented or shallow strong (unweathered), hard formational material (Mehrten Formation and Valley Springs Formation). We observed cemented soil and strong formational material in our borings at variable depths beginning at 6 inches below ground surface. The presence of cemented soil or strong bedrock material will increase excavation difficulty during construction and has the potential to impede water infiltration which may create zones of perched groundwater.

6.1.3 Conclusions and recommendations provided in this report are based on our review of referenced literature, analysis of data obtained from our field exploration and laboratory testing program, and our understanding of the proposed development at this time.

6.1.4 We should review the project plans as they develop further, provide engineering consultation as needed during final design, and perform geotechnical observation and testing services during construction.

6.2 Seismic Design Criteria

6.2.1 Seismic design of the structure should be performed in accordance with the provisions of the 2019 California Building Code (CBC) which is based on the American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI) publication *ASCE/SEI 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE/SEI, 2017). We used the *Structural Engineers Association of California* (SEAOC) and *Office of Statewide Health Planning and Development* (OSHPD) web application *Seismic Design Maps* (https://seismicmaps.org/) to evaluate site-specific seismic design parameters in accordance with ASCE 7-16.

For seismic design purposes, sites are classified as Site Class “A” through “F” as follows:

- Site Class A – Hard Rock;
- Site Class B – Rock;
- Site Class C – Very Dense Soil and Soft Rock;

- Site Class D – Stiff Soil;
- Site Class E – Soft Clay Soil; and
- Site Class F – Soils Requiring Site Response Analysis.

Based on the subsurface conditions at the site, the Site Classification is Site Class "C – Very Dense Soil and Soft Rock" per Table 20.3-1 of ASCE/SEI 7-16. For the purposes of evaluating code-based seismic parameters for design, we assumed a seismic Risk Category I, II, or III (per the CBC) for the project. Results are summarized in Table 6.2.1.

TABLE 6.2.1
ASCE 7-16 SEISMIC DESIGN PARAMETERS
SITE CLASS "C – VERY DENSE SOIL AND SOFT ROCK"

Parameter	Value	ASCE 7-16 Reference
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	0.441g	Figure 22-1
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.222g	Figure 22-2
Site Coefficient, F_A	1.3	Table 11.4-1
Site Coefficient, F_V	1.5	Table 11.4-2
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	0.574g	Eq. 11.4-1
Site Class Modified MCE_R Spectral Response Acceleration (1 sec), S_{M1}	0.333g	Eq. 11.4-2
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.382g	Eq. 11.4-3
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.222g	Eq. 11.4-4

6.2.2 Table 6.2.2 presents additional seismic design parameters for projects with Seismic Design Categories of D through F in accordance with ASCE 7-16 for the mapped maximum considered geometric mean (MCE_G).

TABLE 6.2.2
ASCE 7-16 SITE ACCELERATION DESIGN PARAMETERS

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.188g	Figure 22-7
Site Coefficient, F_{PGA}	1.212	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.228g	Section 11.8.3 (Eq. 11.8-1)

6.2.3 Conformance to the criteria presented in Tables 6.2.1 and 6.2.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid structural damage, since such design may be economically prohibitive.

6.3 Soil and Excavation Characteristics

6.3.1 Excavation characteristics will vary at the site depending on location and excavation depths. Table 6.3.1 summarizes anticipated excavation characteristics.

TABLE 6.3.1
ANTICIPATED EXCAVATION CHARACTERISTICS

Geologic Unit	Excavation Characteristics
Residual Soil	Residual soil generally consists of stiff to hard sandy lean clay and silt and loose to very dense clayey, silty clayey, and silty sand with gravel, cobbles, and boulders. We anticipate moderate excavation effort with conventional, heavy-duty grading equipment. The presence of oversize rock (greater than 6 to 12 inches in maximum dimension) should be anticipated and may increase excavation difficulty.
Mehrten and Valley Springs Formations	We encountered excavation refusal at depths ranging from 6 inches to 5 feet within the volcanic and metavolcanic rock units using a Case Extendahoe backhoe with a 24-inch-wide toothed bucket. Difficult excavation characteristics should be anticipated. Weathering of formational material generally decreases with depth and pre-ripping with a large dozer (such as Caterpillar D10 or larger) may be required for cuts below the existing residual soil, and large excavators (such as Caterpillar 323 or larger) with a ripping shank or rock trenchers will likely be required for trenching. We note that pre-ripping may generate large cementations that may require further processing to reduce size for use as engineered fill or trench backfill. The Mehrten and Valley Springs formations generally excavate as very stiff to hard sandy lean clay and dense well-graded, clayey, and silty sand with gravel, cobbles, and boulders. The presence of oversize rock exceeding 14 inches in maximum dimension should be anticipated and may increase excavation difficulty. We understand that blasting is not very effective in fracturing the rock as this type of rock tends to absorb blasting energy.

6.3.2 Protruding rocks in excavation bottoms should be removed and resulting depressions filled in accordance with the recommendations in this report.

6.3.3 The project excavations will generate some oversized rock material (greater than 6 to 12 inches in dimension), and possibly boulders, at the anticipated excavation depths. Excavation difficulty will increase significantly with depth as less weathered volcanic and metavolcanic rock is encountered. The contractor should select appropriate excavation equipment.

6.3.4 Temporary excavations deeper than 4 feet and entered by workers must meet Cal-OSHA requirements as appropriate. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved "competent person" onsite during excavation to evaluate trench conditions and to make appropriate recommendations where necessary. It is the contractor's responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements.

6.3.5 The excavation support recommendations provided by Cal-OSHA are generally geared toward protecting human life and not necessarily toward preventing damage to nearby structures or surface improvements. The contractor should be responsible for using the proper active shoring systems or sloping to prevent damage to any structure or improvements near underground excavations.

6.3.6 Permanent cut and fill slopes should be constructed no steeper than 2H:1V (horizontal to vertical). To mitigate potential erosion, slopes should be vegetated as soon as possible and surface drainage should be directed away from the tops of slopes.

6.3.7 Seasonal shallow perched groundwater (seepage) could be present if grading occurs during or after the wet season (typically winter or spring). Perched groundwater typically develops atop caliche horizons and at the contact between residual soil and formational material. Fill derived from shallow excavations during perched groundwater conditions will likely need to be aerated/dried to achieve suitable moisture content for compaction. We should evaluate conditions in the field at the time of construction and evaluate the type, level, and extent of mitigation alternatives.

6.3.8 If grading occurs during or after the wet season (typically winter and spring) or in periods of precipitation, in-place and excavated soils will likely be wet. Earthwork contractors should be aware of moisture sensitivity of the near-surface fine-grained soils and potential compaction/workability difficulties. The presence of cemented soil/hardpan tends to exacerbate wet soil conditions as water can become trapped (perched) on the cemented soil.

6.3.9 Earthwork and pad preparation operations in these conditions will likely be difficult with low productivity. Often, a period of at least one month of warm and dry weather is necessary to allow the site to dry sufficiently so that heavy grading equipment can operate effectively. Conversely, during dry summer and fall months, dry clay soils may require additional grading effort (discing, mixing, or other means) to attain proper moisture conditioning.

6.4 Materials for Fill

6.4.1 Excavated soil and rock generated from cut operations at the site are suitable for use as engineered fill in structural areas provided they are selectively placed during grading in accordance with the following recommendations:

- Deleterious material, material with greater than 3% organics by weight, and debris should be exported from the site and not incorporated into structural fill.
- Fill material in areas with underground utilities and foundations should consist of 6-inch-minus material with a sufficient amount of soil to provide adequate binder to reduce the potential for excavation caving.
- In other areas (general fill areas without utilities or foundations) rock or cementations up to 2 feet in maximum dimension may be used. However, this material should contain a sufficient amount of smaller rock and soil to fill void spaces between large rocks and avoid rock nesting (concentrations of rock with void space).
- If sufficient soil fill materials are not present at the site to mix with onsite rock material, import of soil fill material will be necessary.

6.4.2 Import fill material should be primarily granular with a "very low" expansion potential (Expansion Index less than 20), have a Plasticity Index less than 15, be free of organic material and construction debris, not contain rock/cementations larger than 3 inches in greatest dimension, and contain sufficient fines (approximately 12% to 15% or more) to act as a binder to reduce caving potential when excavated.

6.4.3 Environmental characteristics and corrosion potential of import soil materials should also be considered. Proposed import materials should be sampled, tested, and approved by Geocon prior to its transportation to the site.

6.5 Grading

6.5.1 All earthwork operations should be observed and all fills tested for recommended compaction and moisture content by a representative of Geocon.

6.5.2 References to relative compaction and optimum moisture content in this report are based on the latest American Society for Testing and Materials (ASTM) D1557 Test Procedure. Structural building pad areas should extend a minimum of 5 feet horizontally beyond the outside dimensions of structures, including footings and overhangs carrying structural loads.

6.5.3 Prior to commencing grading, a pre-construction conference with representatives of the client, grading contractor, and Geocon should be held at the site. Site preparation, soil handling, and/or the grading plans should be discussed at the pre-construction conference.

6.5.4 Site preparation should begin with removal of existing vegetation, debris, surface/subsurface structures (if any), and any organic material. Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. We estimate required stripping depths will range from approximately 1 to 2 inches. The actual stripping depth should be determined based on site conditions prior to grading. Material generated during stripping is not suitable for use within 5 feet of building pads or within pavement/flatwork areas but may be placed in landscaped or non-structural areas or exported from the site.

6.5.5 Alternatively, surface vegetation may be mowed such that 1 to 2 inches of stubble remains. After removing mowed vegetation, the ground surface should be thoroughly disced in two perpendicular directions to a depth of 12 inches to blend the remaining grass and roots into the surface soil. The resulting soil should be thoroughly mixed such that vegetation segments longer than 1 inch are not visually discernable, and the overall organic content is 3% by dry weight or less.

6.5.6 The most effective site preparation alternatives will depend on site conditions prior to grading. We should evaluate site conditions and provide supplemental recommendations immediately prior to grading, if necessary.

6.5.7 Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be restored with engineered fill in accordance with the recommendations of this report.

6.5.8 After site preparation, the bottom of cut areas, areas left at grade, and areas to receive fill, should be scarified at least 12 inches, uniformly moisture-conditioned at or above optimum moisture content and compacted to at least 90% relative compaction. Scarification and re-compaction operations should be performed in the presence of our representative to evaluate performance of the subgrade under compaction equipment loading and to identify any areas that may require additional removals.

6.5.9 Engineered fill should be compacted in horizontal lifts not exceeding 8 inches (loose thickness) and brought to final subgrade elevations. Each lift should be moisture-conditioned at or above optimum moisture content and compacted to at least 90% relative compaction. The top 12 inches of building pads, whether completed at-grade or by excavation or filling, should be uniformly moisture-conditioned at or above optimum moisture content and compacted to at least 90% relative compaction, or per the compaction method specification presented in Section 6.5.10 if the soil contains greater than 30 percent rock larger than ¾ inches by mass.

6.5.10 Soils exceeding 30 percent rock larger than ¾ inches by mass are considered non-testable by conventional methods. In this case, the following compaction method specification will apply. Compaction equipment shall consist of a self-propelled sheepsfoot compactor with a minimum operating weight of 12 tons (Caterpillar 563 or equivalent). Under the continuous observation of a representative of Geocon, each lift of rocky soil fill shall be moisture-conditioned and compacted in place by 6 to 8 passes with the approved compactor. Additional passes as deemed necessary during fill placement to achieve the desired condition based upon field conditions may be recommended. Each compaction pass shall overlap the adjacent pass by a minimum of 1 foot. Geocon will visually verify proper lift thickness, spreading, mixing, and compaction operations. Fills containing soils exceeding 30% rock larger than ¾ inches by mass should be placed and proof-rolled under our observation.

6.5.11 Site grading will likely result in cut-fill transitions below some building pads. To reduce the potential for differential settlement, the cut portion of building pads with cut-fill transitions should be undercut at least 3 feet and backfilled with properly compacted fill. Similarly, building pads formed entirely in cut should also be undercut and backfilled with properly compacted fill in order to provide more uniform bearing conditions and to facilitate in-pad utility excavations.

6.5.12 Final pavement subgrade, whether completed at-grade, by excavation, or by filling, should be uniformly moisture-conditioned at or above optimum moisture content, be compacted to at least 95% relative compaction, and be stable. The 95% relative compaction requirement applies to the top 6 inches of pavement area subgrade; however, underlying materials must be sufficiently compacted and stable. We recommend proof-rolling the subgrade with a loaded water truck (or similar equipment with high contact pressure) to verify the stability of the subgrade prior to placing aggregate base (AB). We note that deeper scarification, moisture-conditioning, and compaction efforts may be required in order to achieve overall stability and compaction.

6.5.13 Underground utility trenches should be backfilled with properly compacted material. Pipe bedding, shading, and backfill should conform to the requirements of the appropriate utility authority. Material excavated from trenches should be adequate for use as general backfill above shading provided it does not contain deleterious matter, vegetation, or cementations larger than 6 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches. Lifts should be compacted to a minimum of 90% relative compaction at or above optimum moisture content. Compaction should be performed by mechanical means only; jetting of trench backfill should not be allowed.

6.6 Foundations

Provided the building pads are graded in accordance with the recommendations of this report, the proposed buildings may be supported on conventional shallow foundations, post-tensioned (PT) concrete slabs, or mat foundations bearing on undisturbed native soil or engineered fill.

6.6.1 Shallow Foundations / Conventional Interior Slab-on-Grade

6.6.1.1 Foundations should consist of continuous perimeter footings with interior spread footings. Perimeter footings should be continuous around the entire perimeter of the structure without breaks or discontinuities. Continuous footings should be at least 12 inches wide and interior spread footings should be at least 24 inches square. All footings should be embedded at least 18 inches below pad grade.

6.6.1.2 Footing bottoms should be level, and projections of rock greater than 2 inches above the footing bottom should be removed or a leveling course of structural fill, crushed rock, or lean-mix concrete should be placed to at least 2 inches higher than the highest projection of rock. The intent of removing rock projections or placing fill is to avoid point loading of the foundation.

6.6.1.3 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area within 18 inches laterally of the footing, beneath the footing, and within a 1:1 plane extending out and down from the bottom of the footing.

6.6.1.4 Continuous footings should be reinforced with at least four No. 4 reinforcement bars, two each placed near the top and bottom of the footing to allow footings to span isolated soil irregularities. The reinforcement recommended above is for soil characteristics only and is not intended to replace reinforcement required for structural considerations. The project structural engineer should evaluate the need for additional reinforcement.

6.6.1.5 Foundations may be designed using an allowable bearing capacity of 3,000 psf for dead plus live load conditions with a one-third increase for short-term transient loading such as wind and seismic.

6.6.1.6 Allowable passive pressure used to resist lateral movement of the footings may be assumed to be equal to a fluid weighing 350 pounds per cubic foot (pcf). The coefficient of friction to resist sliding is 0.35 for concrete against soil. Combined passive resistance and friction may be utilized for design provided that the frictional resistance is reduced by 50%.

6.6.1.7 Foundations designed in accordance with the recommendations above should experience total post-construction settlement due to building loads of less than one inch and differential settlement of ½ inch or less over a distance of 30 feet due to the building loads. The majority of settlement will be immediate and occur as the buildings are constructed.

6.6.1.8 A Geocon representative should observe foundation excavations prior to placing reinforcing steel or concrete to observe that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

6.6.1.9 Conventional interior concrete slabs-on-grade are suitable for the building pads prepared as recommended in this report. Slab thickness and reinforcement should be determined by the structural engineer based on anticipated loading. However, slabs should be at least 4 inches thick and reinforced with at least No. 4 reinforcing bars placed 24 inches on center, each way. Control joints should be provided at periodic intervals in accordance with American Concrete Institute (ACI) or Portland Cement Association (PCA) recommendations, as appropriate.

6.6.1.10 If building pad soils become dry, they should be re-moistened prior to concrete slab-on-grade construction. Building pads should be moistened to at least optimum moisture content, at least 48 hours before placing the vapor barrier. Moisture content should be verified by Geocon prior to placing the vapor barrier.

6.6.1.11 Migration of moisture through concrete slabs-on-grade or moisture otherwise released from slabs is not a geotechnical issue. However, for the convenience of the owner and design team, we are providing the following general suggestions for consideration by the owner, architect, structural engineer, and contractor. The suggested procedures may reduce the potential for moisture-related floor covering failures on concrete slabs-on-grade, but moisture problems may still occur even if the procedures are followed. If more detailed recommendations are desired, we recommend consulting a specialist in this field.

6.6.1.12 For slabs that receive floor coverings, a minimum 10-mil-thick vapor barrier meeting ASTM E1745-97 Class C requirements may be placed directly below the slab, without a sand cushion. To reduce the potential for punctures, a higher quality vapor barrier (15 mil, Class A or B) may be used. The vapor barrier, if used, should extend to the edges of the slab and should be sealed at all seams and penetrations. At least 4 inches of ½- or ¾-inch crushed rock, with no more than 5% passing the No. 200 sieve, may be placed below the vapor barrier to serve as a capillary break.

6.6.1.12 The concrete water/cement ratio should be as low as possible. The water/cement ratio should not exceed 0.45 for concrete placed directly on the vapor barrier. Midrange plasticizers could be used to facilitate concrete placement and workability.

6.6.1.13 Proper finishing, curing, and moisture vapor emission testing should be performed in accordance with the latest guidelines provided by the ACI, PCA, and ASTM.

6.6.2 PT Slab Foundations

6.6.2.1 PT slab foundations should be designed by a structural engineer experienced in PT slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or WRI/CRSI *Design of Slab-on-Ground Foundations*, Third Edition. Although this procedure was developed for expansive soil conditions, it can also be used for sites with low expansion potential.

6.6.2.2 The PT slab foundation design should incorporate the geotechnical parameters presented in Table 6.6.2.2.

TABLE 6.6.2.2
POST-TENSIONED SLAB FOUNDATION DESIGN PARAMETERS

Design Parameter	Recommended Value
1. Thornthwaite Index	-20
2. Equilibrium Suction	3.9 pF
3. Edge Lift Moisture Variation Distance, $\mathbf{e_M}$	5.3 feet
4. Edge Lift, $\mathbf{y_M}$	0.5 inches
5. Center Lift Moisture Variation Distance, $\mathbf{e_M}$	9.0 feet
6. Center Lift, $\mathbf{y_M}$	0.25 inches

6.6.2.3 If a uniform-thickness PT mat foundation system is planned (most common in Northern California), the slab should include thickened edges with a minimum width of 12 inches that extend below the clean sand or crushed rock layer below the slab.

6.6.2.4 Assuming the PT slabs are 10 inches thick (or thicker), the slabs should be underlain by a minimum of 2 inches of ½-inch or ¾-inch crushed rock with no more than 5 percent passing the No. 200 sieve to serve as a capillary break. The crushed rock should be subjected to several passes with a walk-behind vibratory compactor or similar equipment prior to placing a vapor barrier or reinforcement/PT tendons for the slab.

6.6.2.5 Allowable bearing capacity for PT slabs should not exceed 2,000 psf for dead plus live load conditions. This value may be increased by one-third to evaluate transient loads, including wind or seismic forces. The structural engineer should determine slab thickness and reinforcing based on anticipated use and loading of the slab.

6.6.2.6 The allowable coefficient of friction to resist sliding is 0.35 for concrete against crushed aggregate. Since PT slab foundations are typically not embedded into the building pad, resistance to sliding from passive soil resistance does not apply. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements

connected to the building, is not recommended. Where this condition cannot be avoided, the isolated footings should be embedded at least 18 inches below pad grade and be connected to the building foundation with tie beams.

6.6.2.7 Prior to placing the vapor retarder, pad subgrade soil should be moisture-conditioned at or above optimum moisture content to a depth of at least 12 inches. Geocon should confirm the moisture content of the subgrade soils at least 24 hours prior to placing the moisture retarder.

6.6.2.8 Our experience indicates PT slab foundations are potentially susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings/thickened edges and the interior stiffener beams may reduce this potential. Current PTI design procedures primarily address the potential center lift of slabs but, because of the placement of the reinforcing tendons near the top of the slab, the resulting eccentricity after tensioning reduces the ability of the system to reduce edge lift.

6.6.2.9 During the construction of the PT slab foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints be allowed to form.

6.7 Retaining Walls and Lateral Loads

6.7.1 Design of retaining walls and buried structures may be based on the lateral earth pressures (equivalent fluid pressure) summarized in Table 6.7.1.

TABLE 6.7.1
RECOMMENDED LATERAL EARTH PRESSURES

Condition	Equivalent Fluid Density
Active	40 pcf
At-Rest	60 pcf
Seismic[1]	Not Applicable

1. *Based on research by Lew, et al. 2010, the seismic increment of earth pressure may be neglected if the maximum peak ground acceleration (PGA) at the site is 0.4 g or less. The Site Class Modified MCE_G Peak Ground Acceleration (PGA_M) for this site is 0.32g; therefore, the seismic increment of earth pressure may be neglected.*

6.7.2 Unrestrained walls should be designed using the active case. Unrestrained walls are those that are allowed to rotate more than 0.001H (where H is the height of the wall). Walls restrained from movement should be designed using the at-rest case. The soil pressures above assume that the backfill material within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall will be composed of the existing onsite soils.

6.7.3 Retaining wall foundations with a minimum depth of 18 inches may be designed using the allowable bearing capacity provided in Section 6.6.1.5 of this report. To resist lateral movement of retaining wall foundations, an allowable passive earth pressure equivalent to a

fluid density of 350 pcf may be used for footings or shear keys poured neat against properly compacted engineered fill soils or undisturbed natural soils. This allowable passive pressure is based on the assumption that a horizontal surface extends at least 5 feet or three times the depth of the footing or shear key, whichever is greater, beyond the face of the retaining wall foundation. If this surface is not protected by floor slabs or pavement, the upper 12 inches of material should not be included in the design for lateral resistance. An allowable friction coefficient of 0.35 may be used for resistance to sliding between soil and concrete. Combined passive resistance and friction may be utilized for design provided that the frictional resistance is reduced by 50%.

6.7.4 Retaining walls greater than 2 feet tall (retained height) should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and should be waterproofed as required by the project architect. Positive drainage for retaining walls should consist of a vertical layer of permeable material positioned between the retaining wall and the soil backfill. The permeable material may be composed of a composite drainage geosynthetic or a natural permeable material such as crushed gravel at least 12 inches thick and capped with at least 12 inches of native soil. A geosynthetic filter fabric should be placed between the gravel and the soil backfill. Provisions for removal of collected water should be provided for either system by installing a perforated drainage pipe along the bottom of the permeable material, which leads to suitable drainage facilities.

6.7.5 The recommendations presented above are generally applicable to the design of rigid concrete or masonry retaining walls with a level backfill and having a maximum retained height of 10 feet. In the event that walls higher than 10 feet or other types of walls are planned, Geocon should be consulted for additional recommendations.

6.8 Stormwater Infiltration Device Design

6.8.1 The measured soil infiltration rates at test depths of approximately 2 feet ranged from 0.1 inches per hour (in/hr) to approximately 0.4 in/hr. The soils at these depths generally consist of sandy lean clay to silty sand (high fines content). After applying an appropriate reduction factor, the factored infiltration rates range from 0.05 to 0.2 in/hr.

6.8.2 Based on the criteria outlined in the *National Engineering Handbook – Chapter 7 – Hydrologic Soil Groups* (USDA, 2009), the near surface soil at the site may be classified as Hydrologic Soil Group “C” or “D” for infiltration device design, if needed.

6.9 Concrete Sidewalks and Flatwork

6.9.1 Although site soils tested as low expansion potential, onsite exterior flatwork may experience seasonal movement. Therefore, some cracking/vertical offset should be anticipated. We are providing the following recommendations to reduce distress to concrete

flatwork. Recommendations include moisture conditioning subgrade soils and providing adequate construction and control joints. It should be noted that even with implementation of these measures, minor slab movement or cracking could still occur.

6.9.2 Concrete flatwork should be at least 4 inches thick and underlain by at least 4 inches of AB compacted to at least 90% relative compaction.

6.9.3 We recommend using construction and control joints in accordance with ACI and/or PCA guidelines. Construction joints that abut building foundations should include a felt strip, or approved equivalent, that extends the full depth of the exterior slab. Exterior slabs should be structurally independent of building foundations except at doorways, where vertical offset could impact doorway operation. Dowels should be used at these locations.

6.9.4 To reduce the potential for water from landscaped areas migrating under concrete flatwork and into the AB, consideration should be given to using plastic moisture cutoffs or full-depth curbs in areas where flatwork abuts irrigated landscaping. The cutoffs or full-depth curbs should extend at least 4 inches or more into the soil subgrade beneath the AB.

6.10 Pavement – Hot Mix Asphalt

6.10.1 We performed Resistance-Value (R-Value) testing on one representative bulk soil sample. Our testing resulted in an R-Value of 41 (see Appendix B). To account for subgrade soil variability and based on our experience in the area, we recommend using an R-Value of 40 for the purpose of pavement design.

6.10.2 We recommend the following alternative hot mix asphalt (HMA) pavement sections for design. The project civil engineer should determine the appropriate Traffic Index (TI) based on anticipated traffic conditions. Table 6.10.2 provides alternative pavement sections based on assumed TIs. We can provide additional sections based on other TIs if necessary.

TABLE 6.10.2
FLEXIBLE PAVEMENT SECTIONS

Street Type	Design TI	HMA[1] (inches)	AB[2] (inches)
Automobile Parking Areas	5.0	3	4
Driveways / Trash Truck Areas	6.5	4	6

Notes:
1. HMA = Hot Mix Asphalt (Type A) conforming to Section 39 of Caltrans' latest *Standard Specifications*.
2. AB = Class 2 Aggregate Base conforming to Section 26 of Caltrans' latest *Standard Specifications*.

6.10.3 The recommended pavement sections are based on the following assumptions:

1. Subgrade soil has a minimum R-Value of 40.
2. Subgrade soil is stable, moisture-conditioned, and compacted in accordance with the recommendations of this report. Prior to placing AB, subgrade soil should be proof rolled with a loaded water truck to verify stability.
3. Class 2 AB has a minimum R-Value of 78 and meets the requirements of Section 26 of the latest Caltrans *Standard Specifications*.
4. Class 2 AB is compacted to 95% or higher relative compaction at or near optimum moisture content. Prior to placing HMA, the AB should be proof-rolled with a loaded water truck to verify stability.
5. HMA should conform to Section 39 of Caltrans' latest *Standard Specifications.*
6. Periodic maintenance of HMA pavements is performed.

6.10.4 HMA pavement section recommendations for driveways and parking areas are based on the design procedures of Caltrans' *Highway Design Manual* (Design Manual), Chapter 600, latest edition. It should be noted that most rational pavement design procedures are based on projected street or highway traffic conditions and, hence, may not be representative of vehicular loading that occurs in parking lots and driveways. Pavement proximity to landscape irrigation, reduced traffic speed, and short turning radii increase the potential for pavement distress to occur in parking lots even though the volume of traffic is significantly less than that of an adjacent street. The resulting pavement sections for parking lots based on traditional pavement design methods are reasonable because additional asphalt surfacing can be added later, if needed, and generally without incurring traffic hazards or traffic handling problems. It is generally not economically feasible to design and construct the entire parking lot and driveways for the unique loading conditions previously described. Periodic maintenance of the pavement in these areas, therefore, should be anticipated.

6.10.5 To reduce the potential for water from landscaped areas migrating under pavement into the AB, consideration should be given to using full-depth curbs in areas where pavement abuts irrigated landscaping. The full-depth curbs should extend at least 4 inches or more into the soil subgrade beneath the AB. Alternatively, modified drop-inlets that contain weep-holes may be used to encourage accumulated water to drain from beneath the pavement.

6.11 Pavement – Rigid Concrete

6.11.1 If rigid Portland cement concrete (PCC) pavement is used in automobile and light-truck traffic areas and in front of trash bins, we recommend that the PCC pavement be at least 6 inches thick. PCC pavement should be underlain by at least 6 inches of Class 2 AB meeting the requirements of Section 26 of Caltrans' *Standard Specifications* and compacted to at least 95% relative compaction.

6.11.2 Subgrade soils should be prepared and compacted in accordance with the recommendations of this report. Subgrade should be finished to a smooth, unyielding surface and proof-rolled with a loaded water truck to verify stability.

6.11.3 PCC should have a minimum 28-day compressive strength of 3,500 pounds per square inch (psi). Adequate construction and crack control joints should be used to control cracking inherent in concrete construction. We note that the American Concrete Pavement Association (ACPA) recommends a maximum joint spacing no greater than 24 times the slab thickness for PCC pavements directly underlain by granular bases.

6.11.4 Steel reinforcement, if used, should be detailed in accordance with PCA, ACI, or similar guidelines. Alternatively, macro synthetic fibers (Euclid Chemical Tuf-Strand SF or equivalent) mixed into the concrete mix may be considered in lieu of conventional steel reinforcement provided they meet the requirements of ASTM C1116 and ASTM D7508 for Type III Synthetic Fibers.

6.11.5 Adequate dowels should also be used at joints to facilitate load transfer and reduce vertical offset. In addition, the recommendations in Section 6.11.5 pertaining to deepened curbs, moisture cut-offs, and subsurface drainage apply to concrete pavements, sidewalks, and flatwork, as well as asphalt pavements.

6.11.6 In general, we recommend that concrete pavements be detailed, designed, constructed, and maintained in accordance with industry standards such as those provided by the ACI and ACPA.

6.12 Swimming Pool

6.12.1 We understand that a swimming pool is planned for the project. We expect that the pool excavation will encounter and be founded in predominantly Mehrten Formation material and may require additional excavation effort. See Section 6.3 for excavation recommendations.

6.12.2 The pool should be designed to resist active or at-rest lateral earth pressures from adjacent soil and/or backfill as well as any surcharge loads. The active and/or at-rest pressures provided in Table 6.7.1 may be used for design. The pool designer should determine whether active or at-rest conditions are appropriate for design.

6.12.3 The concrete pool deck should be at least 4 inches thick and underlain by at least 6 inches of Class 2 AB. The top 12 inches of soil subgrade below the AB should be uniformly moisture-conditioned at or above optimum moisture content and compacted to a minimum of 90% relative compaction. Proper compaction and moisture content should be verified by testing immediately prior to placing the AB.

6.12.4 The pool deck should include deepened edges (cut-off walls) on the exterior side adjacent to landscaping. The cut-offs should extend at least 4 inches into the subgrade soil below the AB. In general, proper surface drainage should be provided at the pool deck to direct water away from the pool (sheet flow to the deck perimeter).

6.12.5 Flexible bituminous waterproof caulking or equivalent should be applied at the junction of the pool shell and deck to reduce infiltration of surface water into the soil below the pool deck.

6.13 Site Drainage and Moisture Protection

6.13.1 Adequate site drainage is critical to reduce the potential for differential soil movement, soil expansion, erosion, and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to building foundations. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with the 2022 CBC or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices.

6.13.2 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

6.13.3 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend use of area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes. In addition, where landscaping is planned adjacent to the pavement or flatwork, we recommend construction of a cutoff wall (deepened curb) along the edge of the pavement/flatwork that extends at least 4 inches into the soil subgrade below the bottom of the base material.

6.13.4 We recommend that roof drains be connected to water-tight subdrains that direct the water to the storm drain system. However, we understand that Low-Impact Development (LID) and Leadership in Engineering and Environmental Design (LEED) requests disconnecting the roof drains to help obtain certification. The water from the roof drains should be directed away from buildings. Consideration should be given to draining roofs to lined planter boxes or placing liners below the proposed landscape areas to prevent infiltration of the water. Geocon can be contacted for additional recommendations.

6.13.5 We recommend implementing measures to reduce infiltrating irrigation water near buildings, flatwork, or pavements. Such measures may include:

- Selecting drought-tolerant plants that require little or no irrigation, especially within 3 feet of buildings, slabs-on-grade, or pavements.
- Using drip irrigation or low-output sprinklers.
- Using automatic timers for irrigation systems.
- Using appropriately spaced area drains.

The project landscape architect should consider incorporating these measures into the landscaping plans.

6.13.6 Experience has shown that even with these provisions, subsurface seepage may develop in areas where no such water conditions existed prior to site development. This is particularly true where a substantial increase in surface water infiltration has resulted from an increase in landscape irrigation.

7.0 FURTHER GEOTECHNICAL SERVICES

7.1 Plan and Specification Review

Geocon should review the foundation and grading plans prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

7.2 Testing and Observation Services

The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record (GER) throughout the construction phase and provide construction observation and testing services. Providing these services during construction is important in order to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others' interpretation of our recommendations or the future performance of the project.

8.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, we should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of our scope of services.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the design team for the project and incorporated into the plans and specifications and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The recommendations contained in this report are preliminary until verified during construction by representatives of our firm. Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

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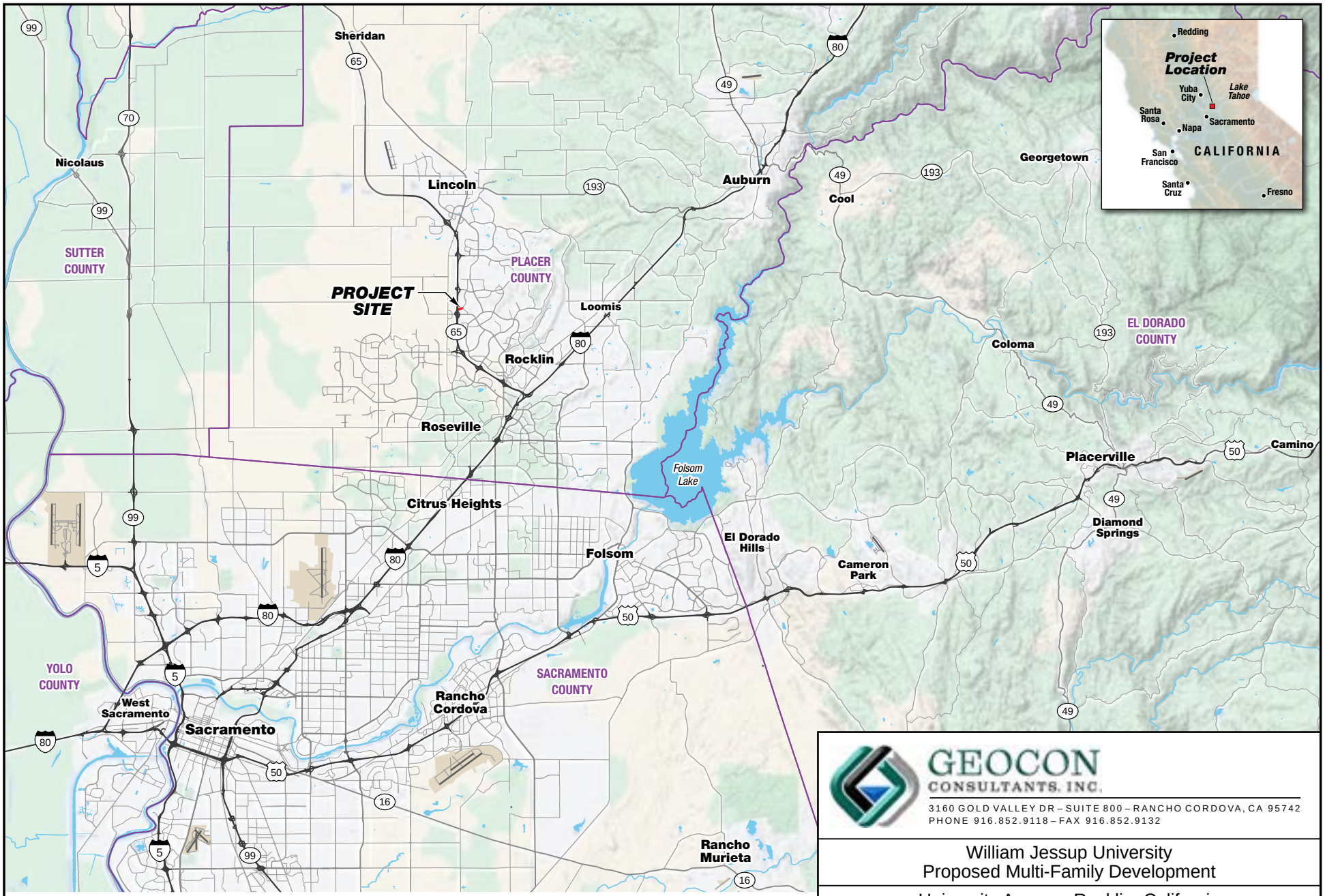

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William Jessup University
Proposed Multi-Family Development

University Avenue, Rocklin, California

VICINITY MAP

S2486-05-02	March 2023	Figure 1

LEGEND:

Approximate Site Boundary

TP11 Approximate Test Pit Location

P3 Approximate Percolation Test Location

0 100

Scale in Feet

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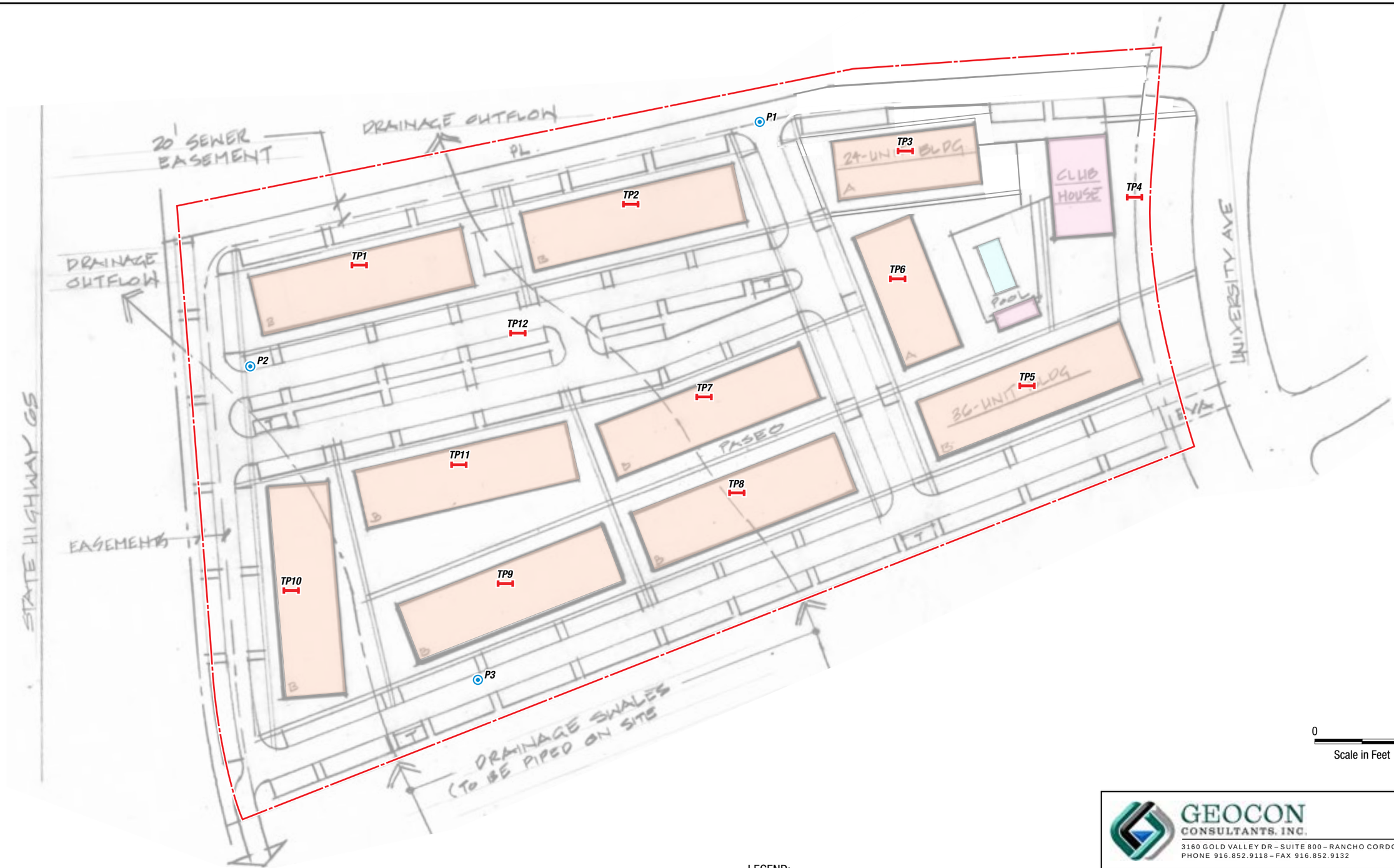
SITE PLAN

S2486-05-02	March 2023	Figure 2



LEGEND:

- Approximate Site Boundary
- TP11 Approximate Test Pit Location
- P3 Approximate Percolation Test Location

Ref: LPAS Architecture & Design, 7/22/2022

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PROPOSED DEVELOPMENT PLAN

S2486-05-02	March 2023	Figure 3

Ref: Preliminary Geologic Map of the Sacramento 30' x 60' Quadrangle, California, 2011

LEGEND:

- Approximate Site Boundary
- Approximate Geologic Contact
- TP11 Approximate Test Pit Location
- P3 Approximate Percolation Test Location

MPmc = Mehrten Formation - Cobble conglomerate
MPmb = Mehrten Formation - Mudflow breccia
OMvs = Valley Springs Formation

0 200
Scale in Feet

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GENERALIZED GEOLOGIC MAP

S2486-05-02	March 2023	Figure 4

Photo No. 1 Cobbles and boulders outcropping onsite at ground surface and in test pits

Photo No. 2 Typical test pit spoils pile with oversize cobbles and boulders

PHOTOS NO. 1 & 2

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Photo No. 3 Caliche horizon visible in test pit sidewall

Photo No. 4 Caliche in test pit spoils pile

PHOTOS NO. 3 & 4

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APPENDIX A

APPENDIX A

FIELD EXPLORATION

We performed our geotechnical field exploration on October 24 and 25, 2022. Our field exploration program consisted of performing 12 exploratory test pits (TP1 through TP12) and performing three percolation tests (P1 through P3) at the approximate locations depicted on the Site Plan, Figure 2, and Proposed Development Plan, Figure 3.

The test pit excavations were performed using a Case Extendahoe backhoe with 24-inch bucket. We collected bulk and bagged soil samples from soil horizons encountered. Upon completion, the test pits were backfilled with excavated soil.

We visually examined, classified, and logged the subsurface conditions in the excavations in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488-90). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which we obtained samples. Lines designating the interface between soil materials on the logs vary in the field and are estimated on the logs. Where applicable, we revised the field logs based on subsequent laboratory testing. Logs of test pits are presented on Figures A2 through A16.

We performed field percolation tests using a SoilMoisture Corp. Aardvark Permeameter to evaluate percolation characteristics within potential stormwater basin and swale areas. Shallow bedrock prevalent throughout the site limited percolation. Percolation test data are presented on Figures A17 through A19.

UNIFIED SOIL CLASSIFICATION

MAJOR DIVISIONS				TYPICAL NAMES
COARSE-GRAINED SOILS (MORE THAN HALF IS COARSER THAN NO. 200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO.4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS WITH OR WITHOUT GRAVEL
			SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS (MORE THAN HALF IS FINER THAN NO. 200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT 50% OR LESS)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50%)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
	HIGHLY ORGANIC SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

BORING/TRENCH LOG LEGEND

- No Recovery
- Shelby Tube Sample
- Bulk Sample
- SPT Sample
- Modified California Sample
- Groundwater Level (At Completion)
- Groundwater Level (Seepage)

PENETRATION RESISTANCE

SAND AND GRAVEL			SILT AND CLAY			
RELATIVE DENSITY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	CONSISTENCY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	COMPRESSIVE STRENGTH (tsf)
VERY LOOSE	0 - 4	0 - 6	VERY SOFT	0 - 2	0 - 3	0 - 0.25
LOOSE	5 - 10	7 - 16	SOFT	3 - 4	4 - 6	0.25 - 0.50
MEDIUM DENSE	11 - 30	17 - 48	MEDIUM STIFF	5 - 8	7 - 13	0.50 - 1.0
DENSE	31 - 50	49 - 79	STIFF	9 - 15	14 - 24	1.0 - 2.0
VERY DENSE	OVER 50	OVER 79	VERY STIFF	16 - 30	25 - 48	2.0 - 4.0
			HARD	OVER 30	OVER 48	OVER 4.0

*NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE LAST 12 INCHES OF AN 18-INCH DRIVE

MOISTURE DESCRIPTIONS

FIELD TEST	APPROX. DEGREE OF SATURATION, S (%)	DESCRIPTION
NO INDICATION OF MOISTURE; DRY TO THE TOUCH	S<25	DRY
SLIGHT INDICATION OF MOISTURE	25≤S<50	DAMP
INDICATION OF MOISTURE; NO VISIBLE WATER	50≤S<75	MOIST
MINOR VISIBLE FREE WATER	75≤S<100	WET
VISIBLE FREE WATER	100	SATURATED

QUANTITY DESCRIPTIONS

APPROX. ESTIMATED PERCENT	DESCRIPTION
<5%	TRACE
5 - 10%	FEW
11 - 25%	LITTLE
26 - 50%	SOME
>50%	MOSTLY

GRAVEL/COBBLE/BOULDER DESCRIPTIONS

CRITERIA	DESCRIPTION
PASS THROUGH A 3-INCH SIEVE AND BE RETAINED ON A NO. 4 SIEVE (#4 TO 3")	GRAVEL
PASS A 12-INCH SQUARE OPENING AND BE RETAINED ON A 3-INCH SIEVE (3"-12")	COBBLE
WILL NOT PASS A 12-INCH SQUARE OPENING (>12")	BOULDER

LABORATORY TEST KEY

CP – COMPACTION CURVE (ASTM D1557)
CR – CORROSION ANALYSIS (CTM 422, 643, 417)
DS – DIRECT SHEAR (ASTM D3080)
EI – EXPANSION INDEX (ASTM D4829)
GSA – GRAIN SIZE ANALYSIS (ASTM D422)
MC – MOISTURE CONTENT (ASTM D2216)
PI – PLASTICITY INDEX (ASTM D4318)
R – R-VALUE (CTM 301)
SE – SAND EQUIVALENT (CTM 217)
TXCU – CONSOLIDATED UNDRAINED TRIAXIAL (ASTM D4767)
TXUU – UNCONSOLIDATED UNDRAINED TRIAXIAL (ASTM D2850)
UC – UNCONFINED COMPRESSIVE STRENGTH (ASTM D2166)

BEDDING SPACING DESCRIPTIONS

THICKNESS/SPACING	DESCRIPTOR
GREATER THAN 10 FEET	MASSIVE
3 TO 10 FEET	VERY THICKLY BEDDED
1 TO 3 FEET	THICKLY BEDDED
3 ⅝-INCH TO 1 FOOT	MODERATELY BEDDED
1 ⅛-INCH TO 3 ⅝-INCH	THINLY BEDDED
⅜-INCH TO 1 ⅛-INCH	VERY THINLY BEDDED
LESS THAN ⅜-INCH	LAMINATED

STRUCTURE DESCRIPTIONS

CRITERIA	DESCRIPTION
ALTERNATING LAYERS OF VARYING MATERIAL OR COLOR WITH LAYERS AT LEAST ¼-INCH THICK	STRATIFIED
ALTERNATING LAYERS OF VARYING MATERIAL OR COLOR WITH LAYERS LESS THAN ¼-INCH THICK	LAMINATED
BREAKS ALONG DEFINITE PLANES OF FRACTURE WITH LITTLE RESISTANCE TO FRACTURING	FISSURED
FRACTURE PLANES APPEAR POLISHED OR GLOSSY, SOMETIMES STRIATED	SLICKENSIDED
COHESIVE SOIL THAT CAN BE BROKEN DOWN INTO SMALLER ANGULAR LUMPS WHICH RESIST FURTHER BREAKDOWN	BLOCKY
INCLUSION OF SMALL POCKETS OF DIFFERENT SOIL, SUCH AS SMALL LENSES OF SAND SCATTERED THROUGH A MASS OF CLAY	LENSED
SAME COLOR AND MATERIAL THROUGHOUT	HOMOGENOUS

CEMENTATION/INDURATION DESCRIPTIONS

FIELD TEST	DESCRIPTION
CRUMBLES OR BREAKS WITH HANDLING OR LITTLE FINGER PRESSURE	WEAKLY CEMENTED/INDURATED
CRUMBLES OR BREAKS WITH CONSIDERABLE FINGER PRESSURE	MODERATELY CEMENTED/INDURATED
WILL NOT CRUMBLE OR BREAK WITH FINGER PRESSURE	STRONGLY CEMENTED/INDURATED

IGNEOUS/METAMORPHIC ROCK STRENGTH DESCRIPTIONS

FIELD TEST	DESCRIPTION
MATERIAL CRUMBLES WITH BARE HAND	WEAK
MATERIAL CRUMBLES UNDER BLOWS FROM GEOLOGY HAMMER	MODERATELY WEAK
¼-INCH INDENTATIONS WITH SHARP END FROM GEOLOGY HAMMER	MODERATELY STRONG
HAND-HELD SPECIMEN CAN BE BROKEN WITH **ONE** BLOW FROM GEOLOGY HAMMER	STRONG
HAND-HELD SPECIMEN CAN BE BROKEN WITH **COUPLE** BLOWS FROM GEOLOGY HAMMER	VERY STRONG
HAND-HELD SPECIMEN CAN BE BROKEN WITH **MANY** BLOWS FROM GEOLOGY HAMMER	EXTREMELY STRONG

IGNEOUS/METAMORPHIC ROCK WEATHERING DESCRIPTIONS

DEGREE OF DECOMPOSITION	FIELD RECOGNITION	ENGINEERING PROPERTIES
SOIL	DISCOLORED, CHANGED TO SOIL, FABRIC DESTROYED	EASY TO DIG
COMPLETELY WEATHERED	DISCOLORED, CHANGED TO SOIL, FABRIC MAINLY PRESERVED	EXCAVATED BY HAND OR RIPPING (Saprolite)
HIGHLY WEATHERED	DISCOLORED, HIGHLY FRACTURED, FABRIC ALTERED AROUND FRACTURES	EXCAVATED BY HAND OR RIPPING, WITH SLIGHT DIFFICULTY
MODERATELY WEATHERED	DISCOLORED, FRACTURES, INTACT ROCK-NOTICEABLY WEAKER THAN FRESH ROCK	EXCAVATED WITH DIFFICULTY WITHOUT EXPLOSIVES
SLIGHTLY WEATHERED	MAY BE DISCOLORED, SOME FRACTURES, INTACT ROCK-NOT NOTICEABLY WEAKER THAN FRESH ROCK	REQUIRES EXPLOSIVES FOR EXCAVATION, WITH PERMEABLE JOINTS AND FRACTURES
FRESH	NO DISCOLORATION, OR LOSS OF STRENGTH	REQUIRES EXPLOSIVES

IGNEOUS/METAMORPHIC ROCK JOINT/FRACTURE DESCRIPTIONS

FIELD TEST	DESCRIPTION
NO OBSERVED FRACTURES	UNFRACTURED/UNJOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT 1 TO 3 FOOT INTERVALS	SLIGHTLY FRACTURED/JOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT 4-INCH TO 1 FOOT INTERVALS	MODERATELY FRACTURED/JOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT 1-INCH TO 4-INCH INTERVALS WITH SCATTERED FRAGMENTED INTERVALS	INTENSELY FRACTURED/JOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT LESS THAN 1-INCH INTERVALS; MOSTLY RECOVERED AS CHIPS AND FRAGMENTS	VERY INTENSELY FRACTURED/JOINTED

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KEY TO LOGS

Figure A1

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP1

ELEV. (MSL.) **~141** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP1 BULK TP1 0-2			CL	**RESIDUAL SOIL** Very stiff, dry, dark grayish brown Sandy LEAN CLAY; porous; fine to coarse sand; trace gravel			2.7	
1					- Becomes damp				
2									
3									
4	TP1 4-5			SC	Dense, moist, brown Clayey SAND; fine to coarse sand				
5									
				CL	Hard, moist, grayish brown Sandy LEAN CLAY; fine to coarse sand; few to little gravel and cobbles, rounded				
6	TP1 6-6.5								
					TEST PIT TERMINATED FOR REFUSAL AT 6' 9" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A2, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP2

ELEV. (MSL.) **~144** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP2 BULK TP2 0-2			CL	**RESIDUAL SOIL** Stiff to very stiff, dry to moist, dark yellowish brown Sandy LEAN CLAY; slightly porous; fine to medium sand; trace coarse sand and fine gravel			11.6	
1									
2									
3					- Becomes grayish brown; increase in sand; decrease in porosity				
4	TP2 4-5			SC	**MEHRTEN FORMATION** Dense, moist, strong brown Clayey SAND; slightly cemented; fine to coarse sand				
5									
6	TP2 6-7			CL	Hard, moist, dark grayish brown Sandy LEAN CLAY; cemented; fine to coarse sand				
7					- Few to little gravel and cobbles, rounded; small boulders to 14" diameter				
					TEST PIT TERMINATED FOR REFUSAL AT 7' 4" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A3, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS: ☐ ... SAMPLING UNSUCCESSFUL; ◧ ... STANDARD PENETRATION TEST; ■ ... DRIVE SAMPLE (UNDISTURBED); ⊠ ... DISTURBED OR BAG SAMPLE; ◪ ... CHUNK SAMPLE; ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP3

ELEV. (MSL.) ~147 DATE COMPLETED 10/24/22

ENG./GEO. A. Orton DRILLER S. LaBare

EQUIPMENT Case Extendahoe Backhoe w/ 24" bucket HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP3 BULK TP3 0-2			CL	**RESIDUAL SOIL** Stiff to very stiff, dry to damp, dark brown Sandy LEAN CLAY; porous; fine to medium sand; trace coarse sand and gravel				
1									
2					- Caliche horizon at 2.5 feet				
	TP3 2.5-3			SC	**MEHRTEN FORMATION** Dense, damp to moist, strong brown Clayey SAND; slightly cemented; fine to coarse sand				
3									
4	TP3 4-5			SM	Dense, moist, dark brown Silty SAND; micaceous; fine sand				
5									
6	TP3 6-7			CL	Very stiff, moist, grayish brown Sandy LEAN CLAY; slightly porous; fine to medium sand; trace coarse sand and gravel; trace cobbles to 5" diameter				
7									
					TEST PIT TERMINATED FOR REFUSAL AT 7' 9" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A4, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP4

ELEV. (MSL.) **~148** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP4 0-0.5			CL	**RESIDUAL SOIL** Stiff to very stiff, dry to damp, dark brown Sandy LEAN CLAY; fine to coarse sand; little gravel; trace cobbles and boulders, rounded			5.1	
					MEHRTEN FORMATION Hard, damp, grayish brown to gray volcanic tuff; strong; slightly weathered				
					TEST PIT TERMINATED FOR REFUSAL AT 0' 7" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A5, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP5

ELEV. (MSL.) **~151** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP5 BULK TP5 0-1			SC	**RESIDUAL SOIL** Medium dense to dense, dry to damp, dark brown Clayey SAND; porous; fine to coarse sand; little gravel; trace cobbles and boulders, subrounded to rounded			2.9	
1	TP5 1				**MEHRTEN FORMATION** Hard, damp, gray volcanic tuff; moderately strong to strong; slightly weathered; excavates as angular cobbles				
					TEST PIT TERMINATED FOR REFUSAL AT 1' 3" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A6, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP6

ELEV. (MSL.) **~148** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP6 BULK TP6 0-2			SM	**RESIDUAL SOIL** Medium dense, dry to damp, dark grayish brown Silty SAND; porous; fine to medium sand; trace coarse sand and gravel			2.0	
1									
2									
3	TP6 3-4			SC-SM	Medium dense to loose, moist, strong brown Silty Clayey SAND; micaceous; fine sand			13.3	
4									
5	TP6 5-6			CL	**MEHRTEN FORMATION** Hard, damp to moist, grayish brown Sandy CLAY; strong brown mottling; slightly cemented; fine to coarse sand; trace gravel; trace cobbles to 7" diameter				
6									
7									
					TEST PIT TERMINATED FOR REFUSAL AT 7' 3" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A7, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP7

ELEV. (MSL.) **~144** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP7 0-0.5			SC	**RESIDUAL SOIL** Medium dense, dry to damp, dark brown Clayey SAND; porous; fine to coarse sand; trace to little gravel; trace cobbles and boulders, rounded				
					MEHRTEN FORMATION Hard, damp, gray volcanic tuff; moderately strong to strong; slightly weathered				
					TEST PIT TERMINATED FOR REFUSAL AT 0' 8" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A8, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◪ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP8

ELEV. (MSL.) **~146** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP8 0-0.5			SC	**RESIDUAL SOIL** Medium dense, dry to damp, dark brown Clayey SAND; fine to coarse sand; few gravel; trace cobbles and boulders, rounded			3.3	
					MEHRTEN FORMATION Hard, damp, gray volcanic tuff; moderately strong to strong; slightly weathered				
					TEST PIT TERMINATED FOR REFUSAL AT 0' 6" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A9, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP9

ELEV. (MSL.) **~144** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP9 0-1			SM	**RESIDUAL SOIL** Medium dense to dense, dry to damp, dark brown Silty SAND; porous; fine to coarse sand; trace to little gravel; little clay				
1	TP9 1-1.5								
2					**MEHRTEN FORMATION** Dense, damp, grayish brown to gray; cemented; moderately strong; highly weathered; excavates as angular cobbles				
3	TP9 BULK TP9 3-5				Dense, damp to moist, brown Clayey SAND with Gravel; trace porosity; trace gray cobbles and boulder, subangular to rounded				
4									
5									
6									
					TEST PIT TERMINATED FOR REFUSAL AT 6' 9" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A10, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP10

ELEV. (MSL.) **~142** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP10 BULK TP10 0-2			SC	**RESIDUAL SOIL** Medium dense, dry to damp, dark brown Clayey SAND; porous; fine to medium sand; trace coarse sand and gravel			1.8	
1									
2				SC	Dense, damp, dark brown Clayey SAND; fine to coarse sand				
3									
4									
5									
6	TP10 6				- Cemented/caliche horizon; 1/4" to 1" thick; in some areas, laminated to 6" thick				
7									
8	TP10 7.5			SW	**MEHRTEN FORMATION** Dense, moist, strong brown Well-graded SAND; weakly cemented; fine to coarse sand; trace clay - Trace rounded cobbles				
9	TP10 9-10			CL	Hard, moist, dark brown Sandy LEAN CLAY; cemented; fine to coarse sand				
10					TEST PIT TERMINATED FOR REFUSAL AT 10' 0" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A11, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS: ☐ ... SAMPLING UNSUCCESSFUL; ◧ ... STANDARD PENETRATION TEST; ■ ... DRIVE SAMPLE (UNDISTURBED); ⊠ ... DISTURBED OR BAG SAMPLE; ◪ ... CHUNK SAMPLE; ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP11

ELEV. (MSL.) **~143** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP11 BULK TP11 0-2			SC	**RESIDUAL SOIL** Medium dense, dry to damp, dark brown Clayey SAND; porous; fine to medium sand; trace coarse sand; trace gravel			7.0	
1					- Light grayish brown cemented pocket, ~1' thick; non-continuous				
2				SC	Dense, damp to moist, brown Clayey SAND; fine to medium sand; trace coarse sand; trace gravel				
3									
4									
5									
6									
7	TP11 7				- Becomes light brown to strong brown; fine to coarse sand				
8									
9	TP11 8.5-9			SC	**MEHRTEN FORMATION** Dense, moist, grayish brown, Clayey SAND; cemented; trace cobbles and boulders, rounded				
					TEST PIT TERMINATED FOR REFUSAL AT 9' 4" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A12, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT TP12

ELEV. (MSL.) **~142** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	TP12 BULK TP12 0-2			CL	**RESIDUAL SOIL** Stiff, dry to damp, yellowish brown Sandy LEAN CLAY; slightly porous; fine to coarse sand; trace gravel and cobbles, rounded; cobbles to 4" diameter				
1									
2				CL	**VALLEY SPRINGS FORMATION** Hard, damp, grayish brown to gray Sandy LEAN CLAY; fine to coarse sand				
					TEST PIT TERMINATED FOR REFUSAL AT 2' 6" NO GROUNDWATER ENCOUNTERED BACKFILLED WITH EXCAVATED MATERIAL; COMPACTED WITH BACKHOE BUCKET				

Figure A13, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◪ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT P1

ELEV. (MSL.) **~146** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0									
				ML	**RESIDUAL SOIL** Stiff to very stiff, dry to damp, brown Sandy SILT; porous; fine to medium sand; trace coarse sand; trace gravel				
1									
	P1 1.5-2							7.3	
2					TEST PIT TERMINATED FOR REFUSAL AT 2' 0" NO GROUNDWATER ENCOUNTERED SET FOR PERCOLATION TESTING				

Figure A14, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

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PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT P2

ELEV. (MSL.) **~141** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0	P2 0-1			SM	**RESIDUAL SOIL** Dense to very dense, dry to damp, dark brown Silty SAND; porous; fine to medium sand; trace coarse sand; trace gravel; few clay			2.1	
1	P2 1.25-1.5				**VALLEY SPRINGS FORMATION** Hard, damp to moist, gray volcanic tuff; slightly weathered; cemented; nonporous; excavates as Silty SAND with Gravel			9.9	
					TEST PIT TERMINATED FOR REFUSAL AT 1' 6" NO GROUNDWATER ENCOUNTERED SET FOR PERCOLATION TESTING				

Figure A15, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S2486-05-02** PROJECT NAME **William Jessup University Multi-Family**

TEST PIT P3

ELEV. (MSL.) **~144** DATE COMPLETED **10/24/22**

ENG./GEO. **A. Orton** DRILLER **S. LaBare**

EQUIPMENT **Case Extendahoe Backhoe w/ 24" bucket** HAMMER TYPE

DEPTH IN FEET	SAMPLE INTERVAL & RECOVERY	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	ADDITIONAL TESTS
0									
				SC-SM	**RESIDUAL SOIL** Dense to very dense, dry to damp, dark brown Silty Clayey SAND; porous; fine to coarse sand; trace gravel				
1									
	P3 1.5-2							7.7	
2					TEST PIT TERMINATED FOR REFUSAL AT 1' 11" NO GROUNDWATER ENCOUNTERED SET FOR PERCOLATION TESTING				

Figure A16, Log of Test Pit, page 1 of 1

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Aardvark Permeameter Data Analysis

Project Name:	William Jessup University	Date:	10/25/2022
Project Number:	S2486-05-02	By:	amo
Borehole Location:	P1	Ref. EL:	146.00
		Bottom EL:	144.00

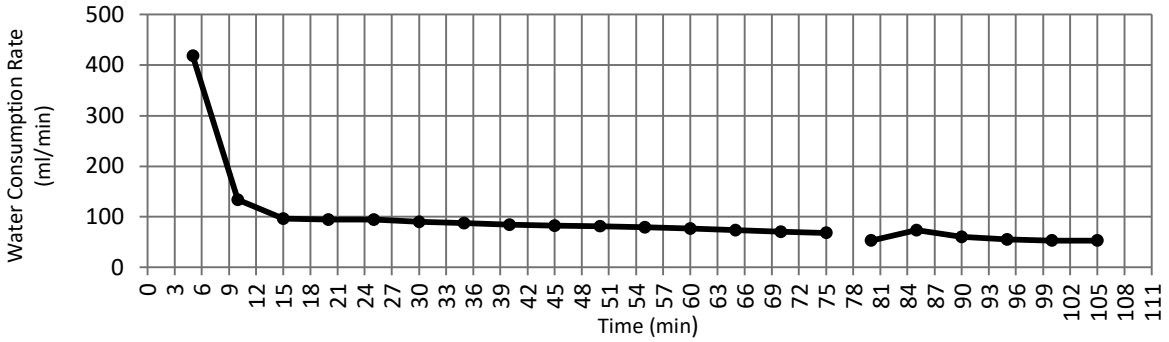
Borehole Diameter (2r):	24.00	in	=	60.96	cm
Borehole Depth (H):	2.00	ft	=	60.96	cm
Dist. Btwn Reservoir & Top of Borehole:	2.33	ft	=	71.02	cm
Depth to Water Table (s):	55.00	ft	=	1676.40	cm
Height APM Raised from Bottom:	0.00	in	=	0.00	cm

Distance Btwn Reservoir and APM (D):	113.5634	cm
Head Height (h):	9.34	cm
Distance Btwn Constant Head and Water Table (L):	1624.78	cm

Reading	Time (min)	Time Elapsed (min)	Resevoir Water Weight (g)	Interval Water Consumption (g)	Total Water Consumption (g)	*Water Consumption Rate (ml/min)
1	0		10180			
2	5	5	8086	2094	2094	418.80
3	10	5	7418	668	2762	133.60
4	15	5	6936	482	3244	96.40
5	20	5	6462	474	3718	94.80
6	25	5	5990	472	4190	94.40
7	30	5	5540	450	4640	90.00
8	35	5	5104	436	5076	87.20
9	40	5	4682	422	5498	84.40
10	45	5	4268	414	5912	82.80
11	50	5	3862	406	6318	81.20
12	55	5	3466	396	6714	79.20
13	60	5	3084	382	7096	76.40
14	65	5	2716	368	7464	73.60
15	70	5	2362	354	7818	70.80
16	75	5	2020	342	8160	68.40
REFILL			10010			
17	80	5	9746	264	8424	52.80
18	85	5	9378	368	8792	73.60
19	90	5	9076	302	9094	60.40
20	95	5	8802	274	8434	54.80
21	100	5	8538	264	8698	52.80
22	105	5	8274	264	8962	52.80

*1 ml = 1 g

Steady Flow Rate (Q): 53.50 ml/min



Field-Saturated Hydraulic Conductivity:

Case 1: L/h > 3	K_{sat} =	0.0148	cm/min	0.3507 in/hr

Figure A17

GEOCON

Aardvark Permeameter Data Analysis

Project Name:	William Jessup University	Date:	10/25/2022
Project Number:	S2486-05-02	By:	amo
Borehole Location:	P2	Ref. EL:	141.00
		Bottom EL:	139.08

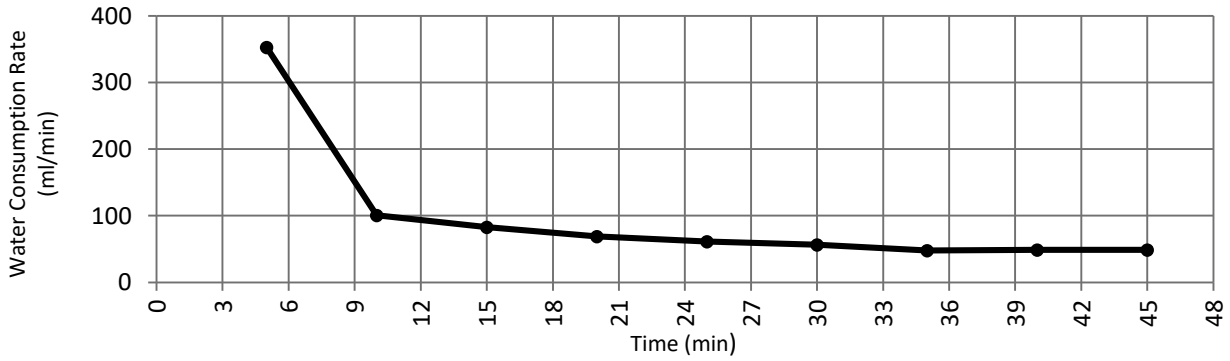
Borehole Diameter (2r):	24.00	in	=	60.96	cm
Borehole Depth (H):	1.92	ft	=	58.52	cm
Dist. Btwn Reservoir & Top of Borehole:	2.08	ft	=	63.40	cm
Depth to Water Table (s):	55.00	ft	=	1676.40	cm
Height APM Raised from Bottom:	0.00	in	=	0.00	cm

Distance Btwn Reservoir and APM (D):	103.505	cm
Head Height (h):	9.31	cm
Distance Btwn Constant Head and Water Table (L):	1627.19	cm

Reading	Time (min)	Time Elapsed (min)	Resevoir Water Weight (g)	Interval Water Consumption (g)	Total Water Consumption (g)	*Water Consumption Rate (ml/min)
1	0		9720			
2	5	5	7956	1764	1764	352.80
3	10	5	7454	502	2266	100.40
4	15	5	7040	414	2680	82.80
5	20	5	6696	344	3024	68.80
6	25	5	6390	306	3330	61.20
7	30	5	6108	282	3612	56.40
8	35	5	5868	240	3852	48.00
9	40	5	5624	244	4096	48.80
10	45	5	5380	244	4340	48.80

*1 ml = 1 g

Steady Flow Rate (Q): 48.50 ml/min



Field-Saturated Hydraulic Conductivity:

Case 1: L/h > 3 K_{sat} = 0.0135 cm/min 0.3190 in/hr

Figure A18

Aardvark Permeameter Data Analysis

Project Name:	William Jessup University	Date:	10/25/2022
Project Number:	S2486-05-02	By:	amo
Borehole Location:	P3	Ref. EL:	144.00
		Bottom EL:	142.00

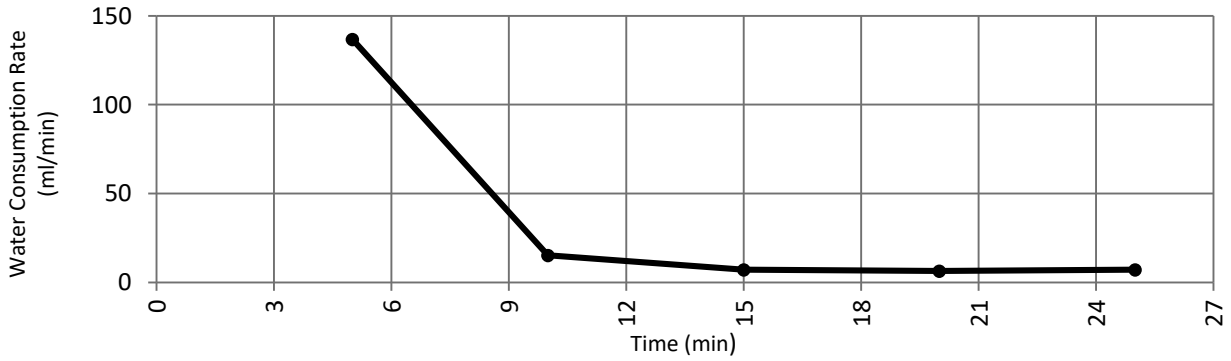
Borehole Diameter (2r):	24.00	in	=	60.96	cm
Borehole Depth (H):	2.00	ft	=	60.96	cm
Dist. Btwn Reservoir & Top of Borehole:	2.00	ft	=	60.96	cm
Depth to Water Table (s):	55.00			1676.40	cm
Height APM Raised from Bottom:	0.00	in	=	0.00	cm

Distance Btwn Reservoir and APM (D):	103.505	cm
Head Height (h):	9.31	cm
Distance Btwn Constant Head and Water Table (L):	1624.75	cm

Reading	Time (min)	Time Elapsed (min)	Resevoir Water Weight (g)	Interval Water Consumption (g)	Total Water Consumption (g)	*Water Consumption Rate (ml/min)
1	0		10016			
2	5	5	9332	684	684	136.80
3	10	5	9256	76	760	15.20
4	15	5	9220	36	796	7.20
5	20	5	9188	32	828	6.40
6	25	5	9152	36	864	7.20

*1 ml = 1 g

Steady Flow Rate (Q): 7.00 ml/min



Field-Saturated Hydraulic Conductivity:

Case 1: L/h > 3 K_{sat} = 0.0019 cm/min 0.0460 in/hr

Figure A19

APPENDIX B

APPENDIX B

LABORATORY TESTING PROGRAM

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected soil samples were tested for their in-place moisture content, plasticity characteristics, grain size distribution, corrosion potential, expansion potential, shearing potential, pavement support characteristics, and moisture-density relationship. The results of the laboratory tests are presented below and on the following pages.

TABLE B1
EXPANSION INDEX TEST RESULTS
ASTM D4829

Sample Number	Depth (feet)	Moisture Content (%)		Expansion Index	Classification*
		Before Test	After Test		
TP2 BULK	0-2	9.0	20.9	35	Low

**Expansion Potential Classification per ASTM D4829.*

TABLE B2
SOIL CORROSION PARAMETER TEST RESULTS
(CALIFORNIA TEST METHODS 643, 417, AND 422)

Sample No.	Sample Depth (ft.)	pH	Minimum Resistivity (ohm-cm)	Chloride (ppm) / (%)	Sulfate (ppm) / (%)
TP7 BULK	0-0.5	5.8	1,980	13.2 / 0.001	18.5 / 0.002

*Caltrans (2021) considers a site corrosive to foundation elements if one or more of the following conditions exist for the representative soil samples at the site:

- The pH is equal to or less than 5.5.
- The resistivity is equal to or less than 1,500 ohm-cm.
- Chloride concentration is equal to or greater than 500 parts per million (ppm).
- Sulfate concentration is equal to or greater than 1,500 ppm.

According to the *2019 California Building Code* Section 1904.1 which refers to the durability requirements of American Concrete Institute (ACI) 318 (Chapter 4), Type II cement may be used where soluble sulfate levels in soil are below 2,000 ppm.

TABLE B3
R-VALUE TEST RESULTS
ASTM D2844

Sample Number	Depth (feet)	Average Dry Density (pcf)	Average Moisture Content (%)	R-Value
TP12 BULK	0-2	124.3	11.5	41

Sample ID	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	Expansion Index	%<#200 Sieve	Water Content (%)	Dry Density (pcf)
P1 1.5-2	1.5-2					52.5	7.3	
P2 0-1	0-1					43.9	2.1	
P2 1.25-1.5	1.25-1.5					26.2	9.9	
P3 1.5-2	1.5-2					45.9	7.7	
TP1 BULK	0-2	33	16	17		55.7	2.7	
TP10 0-2	0-2						1.8	
TP10-Bulk	0-2							
TP11 0-2	0-2						7.0	
TP2 0-2	0-2						11.6	
TP3 Bulk	0-2							
TP4 0-0.5	0-0.5						5.1	
TP5 0-1	0-1						2.9	
TP6 BULK	0-2	18	16	2		39.8	2.0	
TP6 3-4	3-4						13.3	
TP8 0-0.5	0-0.5						3.3	

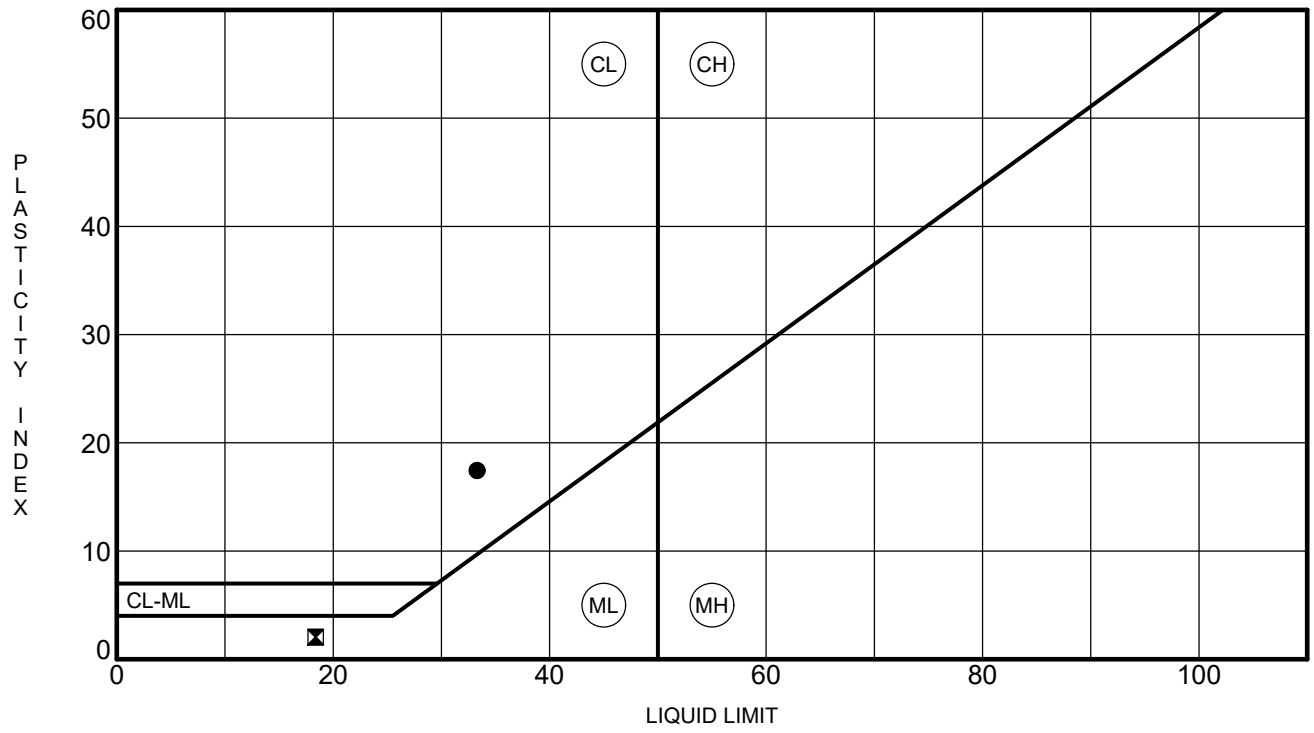
GEOCON

Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Telephone: 916-852-9118

Summary of Laboratory Results

Project: William Jessup University Multi-Family
Location: Rocklin, California
Number: S2486-05-02
Figure: B1

US LAB SUMMARY GEOTECH 2 WITH EI COLUMN S2486-05-02 WILLIAM JESSUP UNIVERSITY MULTI-FAMILY.GPJ US_LAB.GDT 11/21/22



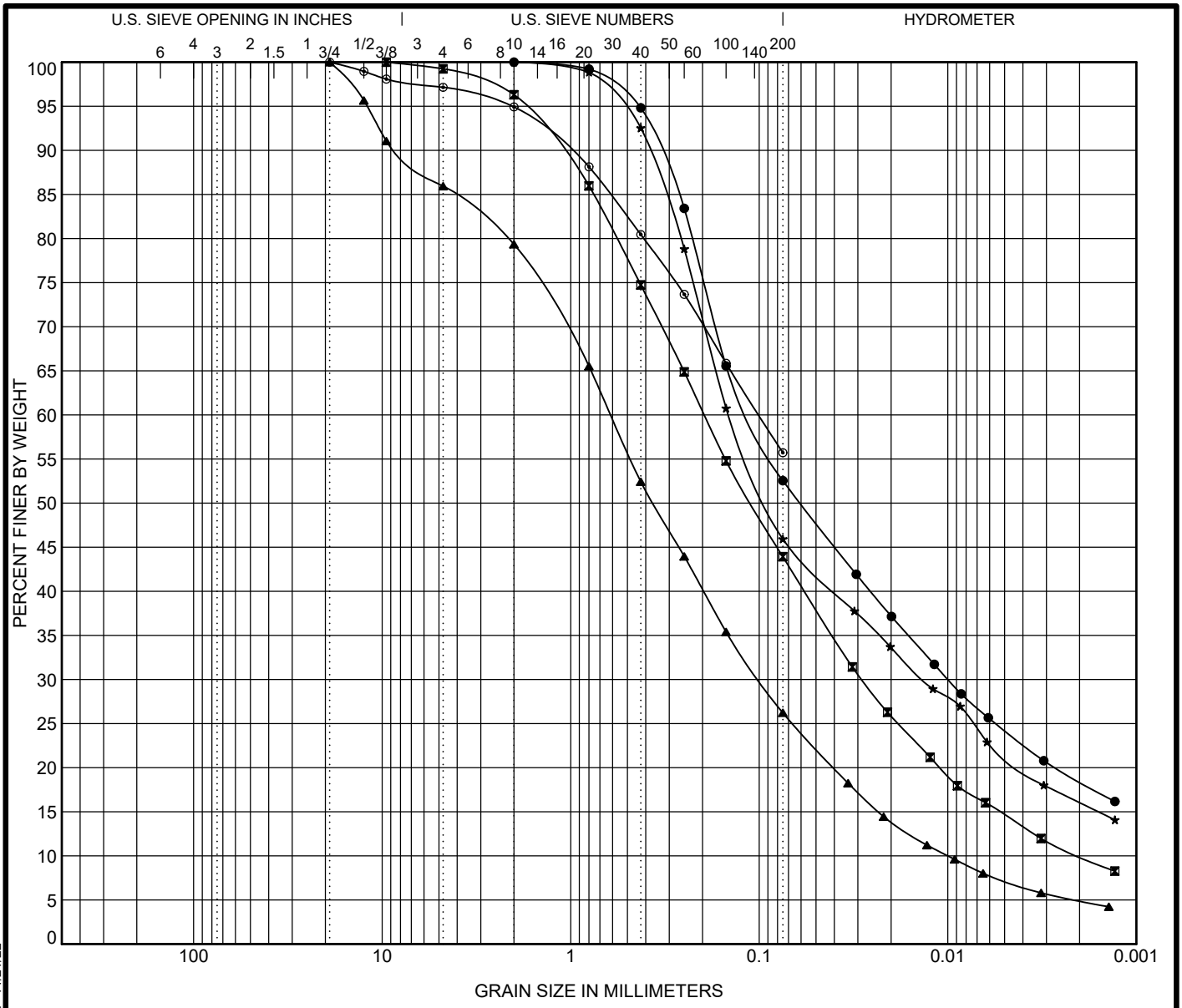
	Sample No.	Liquid Limit	Plastic Limit	Plasticity Index	% Pass #200 Sieve	Unified Soil Classification Description	Preparation Method
●	**TP1 BULK**	**33**	**16**	**17**	**55.7**	**Dark grayish brown Sandy LEAN CLAY**	
⊠	**TP6 BULK**	**18**	**16**	**2**	**39.8**	**Dark grayish brown Silty SAND**	

Geocon Consultants
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Telephone:

ATTERBERG LIMITS (ASTM D4318)

Project: William Jessup University Multi-Family
Location: Rocklin, California
Number: S2486-05-02
Figure: B2

PI COPY 2 S2486-05-02 WILLIAM JESSUP UNIVERSITY MULTI-FAMILY.GPJ US_LAB.GDT 11/21/22



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample No.	Classification	LL	PL	PI	Cc	Cu
●	**P1 1.5-2**	**Dark brown Sandy SILT**					
⊠	**P2 0-1**	**Dark brown Silty SAND**				**2.10**	**98.5**
▲	**P2 1.25-1.5**	**Gray Silty SAND with Gravel**				**1.62**	**61.3**
★	**P3 1.5-2**	**Dark brown Silty Clayey SAND**					
⊙	**TP1 BULK**	**Dark grayish brown Sandy LEAN CLAY**	**33**	**16**	**17**		

	Sample No.	D100	D50	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**P1 1.5-2**	**2**	**0.061**	**0.01**		**0.0**	**47.5**	**34.1**	**18.5**
⊠	**P2 0-1**	**9.5**	**0.11**	**0.028**	**0.002**	**0.8**	**55.3**	**33.9**	**10.0**
▲	**P2 1.25-1.5**	**19**	**0.365**	**0.1**	**0.01**	**14.1**	**59.7**	**21.3**	**4.9**
★	**P3 1.5-2**	**2**	**0.091**	**0.013**		**0.0**	**54.1**	**29.9**	**16.0**
⊙	**TP1 BULK**	**19**				**2.8**	**41.4**	**55.7**	

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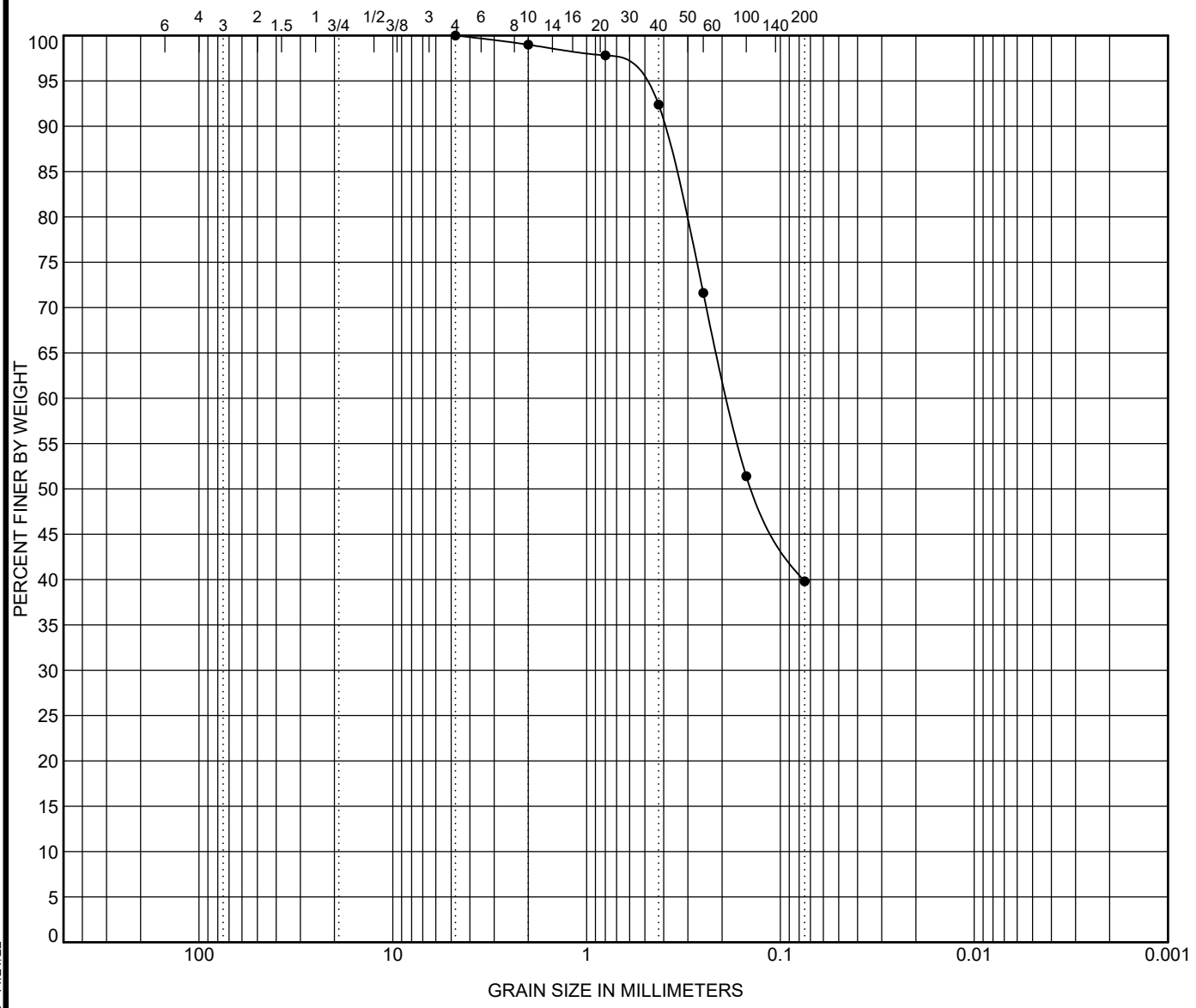
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Telephone: 916-852-9118

GRAIN SIZE DISTRIBUTION (ASTM D422, D6913)

Project: William Jessup University Multi-Family
Location: Rocklin, California
Number: S2486-05-02
Figure: B3

GRAIN SIZE COPY 2 S2486-05-02 WILLIAM JESSUP UNIVERSITY MULTI-FAMILY.GPJ US LAB.GDT 11/21/22



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample No.	Classification	LL	PL	PI	Cc	Cu
●	**TP6 BULK**	**Dark grayish brown Silty SAND**	**18**	**16**	**2**		

	Sample No.	D100	D50	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP6 BULK**	**4.75**	**0.138**			**0.0**	**60.2**	**39.8**	

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GRAIN SIZE DISTRIBUTION (ASTM D422, D6913)

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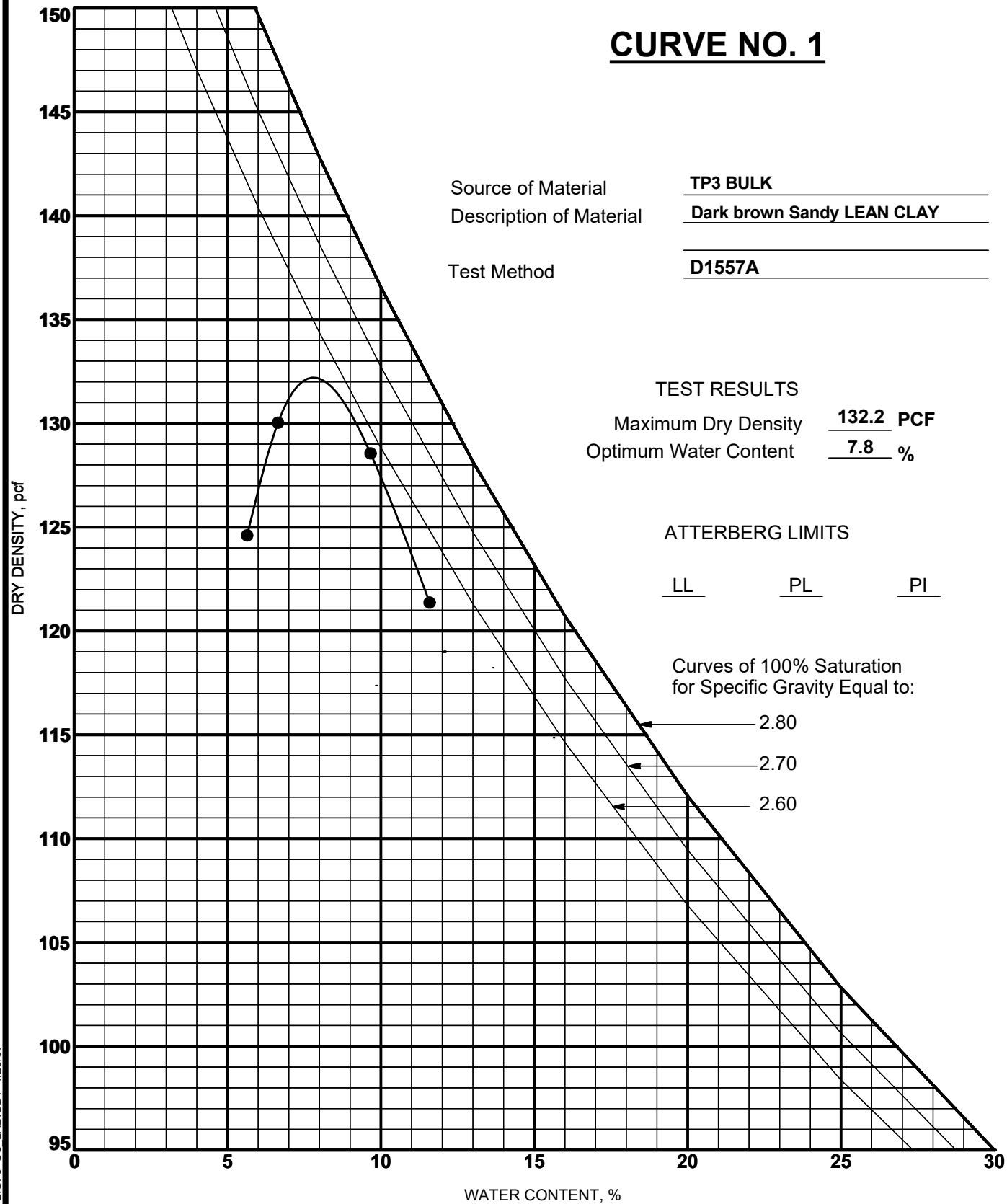
Location: Rocklin, California
Number: S2486-05-02
Figure: B4

GRAIN SIZE COPY 2 S2486-05-02 WILLIAM JESSUP UNIVERSITY MULTI-FAMILY.GPJ US LAB.GDT 11/21/22

CURVE NO. 1



Source of Material: **TP3 BULK**

Description of Material: **Dark brown Sandy LEAN CLAY**

Test Method: **D1557A**

TEST RESULTS

Maximum Dry Density: **132.2** **PCF**

Optimum Water Content: **7.8** **%**

ATTERBERG LIMITS

LL PL PI

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

Project: William Jessup University Multi-Family

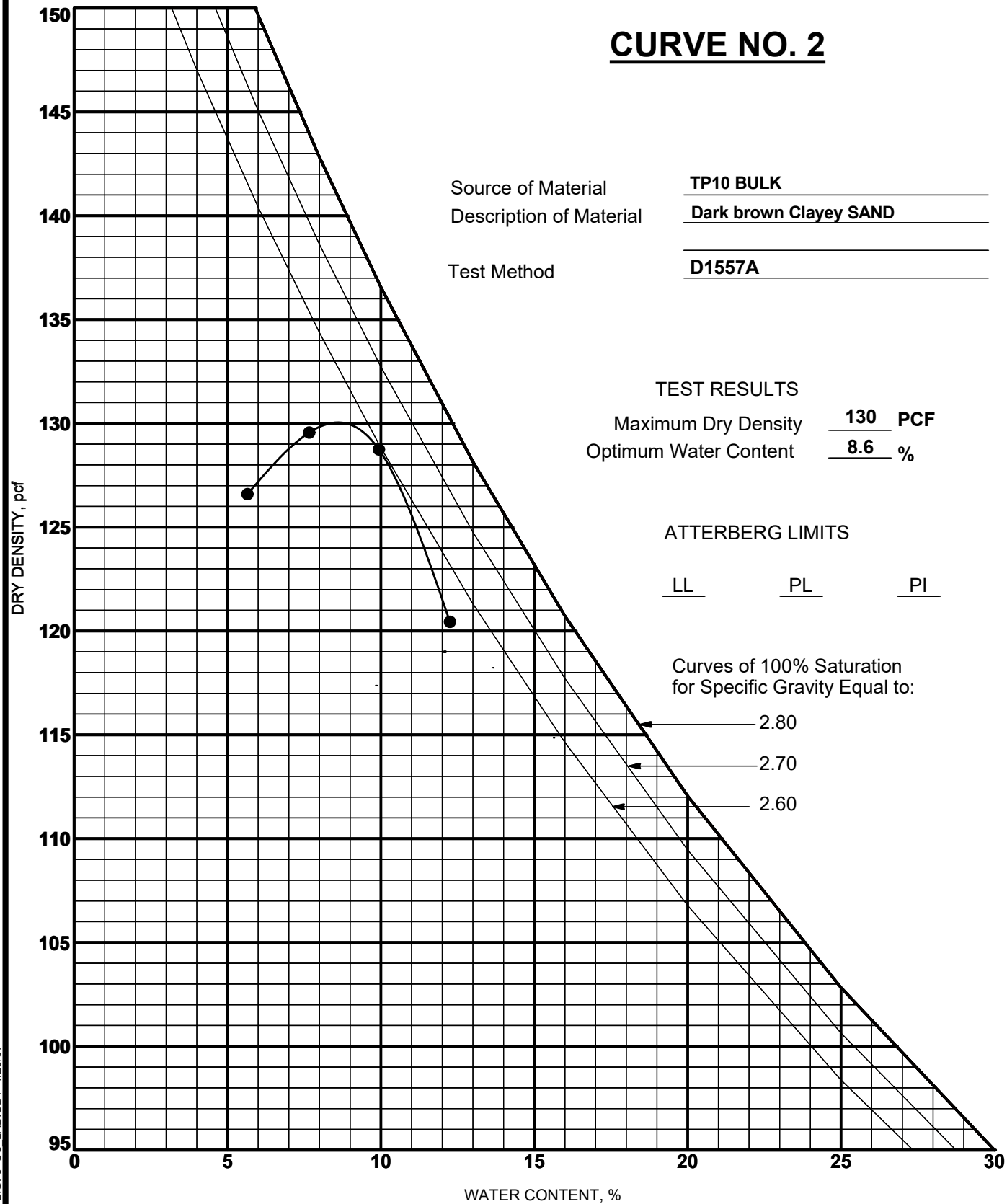
Location: Rocklin, California

Number: S2486-05-02

Figure: B5

US COMPACTION COPY 2.GPJ US_LAB.GDT 1/26/07

CURVE NO. 2



Source of Material: **TP10 BULK**

Description of Material: **Dark brown Clayey SAND**

Test Method: **D1557A**

TEST RESULTS

Maximum Dry Density: **130** **PCF**

Optimum Water Content: **8.6** **%**

ATTERBERG LIMITS

LL PL PI

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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MOISTURE-DENSITY RELATIONSHIP

Project: William Jessup University Multi-Family

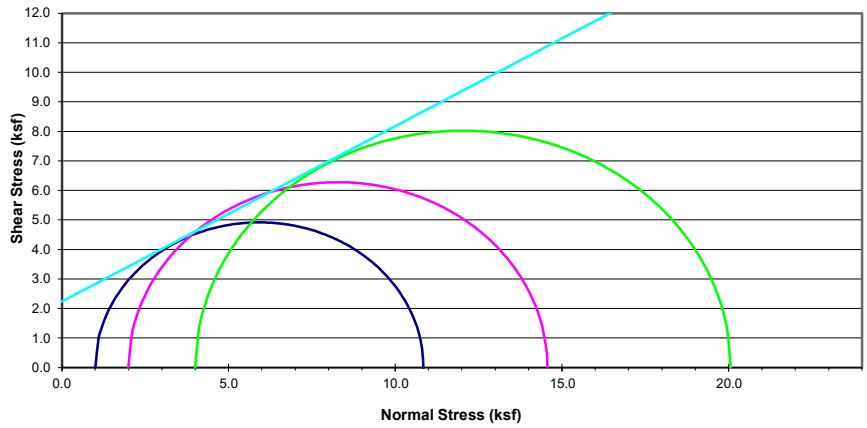
Location: Rocklin, California

Number: S2486-05-02

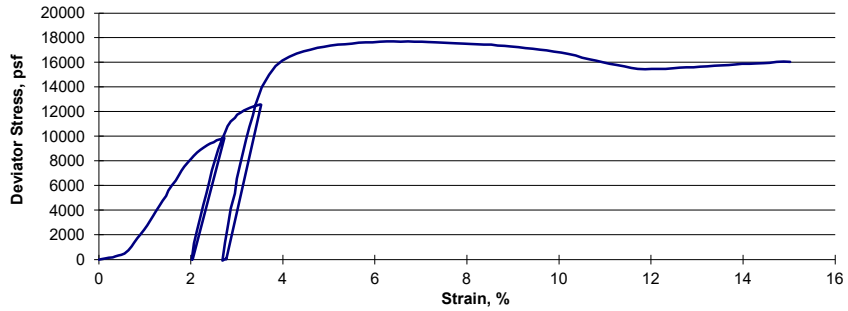
Figure: B6

US COMPACTION COPY 2.GPJ US_LAB.GDT 1/26/07

MOHR'S CIRCLES



STRESS-STRAIN



Failure Photo

Test Results	Sample Remolded to approximately 92% of ASTM D1557		
	ϕ, degrees	**30.7**	
	c, psf	**2250**	
Sample Description			
	Sample Number	TP3-Bulk	
	Sample Depth (feet)	0-5'	
	Material Description	Dark Brown Sandy SILT	
Initial Conditions at Start of Stage			
Sample ID (psf), minor principal stress		**1000**	**2000**	**4000**
	Height (inch)	5.050	4.948	4.812
	Diameter (inch)	2.399	2.424	2.432
	Moisture Content (%)	9.3	9.3	9.3
	Dry Density (pcf)	120.7	120.7	120.7
	Saturation (%)	58.4	58.4	58.4
Shear Test Conditions				
	Strain Rate (%/min)	0.2877	0.2755	0.2931
	Major Principal Stress at Failure (psf)	10840	14560	20060
	Strain at failure (%)	2.73	3.51	14.88
	Deviator Stress and Fail (psf)	9840	12570	16060

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Triaxial Shear Strength - UU Test (staged)

Project: William Jessup Apartments
Location: Rocklin, CA
Number: S2486-05-02
Figure: B7

APPENDIX J

ADDITIONAL SOURCES

Appendix J Contents:

1. California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective.* April 2005.
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AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE

April 2005

California Environmental Protection Agency
California Air Resources Board

Air Agency Contacts

Federal-

U.S. EPA, Region 9
Phone: (866)-EPA-WEST
Website: www.epa.gov/region09
Email: r9.info@epa.gov

-State-

California Air Resources Board
Phone: (916) 322-2990 (public info)
(800) 363-7664 (public info)
(800) 952-5588 (complaints)
(866)-397-5462 (env. justice)
Website: www.arb.ca.gov
Email: helpline@arb.ca.gov

-Local-

Amador County APCD
Phone: (209) 257-0112
Website: www.amadorapcd.org
E-Mail: jharris@amadorapcd.org

Antelope Valley AQMD
Phone: (661) 723-8070
Complaint Line: (888) 732-8070
Website: www.avaqmd.ca.gov
E-Mail: bbanks@avaqmd.ca.gov

Bay Area AQMD
Phone: (415) 749-5000
Complaint Line: (800) 334-6367
Website: www.baaqmd.gov
E-Mail: webmaster@baaqmd.gov

Butte County AQMD
Phone: (530) 891-2882
Website: www.bcaqmd.org
E-Mail: air@bcaqmd.org

Calaveras County APCD
Phone: (209) 754-6504
E-Mail: lgrewal@co.calaveras.ca.us

Colusa County APCD
Phone: (530) 458-0590
Website: www.colusanet.com/apcd
E-Mail: ccair@colusanet.com

El Dorado County AQMD
Phone: (530) 621-6662
Website:
www.co.el-dorado.ca.us/emd/apcd
E-Mail: mcctaggart@co.el-dorado.ca.us

Feather River AQMD
Phone: (530) 634-7659
Website: www.fraqmd.org
E-Mail: fraqmd@fraqmd.org

Glenn County APCD
Phone: (530) 934-6500
http://www.countyofglenn.net/air_pollution_control
E-Mail: ktokunaga@countyofglenn.net

Great Basin Unified APCD
Phone: (760) 872-8211
Website: www.gbuapcd.org
E-Mail: gb1@greatbasinapcd.org

Imperial County APCD
Phone: (760) 482-4606
E-Mail: reyesromero@imperialcounty.net

Kern County APCD
Phone: (661) 862-5250
Website: www.kernair.org
E-Mail: kcapcd@co.kern.ca.us

Lake County AQMD
Phone: (707) 263-7000
Website: www.lcaqmd.net
E-Mail: bobr@pacific.net

Lassen County APCD
Phone: (530) 251-8110
E-Mail: lassenag@psln.com

Mariposa County APCD
Phone: (209) 966-2220
E-Mail: air@mariposacounty.org

Mendocino County AQMD
Phone: (707) 463-4354
Website:
www.co.mendocino.ca.us/aqmd
E-Mail:
mcaqmd@co.mendocino.ca.us

Modoc County APCD
Phone: (530) 233-6419
E-Mail: modapcd@hdo.net

Mojave Desert AQMD
Phone: (760) 245-1661
(800) 635-4617
Website: www.mdaqmd.ca.gov

Monterey Bay Unified APCD
Phone: (831) 647-9411
(800) 253-6028 (Complaints)
Website: www.mbuapcd.org
E-Mail: dquetin@mbuapcd.org

North Coast Unified AQMD
Phone: (707) 443-3093
Website: www.ncuaqmd.org
E-Mail: lawrence@ncuaqmd.org

Northern Sierra AQMD
Phone: (530) 274-9360
Website: www.myairdistrict.com
E-Mail: office@myairdistrict.com

Northern Sonoma County APCD
Phone: (707) 433-5911
E-Mail: nsc@sonic.net

Placer County APCD
Phone: (530) 889-7130
Website:
http://www.placer.ca.gov/airpollution/airpolut.htm
E-Mail: pcapcd@placer.ca.gov

Sacramento Metro AQMD
Phone: (916) 874-4800
Website: www.airquality.org
E-Mail: kshearer@airquality.org

San Diego County APCD
Phone: (858) 650-4700
Website: www.sdapcd.org

San Joaquin Valley APCD
Phone: (559) 230-6000 (General)
(800) 281-7003
(San Joaquin, Stanislaus, Merced)
(800) 870-1037
(Madera, Fresno, Kings)
(800) 926-5550
(Tulare and Valley portion of Kern)
Website: www.valleyair.org
E-Mail: sjvapcd@valleyair.org

San Luis Obispo County APCD
Phone: (805) 781-5912
Website: www.slocleanair.org
E-Mail: info@slocleanair.org

Santa Barbara County APCD
Phone (805) 961-8800
Website: www.sbcapcd.org
Email us: apcd@sbcapcd.org

Shasta County AQMD
Phone: (530) 225-5789
Website:
www.co.shasta.ca.us/Departments/Resourcemgmt/drm/aqmain.htm
E-Mail: scdrm@snowcrest.net

Siskiyou County APCD
Phone: (530) 841-4029
E-Mail: ebeck@siskiyou.ca.us

South Coast AQMD
Phone: (909) 396-2000
Complaint Line: 1-800-CUT-SMOG
Website: www.aqmd.gov
Email: bwallerstein@aqmd.gov

Tehama County APCD
Phone: (530) 527-3717
Website: www.tehcoapcd.net
Email: general@tehcoapcd.net

Tuolumne County APCD
Phone: (209) 533-5693
E-Mail:
bsandman@co.tuolumne.ca.us

Ventura County APCD
Phone: (805) 645-1400
Complaint Line: (805) 654-2797
Website: www.vcapcd.org
E-Mail: info@vcapcd.org

Yolo-Solano AQMD
Phone: (530) 757-3650
Website: www.ysaqmd.org
Email: administration@ysaqmd.org

To My Local Government Colleagues....

I am pleased to introduce this informational guide to air quality and land use issues focused on community health. As a former county supervisor, I know from experience the complexity of local land use decisions. There are multiple factors to consider and balance. This document provides important public health information that we hope will be considered along with housing needs, economic development priorities, and other quality of life issues.

An important focus of this document is prevention. We hope the air quality information provided will help inform decision-makers about the benefits of avoiding certain siting situations. The overarching goal is to avoid placing people in harm's way. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. What is encouraging is that the health risk is greatly reduced with distance. For that reason, we have provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and land uses such as residences.

Land use decisions are a local government responsibility. The Air Resources Board's role is advisory and these recommendations do not establish regulatory standards of any kind. However, we hope that the information in this document will be seriously considered by local elected officials and land use agencies. We also hope that this document will promote enhanced communication between land use agencies and local air pollution control agencies. We developed this document in close coordination with the California Air Pollution Control Officers Association with that goal in mind.

I hope you find this document both informative and useful.

Barbara Riordan

Mrs. Barbara Riordan
Interim Chairman
California Air Resources Board

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APPENDICES

Appendix A Land Use Classifications And Associated Facility Categories That Could Emit Air Pollutants

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Appendix E Special Processes That Apply To School Siting

Appendix F General Processes Used By Land Use Agencies To Address Air Pollution Impacts

Appendix G Glossary Of Key Air Pollution Terms

Acknowledgments

The ARB staff would like to acknowledge the exceptional contributions made to this document by members of the ARB Environmental Justice Stakeholders Group. Since 2001, ARB staff has consistently relied on this group to provide critical and constructive input on implementing the specifics of ARB's environmental justice policies and actions. The Stakeholders Group is convened by the ARB, and comprised of representatives from local land use and air agencies, community interest groups, environmental justice organizations, academia, and business. Their assistance and suggestions throughout the development of this Handbook have been invaluable.

Executive Summary

The Air Resources Board's (ARB) primary goal in developing this document is to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Also, ARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

Focusing attention on these siting situations is an important preventative action. ARB and local air districts have comprehensive efforts underway to address new and existing air pollution sources under their respective jurisdictions. The issue of siting is a local government function. As more data on the connection between proximity and health risk from air pollution become available, it is essential that air agencies share what we know with land use agencies. We hope this document will serve that purpose.

The first section provides ARB recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that we have evaluated from the standpoint of the proximity issue. It is based on available information and reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants. A key air pollutant common to many of these sources is particulate matter from diesel engines. Diesel particulate matter (diesel PM) is a carcinogen identified by ARB as a toxic air contaminant and contributes to particulate pollution statewide.

Reducing diesel particulate emissions is one of ARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing diesel PM emissions each year. ARB's long-term goal is to reduce diesel PM emissions 85% by 2020. However, cleaning up diesel engines will take time as new engine standards phase in and programs to accelerate fleet turnover or retrofit existing engines are implemented. Also, these efforts are reducing diesel particulate emissions on a statewide basis, but do not yet capture every site where diesel vehicles and engines may congregate. Because living or going to school too close to such air pollution sources may increase both cancer and non-cancer health risks, we are recommending that proximity be considered in the siting of new sensitive land uses.

There are also other key toxic air contaminants associated with specific types of facilities. Most of these are subject to stringent state and local air district regulations. However, what we know today indicates that keeping new homes and other sensitive land uses from siting too close to such facilities would provide additional health protection. Chrome platers are a prime example of facilities that should not be located near vulnerable communities because of the cancer health risks from exposure to the toxic material used during their operations.

In addition to source specific recommendations, we also encourage land use agencies to use their planning processes to ensure the appropriate separation of industrial facilities and sensitive land uses. While we provide some suggestions, how to best achieve that goal is a local issue. In the development of these guidelines, we received valuable input from local government about the spectrum of issues that must be considered in the land use planning process. This includes addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. All of these factors are important considerations. The recommendations in the Handbook need to be balanced with other State and local policies.

Our purpose with this document is to highlight the potential health impacts associated with proximity to air pollution sources so planners explicitly consider this issue in planning processes. We believe that with careful evaluation, infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level. One suggestion for achieving this goal is more communication between air agencies and land use planners. Local air districts are an important resource that should be consulted regarding sources of air pollution in their jurisdictions. ARB staff will also continue to provide updated technical information as it becomes available.

Our recommendations are as specific as possible given the nature of the available data. In some cases, like refineries, we suggest that the siting of new sensitive land uses should be avoided immediately downwind. However, we leave definition of the size of this area to local agencies based on facility specific considerations. Also, project design that would reduce air pollution exposure may be part of the picture and we encourage consultation with air agencies on this subject.

In developing the recommendations, our first consideration was the adequacy of the data available for an air pollution source category. Using that data, we assessed whether we could reasonably characterize the relative exposure and health risk from a proximity standpoint. That screening provided the list of air pollution sources that we were able to address with specific recommendations. We also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. In the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Due to the large variability in relative risk in the source categories, we chose not to apply

a uniform, quantified risk threshold as is typically done in air quality permitting programs. Instead, because these guidelines are not regulatory or binding on local agencies, we took a more qualitative approach in developing the distance-based recommendations.

Where possible, we recommend a minimum separation between a new sensitive land use and known air pollution risks. In other cases, we acknowledge that the existing health risk is too high in a relatively large area, that air agencies are working to reduce that risk, and that in the meantime, we recommend keeping new sensitive land uses out of the highest exposure areas. However, it is critical to note that our implied identification of the high exposure areas for these sources does not mean that the risk in the remaining impact area is insignificant. Rather, we hope this document will bring further attention to the potential health risk throughout the impact area and help garner support for our ongoing efforts to reduce health risk associated with air pollution sources. Areas downwind of major ports, rail yards, and other inter-modal transportation facilities are prime examples.

We developed these recommendations as a means to share important public health information. The underlying data are publicly available and referenced in this document. We also describe our rationale and the factors considered in developing each recommendation, including data limitations and uncertainties. These recommendations are advisory and should not be interpreted as defined "buffer zones." We recognize the opportunity for more detailed site-specific analyses always exists, and that there is no "one size fits all" solution to land use planning.

As California continues to grow, we collectively have the opportunity to use all the information at hand to avoid siting scenarios that may pose a health risk. As part of ARB's focus on communities and children's health, we encourage land use agencies to apply these recommendations and work more closely with air agencies. We also hope that this document will help educate a wider audience about the value of preventative action to reduce environmental exposures to air pollution.

1. ARB Recommendations on Siting New Sensitive Land Uses

Protecting California's communities and our children from the health effects of air pollution is one of the most fundamental goals of state and local air pollution control programs. Our focus on children reflects their special vulnerability to the health impacts of air pollution. Other vulnerable populations include the elderly, pregnant women, and those with serious health problems affected by air pollution. With this document, we hope to more effectively engage local land use agencies as partners in our efforts to reduce health risk from air pollution in all California communities.

Later sections emphasize the need to strengthen the connection between air quality and land use in both planning and permitting processes. Because the siting process for many, but not all air pollution sources involves permitting by local air districts, there is an opportunity for interagency coordination where the proposed location might pose a problem. To enhance the evaluation process from a land use perspective, section 4 includes recommended project related questions to help screen for potential proximity related issues.

Unlike industrial and other stationary sources of air pollution, the siting of new homes or day care centers does not require an air quality permit. Because these situations fall outside the air quality permitting process, it is especially important that land use agencies be aware of potential air pollution impacts.

The following recommendations address the issue of siting "sensitive land uses" near specific sources of air pollution; namely:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

The recommendations for each category include a summary of key information and guidance on what to avoid from a public health perspective.

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses).

We are characterizing sensitive land uses as simply as we can by using the example of residences, schools, day care centers, playgrounds, and medical facilities. However, a variety of facilities are encompassed. For example, residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.

In developing these recommendations, ARB first considered the adequacy of the data available for each air pollution source category. We assessed whether we could generally characterize the relative exposure and health risk from a proximity standpoint. The documented non-cancer health risks include triggering of asthma attacks, heart attacks, and increases in daily mortality and hospitalization for heart and respiratory diseases. These health impacts are well documented in epidemiological studies, but less easy to quantify from a particular air pollution source. Therefore, the cancer health impacts are used in this document to provide a picture of relative risk. This screening process provided the list of source categories we were able to address with specific recommendations. In evaluating the available information, we also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. Due to the large variability in relative risk between the source categories, we chose not to apply a uniform, quantified risk threshold as is typically done in regulatory programs. Therefore, in the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Additionally, because this guidance is not regulatory or binding on local agencies, we took a more qualitative approach to developing distance based recommendations.

Where possible, we recommend a minimum separation between new sensitive land uses and existing sources. However, this is not always possible, particularly where there is an elevated health risk over large geographical areas. Areas downwind of ports and rail yards are prime examples. In such cases, we recommend doing everything possible to avoid locating sensitive receptors within the highest risk zones. Concurrently, air agencies and others will be working to reduce the overall risk through controls and measures within their scope of authority.

The recommendations were developed from the standpoint of siting new sensitive land uses. Project-specific data for new and existing air pollution sources are available as part of the air quality permitting process. Where such information is available, it should be used. Our recommendations are designed to fill a gap where information about existing facilities may not be readily available. These recommendations are only guidelines and are not designed to substitute for more specific information if it exists.

A summary of our recommendations is shown in Table 1-1. The basis and references[1] supporting each of these recommendations, including health studies, air quality modeling and monitoring studies is discussed below beginning with freeways and summarized in Table 1-2. As new information becomes available, it will be included on ARB's community health web page.

[1]Detailed information on these references are available on ARB's website at: http://www.ARB.ca.gov/ch/landuse.htm.

Table 1-1

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

*Notes:

- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in Table 1-2.

Table 1-2

Summary of Basis for Advisory Recommendations

Source Category	Range of Relative Cancer Risk[1,2]	Summary of Basis for Advisory Recommendations
Freeways and High-Traffic Roads	300 – 1,700	• In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70% drop off in particulate pollution levels at 500 feet.
Distribution Centers[3]	Up to 500	• Because ARB regulations will restrict truck idling at distribution centers, transport refrigeration unit (TRU) operations are the largest onsite diesel PM emission source followed by truck travel in and out of distribution centers. • Based on ARB and South Coast District emissions and modeling analyses, we estimate an 80 percent drop-off in pollutant concentrations at approximately 1,000 feet from a distribution center.
Rail Yards	Up to 500	• The air quality modeling conducted for the Roseville Rail Yard Study predicted the highest impact is within 1,000 feet of the Yard, and is associated with service and maintenance activities. The next highest impact is between a half to one mile of the Yard, depending on wind direction and intensity.
Ports	Studies underway	• ARB will evaluate the impacts of ports and develop a new comprehensive plan that will describe the steps needed to reduce public health impacts from port and rail activities in California. In the interim, a general advisory is appropriate based on the magnitude of diesel PM emissions associated with ports.
Refineries	Under 10	• Risk assessments conducted at California refineries show risks from air toxics to be under 10 chances of cancer per million.[4] • Distance recommendations were based on the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, particularly during non-routine emissions releases.
Chrome Platers	10-100	• ARB modeling and monitoring studies show localized risk of hexavalent chromium diminishing significantly at 300 feet. There are data limitations in both the modeling and monitoring studies. These include variability of plating activities and uncertainty of emissions such as fugitive dust. Hexavalent chromium is one of the most potent toxic air contaminants. Considering these factors, a distance of 1,000 feet was used as a precautionary measure.
Dry Cleaners Using Perchloro-ethylene (perc)	15-150	• Local air district studies indicate that individual cancer risk can be reduced by as much as 75 percent by establishing a 300 foot separation between a sensitive land use and a one-machine perc dry cleaning operation. For larger operations (2 machines or more), a separation of 500 feet can reduce risk by over 85 percent.

Source Category	Range of Relative Cancer Risk[1,2]	Summary of Basis for Advisory Recommendations
Gasoline Dispensing Facilities (GDF)[5]	Typical GDF: Less than 10 Large GDF: Between Less than 10 and 120	• Based on the CAPCOA Gasoline Service Station Industry-wide Risk Assessment Guidelines, most typical GDFs (less than 3.6 million gallons per year) have a risk of less than 10 at 50 feet under urban air dispersion conditions. Over the last few years, there has been a growing number of extremely large GDFs with sales over 3.6 and as high as 19 million gallons per year. Under rural air dispersion conditions, these large GDFs can pose a larger risk at a greater distance.

[1]For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g., 10 chances in a million).

[2]The estimated cancer risks are a function of the proximity to the specific category and were calculated independent of the regional health risk from air pollution. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 in a million.

[3]Analysis based on refrigerator trucks.

[4]Although risk assessments performed by refineries indicate they represent a low cancer risk, there is limited data on non-cancer effects of pollutants that are emitted from these facilities. Refineries are also a source of non-routine emissions and odors.

[5]A typical GDF in California dispenses under 3.6 million gallons of gasoline per year. The cancer risk for this size facility is likely to be less than 10 in a million at the fence line under urban air dispersion conditions.

A large GDF has fuel throughputs that can range from 3.6 to 19 million gallons of gasoline per year. The upper end of the risk range (i.e., 120 in a million) represents a hypothetical worst case scenario for an extremely large GDF under rural air dispersion conditions.

Freeways and High Traffic Roads

Air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. Many of these epidemiological studies have focused on children. A number of studies identify an association between adverse non-cancer health effects and living or attending school near heavily traveled roadways (see findings below). These studies have reported associations between residential proximity to high traffic roadways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children.

One such study that found an association between traffic and respiratory symptoms in children was conducted in the San Francisco Bay Area. Measurements of traffic-related pollutants showed concentrations within 300 meters (approximately 1,000 feet) downwind of freeways were higher than regional values. Most other studies have assessed exposure based on proximity factors such as distance to freeways or traffic density.

These studies linking traffic emissions with health impacts build on a wealth of data on the adverse health effects of ambient air pollution. The data on the effects of proximity to traffic-related emissions provides additional information that can be used in land use siting and regulatory actions by air agencies. The key observation in these studies is that close proximity increases both exposure and the potential for adverse health effects. Other effects associated with traffic emissions include premature death in elderly individuals with heart disease.

Key Health Findings

- Reduced lung function in children was associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet. (Brunekreef, 1997)
- Increased asthma hospitalizations were associated with living within 650 feet of heavy traffic and heavy truck volume. (Lin, 2000)
- Asthma symptoms increased with proximity to roadways and the risk was greatest within 300 feet. (Venn, 2001)
- Asthma and bronchitis symptoms in children were associated with proximity to high traffic in a San Francisco Bay Area community with good overall regional air quality. (Kim, 2004)
- A San Diego study found increased medical visits in children living within 550 feet of heavy traffic. (English, 1999)

In these and other proximity studies, the distance from the roadway and truck traffic densities were key factors affecting the strength of the association with adverse health effects. In the above health studies, the association of traffic-related emissions with adverse health effects was seen within 1,000 feet and was

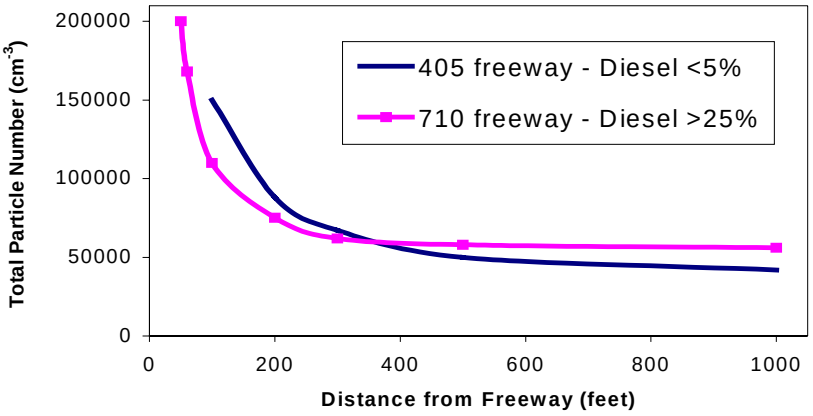
strongest within 300 feet. This demonstrates that the adverse effects diminished with distance.

In addition to the respiratory health effects in children, proximity to freeways increases potential cancer risk and contributes to total particulate matter exposure. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risk from motor vehicle traffic – diesel particulate matter (diesel PM) from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000-20,000/day), diesel PM represents about 70 percent of the potential cancer risk from the vehicle traffic. Diesel particulate emissions are also of special concern because health studies show an association between particulate matter and premature mortality in those with existing cardiovascular disease.

Distance Related Findings

A southern California study (Zhu, 2002) showed measured concentrations of vehicle-related pollutants, including ultra-fine particles, decreased dramatically within approximately 300 feet of the 710 and 405 freeways. Another study looked at the validity of using distance from a roadway as a measure of exposure

Figure 1-1
Decrease In Concentration of Freeway Diesel PM Emissions With Distance



to traffic related air pollution (Knape, 1999). This study showed that concentrations of traffic related pollutants declined with distance from the road, primarily in the first 500 feet.

These findings are consistent with air quality modeling and risk analyses done by ARB staff that show an estimated range of potential cancer risk that decreases with distance from freeways. The estimated risk varies with the local meteorology, including wind pattern. As an example, at 300 feet downwind from a freeway (Interstate 80) with truck traffic of 10,000 trucks per day, the potential cancer risk was as high as 100 in one million (ARB Roseville Rail Yard Study). The cancer health risk at 300 feet on the upwind side of the freeway was much

less. The risk at that distance for other freeways will vary based on local conditions – it may be higher or lower. However, in all these analyses the relative exposure and health risk dropped substantially within the first 300 feet. This phenomenon is illustrated in Figure 1-1.

State law restricts the siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles with some exceptions.[2] However, no such requirements apply to the siting of residences, day care centers, playgrounds, or medical facilities. The available data show that exposure is greatly reduced at approximately 300 feet. In the traffic-related studies the additional health risk attributable to the proximity effect was strongest within 1,000 feet.

The combination of the children's health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation.

The impact of traffic emissions is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. As air agencies work to reduce the underlying regional health risk from diesel PM and other pollutants, the impact of proximity will also be reduced. In the meantime, as a preventative measure, we hope to avoid exposing more children and other vulnerable individuals to the highest concentrations of traffic-related emissions.

Recommendation

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.

References

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- Lin, S. et al. *"Childhood asthma hospitalization and residential exposure to state route traffic."* Environ Res. 2002;88:73-81
- Venn. et al. *"Living near a main road and the risk of wheezing illness in children."* American Journal of Respiratory and Critical Care Medicine. 2001; Vol.164, pp. 2177-2180
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[2] Section 17213 of the California Education Code and section 21151.8 of the California Public Resources Code. See also Appendix E for a description of special processes that apply to school siting.

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- *ARB Diesel Risk Reduction Plan.* (2000)
- Delfino RJ *"Epidemiologic Evidence for Asthma and Exposure to Air Toxics: Linkages Between Occupational, Indoor, and Community Air Pollution Research."* Environmental Health Perspectives. (2002) 110 (supplement 4): 573-589
- English P., Neutra R., Scalf R. Sullivan M. Waller L. Zhu L. *"Examining Associations Between Childhood Asthma and Traffic Flow Using a Geographic Information System*." (1999) Environmental Health Perspectives 107(9): 761-767

Distribution Centers

Distribution centers or warehouses are facilities that serve as a distribution point for the transfer of goods. Such facilities include cold storage warehouses, goods transfer facilities, and inter-modal facilities such as ports. These operations involve trucks, trailers, shipping containers, and other equipment with diesel engines. A distribution center can be comprised of multiple centers or warehouses within an area. The size can range from several to hundreds of acres, involving a number of different transfer operations and long waiting periods. A distribution center can accommodate hundreds of diesel trucks a day that deliver, load, and/or unload goods up to seven days a week. To the extent that these trucks are transporting perishable goods, they are equipped with diesel-powered transport refrigeration units (TRUs) or TRU generator sets.

The activities associated with delivering, storing, and loading freight produces diesel PM emissions. Although TRUs have relatively small diesel-powered engines, in the normal course of business, their emissions can pose a significant health risk to those nearby. In addition to onsite emissions, truck travel in and out of distribution centers contributes to the local pollution impact.

ARB is working to reduce diesel PM emissions through regulations, financial incentives, and enforcement programs. In 2004, ARB adopted two airborne toxic control measures that will reduce diesel PM emissions associated with distribution centers. The first will limit nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than five minutes at any one location.[3] The elimination of unnecessary idling will reduce the localized impacts caused by diesel PM and other air toxics

[3] For further information on the Anti-Idling ATCM, please click on: http://www.arb.ca.gov/toxics/idling/outreach/factsheet.pdf

in diesel vehicle exhaust. This should be a very effective new strategy for reducing diesel PM emissions at distribution centers as well as other locations.

The second measure requires that TRUs operating in California become cleaner over time. The measure establishes in-use performance standards for existing TRU engines that operate in California, including out-of-state TRUs. The requirements are phased-in beginning in 2008, and extend to 2019.[4]

ARB also operates a smoke inspection program for heavy-duty diesel trucks that focuses on reducing truck emissions in California communities. Areas with large numbers of distribution centers are a high priority.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

Although distribution centers are located throughout the state, they are usually clustered near transportation corridors, and are often located in or near population centers. Diesel PM emissions from associated delivery truck traffic and TRUs at these facilities may result in elevated diesel PM concentrations in neighborhoods surrounding those sites. Because ARB regulations will restrict truck idling at distribution centers, the largest continuing onsite diesel PM emission source is the operation of TRUs. Truck travel in and out of distribution centers also contributes to localized exposures, but specific travel patterns and truck volumes would be needed to identify the exact locations of the highest concentrations.

As part of the development of ARB's regulation for TRUs, ARB staff performed air quality modeling to estimate exposure and the associated potential cancer risk of onsite TRUs for a typical distribution center. For an individual person, cancer risk estimates for air pollution are commonly expressed as a probability of developing cancer from a lifetime (i.e., 70 years) of exposure. These risks were calculated independent of regional risk. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 additional cancer cases per one million population.

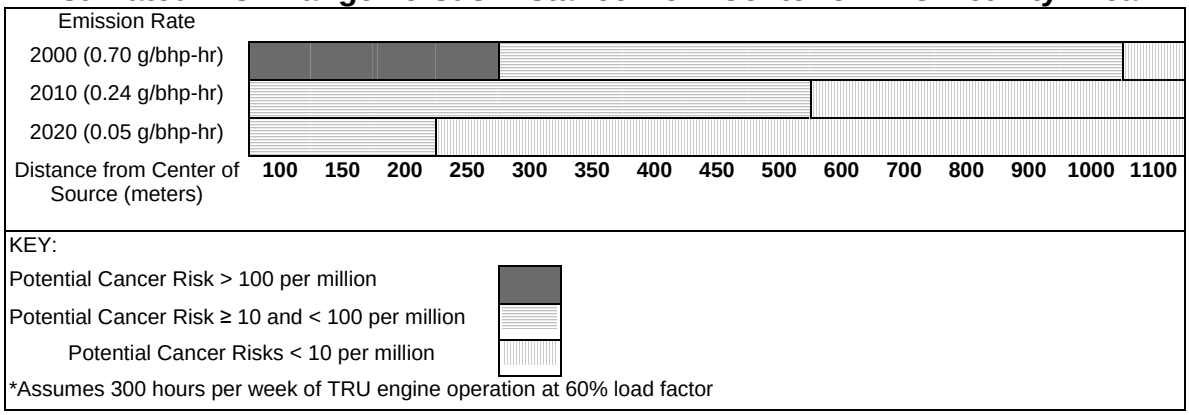
[4] For further information on the Transport Refrigeration Unit ATCM, please click on: http://www.arb.ca.gov/diesel/documents/trufaq.pdf

The diesel PM emissions from a facility are dependent on the size (horsepower), age, and number of engines, emission rates, the number of hours the truck engines and/or TRUs operate, distance, and meteorological conditions at the site. This assessment assumes a total on-site operating time for all TRUs of 300 hours per week. This would be the equivalent of 40 TRU-equipped trucks a day, each loading or unloading on-site for one hour, 12 hours a day and seven days a week.

As shown in Figure 1-2 below, at this estimated level of activity and assuming a current fleet diesel PM emission rate, the potential cancer risk would be over 100 in a million at 800 feet from the center of the TRU activity. The estimated potential cancer risk would be in the 10 to 100 per million range between 800 to 3,300 feet and fall off to less than 10 per million at approximately 3,600 feet. However with the implementation of ARB's regulation on TRUs, the risk will be significantly reduced.[5] We have not conducted a risk assessment for distribution centers based on truck traffic alone, but on an emissions basis, we would expect similar risks for a facility with truck volumes in the range of 100 per day.

Figure 1-2

Estimated Risk Range versus Distance from Center of TRU Activity Area*

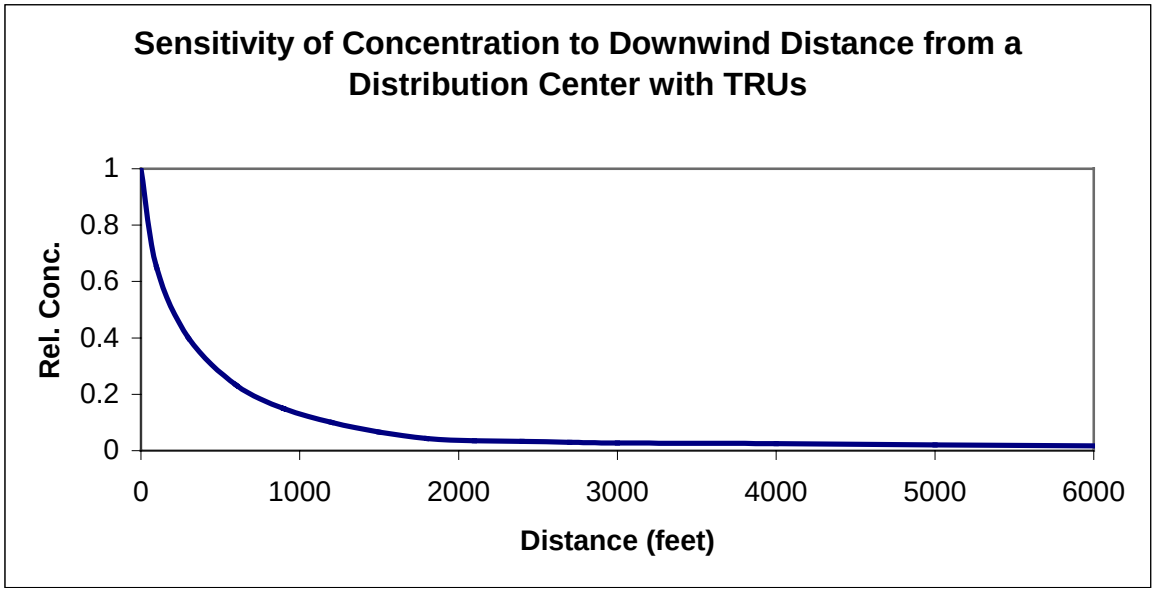


The estimated potential cancer risk level in Figure 1-2 is based on a number of assumptions that may not reflect actual conditions for a specific site. For example, increasing or decreasing the hours of diesel engine operations would change the potential risk levels. Meteorological and other facility specific parameters can also impact the results. Therefore, the results presented here are not directly applicable to any particular facility or operation. Rather, this information is intended to provide an indication as to the potential relative levels of risk that may be observed from operations at distribution centers. As shown in Figure 1-2, the estimated risk levels will decrease over time as lower-emitting diesel engines are used.

[5] These risk values assume an exposure duration of 70 years for a nearby resident and uses the methodology specified in the 2003 OEHHA health risk assessment guidelines.

Another air modeling analysis, performed by the South Coast Air Quality Management District (South Coast AQMD), evaluated the impact of diesel PM emissions from distribution center operations in the community of Mira Loma in southern California. Based on dispersion of diesel PM emissions from a large distribution center, Figure 1-3 shows the relative pollution concentrations at varying distances downwind. As Figure 1-3 shows, there is about an 80 percent drop off in concentration at approximately 1,000 feet.

Figure 1-3
Decrease In Relative Concentration of Risk
With Distance



Both the ARB and the South Coast AQMD analyses indicate that providing a separation of 1,000 feet would substantially reduce diesel PM concentrations and public exposure downwind of a distribution center. While these analyses do not provide specific risk estimates for distribution centers, they provide an indication of the range of risk and the benefits of providing a separation. ARB recommends a separation of 1,000 feet based on the combination of risk analysis done for TRUs and the decrease in exposure predicted with the South Coast AQMD modeling. However, ARB staff plans to provide further information on distribution centers as we collect more data and implement the TRU control measure.

Taking into account the configuration of distribution centers can also reduce population exposure and risk. For example, locating new sensitive land uses away from the main entry and exit points helps to reduce cancer risk and other health impacts.

Recommendations

- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where TRU unit operations exceed 300 hours per week).

- Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

References

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- *Revised Staff Report: Initial Statement of Reasons for Proposed Rulemaking. Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate.* ARB (October 28, 2003). http://www.arb.ca.gov/regact/trude03/revisor.doc

- *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis.* SCAQMD (August 2003) http://www.aqmd.gov/ceqa/handbook/diesel_analysis.doc

- *"Mira Loma Study: Analysis of the Impact of Diesel Particulate Emissions from Warehouse/Distribution Center Operations",* PowerPoint presentation. SCAQMD (July 31, 2002)

Rail Yards

Rail yards are a major source of diesel particulate air pollution. They are usually located near inter-modal facilities, which attract heavy truck traffic, and are often sited in mixed industrial and residential areas. ARB, working with the Placer County air district and Union Pacific Railroad, recently completed a study[6] of the Roseville Rail Yard (Yard) in northern California that focused on the health risk from diesel particulate. A comprehensive emissions analysis and air quality modeling were conducted to characterize the estimated potential cancer risk associated with the facility.

[6] To review the study, please click on: http://www.arb.ca.gov/diesel/documents/rrstudy.htm

The Yard encompasses about 950 acres on a one-quarter mile wide by four-mile long strip of land that parallels Interstate 80. It is surrounded by commercial, industrial, and residential properties. The Yard is one of the largest service and maintenance rail yards in the West with over 30,000 locomotives visiting annually.

Using data provided by Union Pacific Railroad, the ARB determined the number and type of locomotives visiting the Yard annually and what those locomotives were doing - moving, idling, or undergoing maintenance testing. Union Pacific provided the annual, monthly, daily, and hourly locomotive activity in the yard including locomotive movements; routes for arrival, departure, and through trains; and locomotive service and testing. This information was used to estimate the emissions of particulate matter from the locomotives, which was then used to model the potential impacts on the surrounding community.

The key findings of the study are:

- Diesel PM emissions in 2000 from locomotive operations at the Roseville Yard were estimated at about 25 tons per year.

- Of the total diesel PM in the Yard, moving locomotives accounted for about 50 percent, idling locomotives about 45 percent, and locomotive testing about five percent.

- Air quality modeling predicts potential cancer risks greater than 500 in a million (based on 70 years of exposure) in a 10-40 acre area immediately adjacent to the Yard's maintenance operations.

- The risk assessment also showed elevated cancer risk impacting a larger area covering about a 10 by 10 mile area around the Yard.

The elevated concentrations of diesel PM found in the study contribute to an increased risk of cancer and premature death due to cardiovascular disease, and non-cancer health effects such as asthma and other respiratory illnesses. The magnitude of the risk, the general location, and the size of the impacted area depended on the meteorological data used to characterize conditions at the Yard, the dispersion characteristics, and exposure assumptions. In addition to these variables, the nature of locomotive activity will influence a risk characterization at a particular rail yard. For these reasons, the quantified risk estimates in the Roseville Rail Yard Study cannot be directly applied to other rail yards. However, the study does indicate the health risk due to diesel PM from rail yards needs to be addressed. ARB, in conjunction with the U.S. Environmental Protection Agency (U.S. EPA), and local air districts, is working with the rail industry to identify and implement short term, mid-term and long-term mitigation strategies. ARB also intends to conduct a second rail study in southern California to increase its understanding of rail yard operations and the associated public health impacts.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

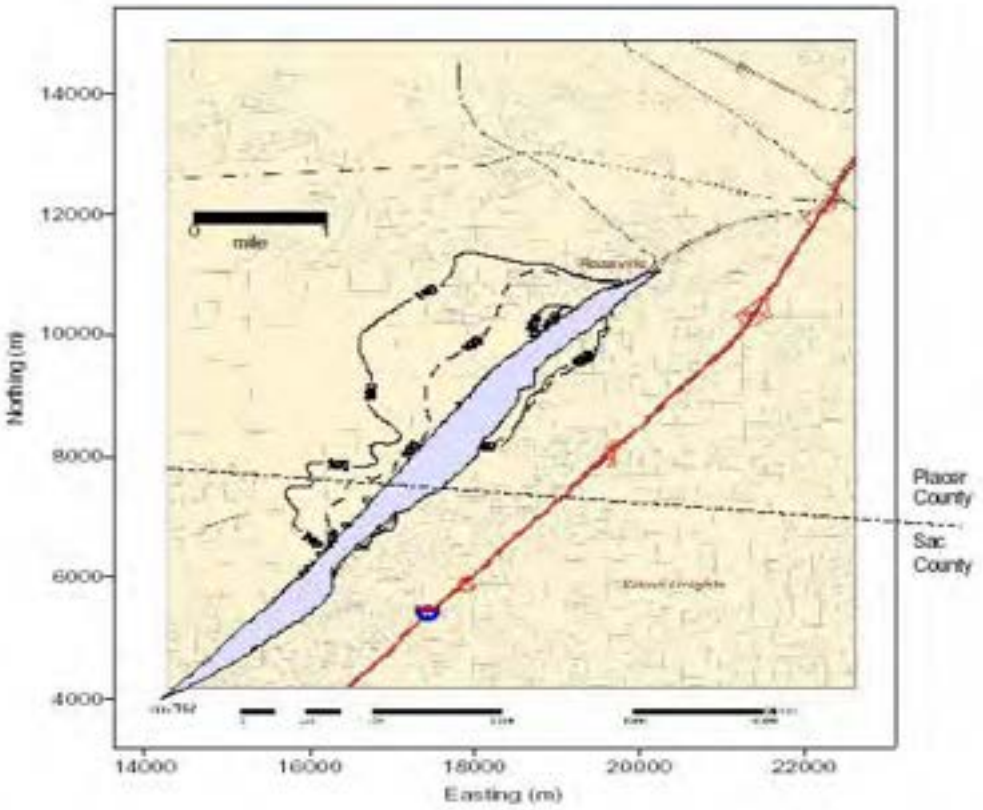
Two sets of meteorological data were used in the Roseville study because of technical limitations in the data. The size of the impact area was highly dependent on the meteorological data set used. The predicted highest impact area ranged from 10 - 40 acres with the two different meteorological data sets. This area, with risks estimated above 500 in a million, is adjacent to an area that includes a maintenance shop (see Figure 1-4). The high concentration of diesel PM emissions is due to the number of locomotives and nature of activities in this area, particularly idling locomotives.

The area of highest impact is within 1,000 feet of the Yard. The next highest impact zone as defined in the report had a predicted risk between 500 and 100 in one million and extends out between a half to one mile in some spots, depending on which meteorological conditions were assumed. The impact areas are irregular in shape making it difficult to generalize about the impact of distance at a particular location. However, the Roseville Rail Yard Study clearly indicates that the localized health risk is high, the impact area is large, and mitigation of the locomotive diesel PM emissions is needed.

For facilities like rail yards and ports, the potential impact area is so large that the real solution is to substantially reduce facility emissions. However, land use planners can avoid encroaching upon existing rail facilities and those scheduled for expansion. We also recommend that while air agencies tackle this problem, land use planners try not to add new sensitive individuals into the highest exposure areas. Finally, we recommend that land use agencies consider the potential health impacts of rail yards in their planning and permitting processes. Additional limitations and mitigation may be feasible to further reduce exposure on a site-specific basis.

Figure 1-4

Estimated Cancer Risk from the Yard
(100 and 500 in a million risk isopleths)



Notes: 100/Million Contours: Solid Line – Roseville Met Data; Dashed Line-McClellan Met Data, Urban Dispersion Coefficients, 80th Percentile Breathing Rate, All Locomotives' Activities (23 TPY), 70-Year Exposure

Recommendation

- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard[7].

- Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.

References

- *Roseville Rail Yard Study.* ARB (2004)

[7] The rail yard risk analysis was conducted for the Union Pacific rail yard in Roseville, California. This rail yard is one of the largest in the state. There are other rail yards in California with comparable levels of activity that should be considered "major" for purposes of this Handbook.

Ports

Air pollution from maritime port activities is a growing concern for regional air quality as well as air quality in nearby communities. The primary air pollutant associated with port operations is directly emitted diesel particulate. Port-related activities also result in emissions that form ozone and secondary particulate in the atmosphere. The emission sources associated with ports include diesel engine-powered ocean-going ships, harbor craft, cargo handling equipment, trucks, and locomotives. The size and concentration of these diesel engines makes ports one of the biggest sources of diesel PM in the state. For that reason, ARB has made it a top priority to reduce diesel PM emissions at the ports, in surrounding communities, and throughout California.

International, national, state, and local government collaboration is critical to reducing port emissions based on both legal and practical considerations. For example, the International Maritime Organization (IMO) and the U.S. EPA establish emission standards for ocean-going vessels and U.S.-flagged harbor craft, respectively. ARB is pursuing further federal actions to tighten these standards. In addition, ARB and local air districts are reducing emissions from ports through a variety of approaches. These include: incentive programs to fund cleaner engines, enhanced enforcement of smoke emissions from ships and trucks, use of dockside electricity instead of diesel engines, cleaner fuels for ships, harbor craft, locomotives, and reduced engine idling. The two ATCMs that limit truck idling and reduce emissions from TRUs (discussed under “Distribution Centers”) also apply to ports.

ARB is also developing several other regulations that will reduce port-related emissions. One rule would require ocean-going ships to use a cleaner marine diesel fuel to power auxiliary engines while in California coastal waters and at dock. Ships that frequently visit California ports would also be required to further reduce their emissions. ARB has adopted a rule that would require harbor craft to use the same cleaner diesel fuel used by on-road trucks in California. In 2005, ARB will consider a rule that would require additional controls for in-use harbor craft, such as the use of add-on emission controls and accelerated turnover of older engines.

Key Health Findings

Port activities are a major source of diesel PM. Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

The Ports of Los Angeles and Long Beach provide an example of the emissions impact of port operations. A comprehensive emissions inventory was completed in June 2004. These ports combined are one of the world's largest and busiest seaports. Located in San Pedro Bay, about 20 miles south of downtown Los Angeles, the port complex occupies approximately 16 square miles of land and water. Port activities include five source categories that produce diesel emissions. These are ocean-going vessels, harbor craft, cargo handling equipment, railroad locomotives, and heavy-duty trucks.

The baseline emission inventory provides emission estimates for all major air pollutants. This analysis focuses on diesel PM from in-port activity because these emissions have the most potential health impact on the areas adjacent to the port. Ocean vessels are the largest overall source of diesel PM related to the ports, but these emissions occur primarily outside of the port in coastal waters, making the impact more regional in nature.

The overall in-port emission inventory for diesel particulate for the ports of Los Angeles and Long Beach is estimated to be 550 tons per year. The emissions fall in the following major categories: ocean-going vessels (17%), harbor craft (25%), cargo handling (47%), railroad locomotive (3%), and heavy duty vehicles (8%). In addition to in-port emissions, ship, rail, and trucking activities also contribute to regional emissions and increase emissions in nearby neighborhoods. Off-port emissions associated with related ship, rail, and trucking activities contribute an additional 680 tons per year of diesel particulate at the Port of Los Angeles alone.

To put this in perspective, the diesel PM emissions estimated for the Roseville Yard in ARB's 2004 study are 25 tons per year. The potential cancer risk associated with these emissions is 100 in one million at a distance of one mile, or one half mile, depending on the data set used. This rail yard covers one and a half square miles. The Los Angeles and Long Beach ports have combined diesel PM emissions of 550 tons per year emitted from a facility that covers a much larger area - 16 miles. The ports have about twice the emission density of the rail yard - 34 tons per year per square mile compared to 16 tons per year per square mile. However, while this general comparison is illustrative of the overall size of the complex, a detailed air quality modeling analysis would be needed to assess the potential health impact on specific downwind areas near the ports.

ARB is in the process of evaluating the various port-related emission sources from the standpoint of existing emissions, growth forecasts, new control options, regional air quality impacts, and localized health risk. A number of public processes - both state and local - are underway to address various aspects of these issues. Until more of these analyses are complete, there is little basis for recommending a specific separation between new sensitive land uses and ports.

For example, the type of data we have showing the relationship between air pollutant concentrations and distance from freeways is not yet available.

Also, the complexity of the port facilities makes a site-specific analysis critical. Ports are a concentration of multiple emission sources with differing dispersion and other characteristics. In the case of the Roseville rail yard, we found a high, very localized impact associated with a particular activity, service and maintenance. By contrast, the location, size, and nature of impact areas can be expected to vary substantially for different port activities. For instance, ground level emissions from dockside activities would behave differently from ship stack level emissions.

Nonetheless, on an emissions basis alone, we expect locations downwind of ports to be substantially impacted. For that reason, we recommend that land use agencies track the current assessment efforts, and consider limitations on the siting of new sensitive land uses in areas immediately downwind of ports.

Recommendations

Avoid siting new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.

References

- *Roseville Rail Yard Study.* ARB (2004)
- Final Draft, "*Port-Wide Baseline Air Emissions Inventory."* Port of Los Angeles (June 2004)
- Final Draft, "*2002 Baseline Air Emissions Inventory."* Port of Long Beach (February 2004)

Petroleum Refineries

A petroleum refinery is a complex facility where crude oil is converted into petroleum products (primarily gasoline, diesel fuel, and jet fuel), which are then transported through a system of pipelines and storage tanks for final distribution by delivery truck to fueling facilities throughout the state. In California, most crude oil is delivered either by ship from Alaska or foreign sources, or is delivered via pipeline from oil production fields within the state. The crude oil then undergoes many complex chemical and physical reactions, which include distillation, catalytic cracking, reforming, and finishing. These refining processes have the potential to emit air contaminants, and are subject to extensive emission controls by district regulations.

As a result of these regulations covering the production, marketing, and use of gasoline and other oil by-products, California has seen significant regional air quality benefits both in terms of cleaner fuels and cleaner operating facilities. In

the 1990s, California refineries underwent significant modifications and modernization to produce cleaner fuels in response to changes in state law. Nevertheless, while residual emissions are small when compared to the total emissions controlled from these major sources, refineries are so large that even small amounts of fugitive, uncontrollable emissions and associated odors from the operations, can be significant. This is particularly the case for communities that may be directly downwind of the refinery. Odors can cause health symptoms such as nausea and headache. Also, because of the size, complexity, and vast numbers of refinery processes onsite, the occasional refinery upset or malfunction can potentially result in acute or short-term health effects to exposed individuals.

Key Health Findings

Petroleum refineries are large single sources of emissions. For volatile organic compounds (VOCs), eight of the ten largest stationary sources in California are petroleum refineries. For oxides of nitrogen (NOx), four of the ten largest stationary sources in California are petroleum refineries. Both of these compounds react in the presence of sunlight to form ozone. Ozone impacts lung function by irritating and damaging the respiratory system. Petroleum refineries are also large stationary sources of both particulate matter under 10 microns in size (PM_{10}) and particulate matter under 2.5 microns in size ($PM_{2.5}$). Exposure to particulate matter aggravates a number of respiratory illnesses, including asthma, and is associated with premature mortality in people with existing cardiac and respiratory disease. Both long-term and short-term exposure can have adverse health impacts. Finer particles pose an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health. NOx are also significant contributors to the secondary formation of $PM_{2.5}$.

Petroleum refineries also emit a variety of toxic air pollutants. These air toxics vary by facility and process operation but may include: acetaldehyde, arsenic, antimony, benzene, beryllium, 1,3-butadiene, cadmium compounds, carbonyl sulfide, carbon disulfide, chlorine, dibenzofurans, diesel particulate matter, formaldehyde, hexane, hydrogen chloride, lead compounds, mercury compounds, nickel compounds, phenol, 2,3,7,8 tetrachlorodibenzo-p-dioxin, toluene, and xylenes (mixed) among others. The potential health effects associated with these air toxics can include cancer, respiratory irritation, and damage to the central nervous system, depending on exposure levels.

Distance Related Findings

Health risk assessments for petroleum refineries have shown risks from toxic air pollutants that have quantifiable health risk values to be around 10 potential cancer cases per million. Routine air monitoring and several air monitoring studies conducted in the San Francisco Bay Area (Crockett) and the South Coast Air Basin (Wilmington) have not identified significant health risks specifically

associated with refineries. However, these studies did not measure diesel PM as no accepted method currently exists, and there are many toxic air pollutants that do not have quantifiable health risk values.

In 2002, ARB published a report on the results of the state and local air district air monitoring done near oil refineries. The purpose of this evaluation was to try to determine how refinery-related emissions might impact nearby communities. This inventory of air monitoring activities included 10 ambient air monitoring stations located near refineries in Crockett and four stations near refineries in Wilmington. These monitoring results did not identify significant increased health risks associated with the petroleum refineries. In 2002-2003, ARB conducted additional monitoring studies in communities downwind of refineries in Crockett and Wilmington. These monitoring results also did not indicate significant increased health risks from the petroleum refineries.

Consequently, there are no air quality modeling or air monitoring data that provides a quantifiable basis for recommending a specific separation between refineries and new sensitive land uses. However, in view of the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, we believe the siting of new sensitive land uses immediately downwind should be avoided. Land use agencies should consult with the local air district when considering how to define an appropriate separation for refineries within their jurisdiction.

Recommendations

- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.

References

- *Review of Current Ambient Air Monitoring Activities Related to California Bay Area and South Coast Refineries. ARB (March 2002)* http://www.arb.ca.gov/aaqm/qmosqual/special/mldrefinery.pdf
- *Community Air Quality Monitoring: Special Studies – Crockett. ARB (September 2004)* http://www.arb.ca.gov/ch/communities/studies/crockett/crockett.htm
- *Wilmington Study - Air Monitoring Results. ARB (2003)* http://www.arb.ca.gov/ch/communities/studies/wilmington/wilmington.htm

Chrome Plating Operations

Chrome plating operations rely on the use of the toxic metal hexavalent chromium, and have been subject to ARB and local air district control programs for many years. Regulation of chrome plating operations has reduced statewide emissions substantially. However, due to the nature of chrome plating

operations and the highly toxic nature of hexavalent chromium, the remaining health risk to nearby residents is a continuing concern.

Chrome plating operations convert hexavalent chromium in solution to a chromium metal layer by electroplating, and are categorized based upon the thickness of the chromium metal layer applied. In “decorative plating”, a layer of nickel is first plated over a metal substrate. Following this step, a thin layer of chromium is deposited over the nickel layer to provide a decorative and protective finish, for example, on faucets and automotive wheels. “Hard chrome plating” is a process in which a thicker layer of chromium metal is deposited directly on metal substrates such as engine parts, industrial machinery, and tools to provide greater protection against corrosion and wear.

Hexavalent chromium is emitted into the air when an electric current is applied to the plating bath. Emissions are dependent upon the amount of electroplating done per year and the control requirements. A unit of production referred to as an ampere-hour represents the amount of electroplating produced. Small facilities have an annual production rate of 100,000 – 500,000 ampere-hours, while medium-size facilities may have a production rate of 500,000 to about 3 million ampere-hours. The remaining larger facilities have a range of production rates that can be as high as 80 million ampere-hours.

The control requirements, which reduce emissions from the plating tanks, vary according to the size and type of the operation. Facilities either install add-on pollution control equipment, such as filters and scrubbers, or in-tank controls, such as fume suppressants and polyballs. With this combination of controls, the overall hexavalent chromium emissions have been reduced by over 90 percent. Larger facilities typically have better controls that can achieve efficiencies greater than 99 percent. However, even with stringent controls, the lack of maintenance and good housekeeping practices can lead to problems. And, since the material itself is inherently dangerous, any lapse in compliance poses a significant risk to nearby residents.

A 2002 ARB study in the San Diego community of Barrio Logan measured unexpectedly high concentrations of hexavalent chromium near chrome platers. The facilities were located in a mixed-use area with residences nearby. The study found that fugitive dust laden with hexavalent chromium was an important source of emissions that likely contributed to the elevated cancer risk. Largely as a result of this study, ARB is in the process of updating the current requirements to further reduce the emissions from these facilities.

In December 2004, the ARB adopted an ATCM to reduce emissions of hexavalent chromium and nickel from thermal spraying operations through the installation of best available control technology. The ATCM requires all existing facilities to comply with its requirements by January 1, 2006. New and modified thermal spraying operations must comply upon initial startup. An existing thermal spraying facility may be exempt from the minimum control efficiency

requirements of the ATCM if it is located at least 1,640 feet from the nearest sensitive receptor and emits no more than 0.5 pound per year of hexavalent chromium.[8]

Key Health Findings

Hexavalent chromium is one of the most toxic air pollutants regulated by the State of California. Hexavalent chromium is a carcinogen and has been identified in worker health studies as causing lung cancer. Exposure to even very low levels of hexavalent chromium should be avoided.

The California Office of Environmental Health Hazard Assessment has found that: 1) many epidemiological studies show a strong association between hexavalent chromium exposure in the work place and respiratory cancer; and 2) all short-term assays reported show that hexavalent chromium compounds can cause damage to human DNA.

Hexavalent chromium when inhaled over a period of many years can cause a variety of non-cancer health effects. These health effects include damage to the nose, blood disorders, lung disease, and kidney damage. The non-cancer health impacts occur with exposures considerably higher than exposures causing significant cancer risks. It is less likely that the public would be exposed to hexavalent chromium at levels high enough to cause these non-cancer health effects. Non-cancer health effects, unlike cancer health effects, have a threshold or exposure level below which non-cancer health effects would not be expected.

Distance Related Findings

ARB's 2002 Barrio Logan Study measured concentrations of hexavalent chromium in the air near two chrome plating facilities. The study was conducted from December 2001 to May 2002. There were two chrome platers on the street - one decorative and one hard plater. The purpose of the study was to better understand the near source impact of hexavalent chromium emissions. Air monitors were placed at residences next to the platers and at varying distances down the street. The monitors were moved periodically to look at the spatial distribution of the impact. Source testing and facility inspections identified one of the facilities as the likely source.

The first two weeks of monitoring results showed unexpectedly high levels of hexavalent chromium at a number of the monitoring sites. The high concentrations were intermittent. The concentrations ranged from 1 to 22 ng/m3 compared to the statewide average of 0.1 ng/m3. If these levels were to continue for 70 years, the potential cancer risk would be 150 in one million. The highest value was found at an air monitor behind a house adjacent to one of the

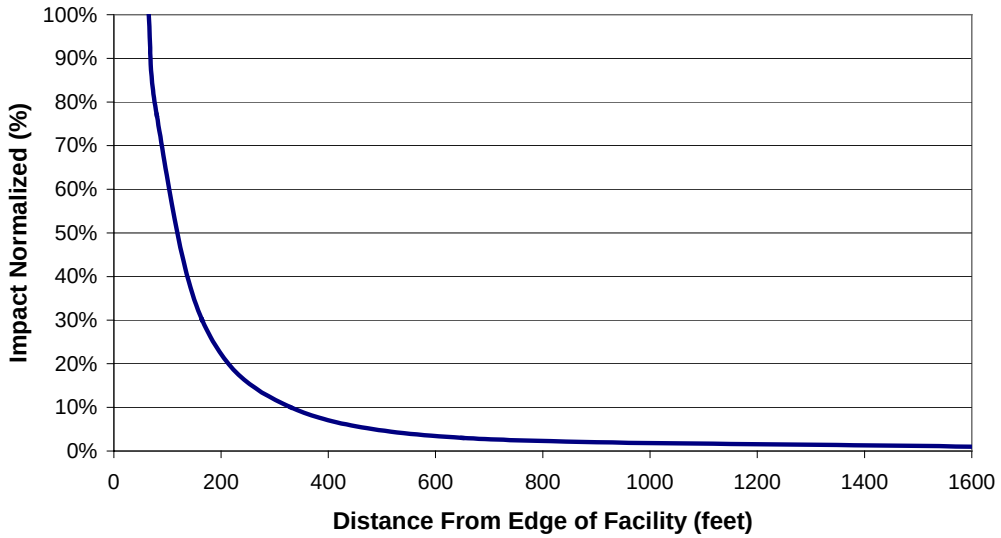
[8] For further information on the ATCM, please refer to: http://www.arb.ca.gov/regact/thermspr/thermalspr.htm

plating facilities–approximately 30 feet from the back entrance. Lower, but significant concentrations were found at an ambient air monitor 250 feet away.

The monitoring covered a period when the facility was not operating its plating tank. During this period, one of the highest concentrations was measured at an adjacent house. It appears that chromium-laden dust was responsible for high concentrations at this location since there was no plating activity at the time. Dust samples from the facility were tested and found to contain high levels of hexavalent chromium. On the day the highest concentration was measured at the house next door, a monitor 350 feet away from the plater's entrance showed very little impact. Similar proximity effects are shown in ARB modeling studies.

Figure 1-5 shows how the relative health risk varies as a function of distance from a chrome plater. This analysis is based on a medium-sized chrome plater with an annual production rate of 3 million ampere-hours. As shown in Figure 1- 5, the potential health risk drops off rapidly, with over 90 percent reduction in risk within 300 feet. This modeling was done in 2003 as part of a review of ARB's current air toxic control measure for chrome platers and is based on data from a recent ARB survey of chrome platers in California. The emission

Figure 1-5
Risk vs. Distance From Chrome Plater
(Based on plating tank emissions)



rates are only for plating operations. Because there are insufficient data available to directly quantify the impacts, the analysis does not include fugitive emissions, which the Barrio Logan analysis indicated could be significant.

Both the ARB Barrio Logan monitoring results and ARB's 2003 modeling analysis suggests that the localized emissions impact of a chrome plater diminishes significantly at 300 feet. However, in developing our recommendation, we also considered the following factors:

- some chrome platers will have higher volumes of plating activity,
- potential dust impacts were not modeled,
- we have only one monitoring study looking at the impact of distance, and,
- hexavalent chromium is one of the most potent toxic air contaminants ARB has identified.

Given these limitations in the analysis, we recommend a separation of 1,000 feet as a precautionary measure. For large chrome platers, site specific information should be obtained from the local air district.

Recommendation

- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.

References

- *Ambient Air Monitoring for Hexavalent Chromium and Metals in Barrio Logan: May 2001 through May 2002.* ARB, Monitoring and Laboratory Division (October 14, 2003)
- *Draft Barrio Logan Report.* ARB, Planning and Technical Support Division (November 2004)
- *Proposed Amendments to the Hexavalent Chromium Control Measure for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities.* ARB (April 1998)
- Murchison, Linda; Suer, Carolyn; Cook, Jeff. *"Neighborhood Scale Monitoring in Barrio Logan," (*AWMA Annual Conference Proceedings, June 2003)

Dry Cleaners Using Perchloroethylene (Perc Dry Cleaners)

Perchloroethylene (perc) is the solvent most commonly used by the dry cleaning industry to clean clothes or other materials. The ARB and other public health agencies have identified perc as a potential cancer-causing compound. Perc persists in the atmosphere long enough to contribute to both regional air pollution and localized exposures. Perc dry cleaners are the major source of perc emissions in California.

Since 1990, the statewide concentrations and health risk from exposure to perc has dropped over 70 percent. This is due to a number of regulatory requirements on perc dry cleaners and other sources, including degreasing operations, brake cleaners, and adhesives. ARB adopted an Airborne Toxic Control Measure (ATCM) for Perc Emissions from Dry Cleaning Operations in 1993. ARB has also prohibited the use of perc in aerosol adhesives and automotive brake cleaners.

Perc dry cleaners statewide are required to comply with ARB and local air district regulations to reduce emissions. However, even with these controls, some emissions continue to occur. Air quality studies indicate that there is still the potential for significant risks even near well-controlled dry cleaners. The South Coast AQMD has adopted a rule requiring that all new dry cleaners use alternatives to perc and that existing dry cleaners phase out the use of perc by December 2020. Over time, transition to non-toxic alternatives should occur. However, while perc continues to be used, a preventative approach should be taken to siting of new sensitive land uses.

Key Health Findings

Inhalation of perc may result in both cancer and non-cancer health effects. An assessment by California's Office of Environmental Health Hazard Assessment (OEHHA) concluded that perc is a potential human carcinogen and can cause non-cancer health effects. In addition to the potential cancer risk, the effects of long-term exposure include dizziness, impaired judgment and perception, and damage to the liver and kidneys. Workers have shown signs of liver toxicity following chronic exposure to perc, as well as kidney dysfunction and neurological effects. Non-cancer health effects occur with higher exposure levels than those associated with significant cancer risks. The public is more likely to be exposed to perchloroethylene at levels causing significant cancer risks than to levels causing non-cancer health effects. Non-cancer health effects, unlike cancer health effects, have a threshold or exposure level below which non-cancer health effects would not be expected. The ARB formally identified perc as a toxic air contaminant in October 1991.

One study has determined that inhalation of perc is the predominant route of exposure to infants living in apartments co-located in the same building with a business operating perc dry cleaning equipment. Results of air sampling within co-residential buildings indicate that dry cleaners can cause a wide range of exposures depending on the type and maintenance of the equipment. For example, a well-maintained state-of-the-art system may have risks in the range of 10 in one million, whereas a badly maintained machine with major leaks can have potential cancer risks of thousands in one million.

The California Air Pollution Control Officers Association (CAPCOA) is developing Industry-wide Risk Assessment Guidelines for Perchloroethylene Dry Cleaners which, when published, will provide detailed information on public health risk from exposure to emissions from this source.

Distance Related Findings

Risk created by perc dry cleaning is dependent on the amount of perc emissions, the type of dry cleaning equipment, proximity to the source, and how the emissions are released and dispersed (e.g., type of ventilation system, stack parameters, and local meteorology). Dry cleaners are often located near

residential areas, and near shopping centers, schools, day-care centers, and restaurants.

The vast majority of dry cleaners in California have one dry cleaning machine per facility. The South Coast AQMD estimates that an average well-controlled dry cleaner uses about 30 to 160 gallons of cleaning solvent per year, with an average of about 100 gallons. Based on these estimates, the South Coast AQMD estimates a potential cancer risk between 25 to 140 in one million at residential locations 75 feet or less from the dry cleaner, with an average of about 80 in one million. The estimate could be as high as 270 in one million for older machines.

CAPCOA's draft industry-wide risk assessment of perc dry cleaning operations indicates that the potential cancer risk for many dry cleaners may be in excess of potential cancer risk levels adopted by the local air districts. The draft document also indicates that, in general, the public's exposure can be reduced by at least 75 percent, by providing a separation distance of about 300 feet from the operation. This assessment is based on a single machine with perc use of about 100 gallons per year. At these distances, the potential cancer risk would be less than 10 potential cases per million for most scenarios.

The risk would be proportionately higher for large, industrial size, dry cleaners. These facilities typically have two or more machines and use 200 gallons or more per year of perc. Therefore, separation distances need to be greater for large dry cleaners. At a distance of 500 feet, the remaining risk for a large plant can be reduced by over 85 percent.

In California, a small number of dry cleaners that are co-located (sharing a common wall, floor, or ceiling) with a residence have the potential to expose the inhabitants of the residence to high levels of perc. However, while special requirements have been imposed on these existing facilities, the potential for exposure still exists. Avoiding these siting situations in the future is an important preventative measure.

Local air districts are a source of information regarding specific dry cleaning operations—particularly for large industrial operations with multiple machines. The 300 foot separation recommended below reflects the most common situation – a dry cleaner with only one machine. While we recommend 500 feet when there are two or more machines, site specific information should be obtained from the local air district for some very large industrial operations. Factors that can impact the risk include the number and type of machines, controls used, source configuration, building dimensions, terrain, and meteorological data.

Recommendation

- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines provide 500 feet. For operations with 3 or more machines, consult with the local air district.

- Do not site new sensitive land uses in the same building with perc dry cleaning operations.

References

- *Proposed Amended Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems,* Final Staff Report. South Coast AQMD. (October 2002)
- *Air Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations.* ARB (1994) (http://www.arb.ca.gov/toxics/atcm/percatcm.htm)
- *"An Assessment of Tetrachloroethylene in Human Breast Milk"*, Judith Schreiber, New York State Department of Health – Bureau of Toxic Substance Assessment, Journal of Exposure Analysis and Environmental Epidemiology, Vol.2, Suppl.2, pp. 15-26, 1992.
- Draft *Air Toxics "Hot Spots" Program Perchloroethylene Dry Cleaner Industry-wide Risk Assessment Guidelines.* (CAPCOA (November 2002)
- *Final Environmental Assessment for Proposed Amended Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems.* South Coast AQMD. (October 18, 2002)

Gasoline Dispensing Facilities

Refueling at gasoline dispensing facilities releases benzene into the air. Benzene is a potent carcinogen and is one of the highest risk air pollutants regulated by ARB. Motor vehicles and motor vehicle-related activity account for over 90 percent of benzene emissions in California. While gasoline-dispensing facilities account for a small part of total benzene emissions, near source exposures for large facilities can be significant.

Since 1990, benzene in the air has been reduced by over 75 percent statewide, primarily due to the implementation of emissions controls on motor vehicle vapor recovery equipment at gas stations, and a reduction in benzene levels in gasoline. However, benzene levels are still significant. In urban areas, average benzene exposure is equivalent to about 50 in one million.

Gasoline dispensing facilities tend to be located in areas close to residential and shopping areas. Benzene emissions from the largest gas stations may result in near source health risk beyond the regional background and district health risk thresholds. The emergence of very high gasoline throughput at large retail or

wholesale outlets makes this a concern as these types of outlets are projected to account for an increasing market share in the next few years.

Key Health Findings

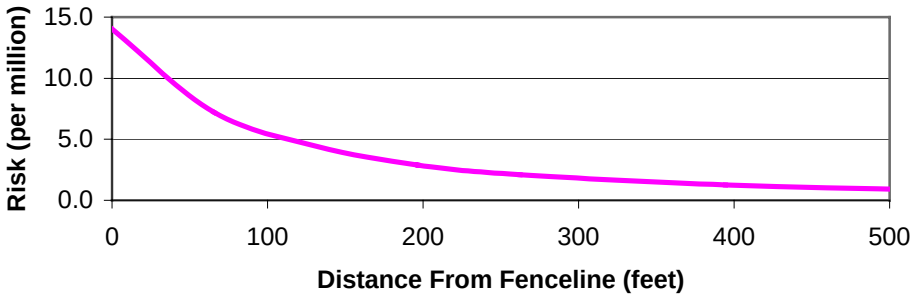
Benzene is a human carcinogen identified by ARB as a toxic air contaminant. Benzene also can cause non-cancer health effects above a certain level of exposure. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness. It is unlikely that the public would be exposed to levels of benzene from gasoline dispensing facilities high enough to cause these non-cancer health effects.

Distance Related Findings

A well-maintained vapor recovery system can decrease emissions of benzene by more than 90% compared with an uncontrolled facility. Almost all facilities have emission control systems. Air quality modeling of the health risks from gasoline dispensing facilities indicate that the impact from the facilities decreases rapidly as the distance from the facility increases.

Statistics reported in the ARB's staff reports on Enhanced Vapor Recovery released in 2000 and 2002, indicated that almost 96 percent of the gasoline dispensing facilities had a throughput less than 2.4 million gallons per year. The remaining four percent, or approximately 450 facilities, had throughputs exceeding 2.4 million gallons per year. For these stations, the average gasoline throughput was 3.6 million gallons per year.

Figure 1-6
Gasoline Dispensing Facility Health Risk
for 3,600,000 gal/yr throughput



As shown in Figure 1-6, the risk levels for a gasoline dispensing facility with a throughput of 3.6 million gallons per year is about 10 in one million at a distance of 50 feet from the fenceline. However, as the throughput increases, the potential risk increases.

As mentioned above, air pollution levels in the immediate vicinity of large gasoline dispensing facilities may be higher than the surrounding area (although tailpipe emissions from motor vehicles dominates the health impacts). Very large gasoline dispensing facilities located at large wholesale and discount centers may dispense nine million gallons of gasoline per year or more. At nine million gallons, the potential risk could be around 25 in one million at 50 feet, dropping to about five in one million at 300 feet. Some facilities have throughputs as high as 19 million gallons.

Recommendation

- Avoid siting new sensitive land uses within 300 feet of a large gasoline dispensing facility (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

References

- *Gasoline Service Station Industry-wide Risk Assessment Guidelines.* California Air Pollution Control Officers Association (December 1997 and revised November 1, 2001)
- *Staff Report on Enhanced Vapor Recovery.* ARB (February 4, 2000)
- *The California Almanac of Emissions and Air Quality.* ARB (2004)
- *Staff Report on Enhanced Vapor Recovery Technology Review.* ARB (October 2002)

Other Facility Types that Emit Air Pollutants of Concern

In addition to source specific recommendations, Table 1-3 includes a list of other industrial sources that could pose a significant health risk to nearby sensitive individuals depending on a number of factors. These factors include the amount of pollutant emitted and its toxicity, the distance to nearby individuals, and the type of emission controls in place. Since these types of facilities are subject to air permits from local air districts, facility specific information should be obtained where there are questions about siting a sensitive land use close to an industrial facility.

Potential Sources of Odor and Dust Complaints

Odors and dust from commercial activities are the most common sources of air pollution complaints and concerns from the public. Land use planning and permitting processes should consider the potential impacts of odor and dust on surrounding land uses, and provide for adequate separation between odor and dust sources. As with other types of air pollution, a number of factors need to be considered when determining an adequate distance or mitigation to avoid odor or

Table 1-3 – Examples of Other Facility Types That Emit[1] Air Pollutants of Concern

Categories	Facility Type	Air Pollutants of Concern
Commercial		
	Autobody Shops	Metals, Solvents
	Furniture Repair	Solvents[2], Methylene Chloride
	Film Processing Services	Solvents, Perchloroethylene
	Distribution Centers	Diesel Particulate Matter
	Printing Shops	Solvents
	Diesel Engines	Diesel Particulate Matter
Industrial		
	Construction	Particulate Matter, Asbestos
	Manufacturers	Solvents, Metals
	Metal Platers, Welders, Metal Spray (flame spray) Operations	Hexavalent Chromium, Nickel, Metals
	Chemical Producers	Solvents, Metals
	Furniture Manufacturers	Solvents
	Shipbuilding and Repair	Hexavalent chromium and other metals, Solvents
	Rock Quarries and Cement Manufacturers	Particulate Matter, Asbestos
	Hazardous Waste Incinerators	Dioxin, Solvents, Metals
	Power Plants	Benzene, Formaldehyde, Particulate Matter
	Research and Development Facilities	Solvents, Metals, etc.
Public		
	Landfills	Benzene, Vinyl Chloride, Diesel Particulate Matter
	Waste Water Treatment Plants	Hydrogen Sulfide
	Medical Waste Incinerators	Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
	Recycling, Garbage Transfer Stations	Diesel Particulate Matter
	Municipal Incinerators	Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
Transportation		
	Truck Stops	Diesel Particulate Matter
Agricultural Operations		
	Farming Operations	Diesel Particulate Matter, VOCs, NOx, PM10, CO, SOx, Pesticides
	Livestock and Dairy Operations	Ammonia, VOCs, PM10

[1]Not all facilities will emit pollutants of concern due to process changes or chemical substitution. Consult the local air district regarding specific facilities.
[2]Some solvents may emit toxic air pollutants, but not all solvents are toxic air contaminants.

dust complaints in a specific situation. Local air districts should be consulted for advice when these siting situations arise.

Table 1-4 lists some of the most common sources of odor complaints received by local air districts. Complaints about odors are the responsibility of local air districts and are covered under state law. The types of facilities that can cause odor complaints are varied and can range from small commercial facilities to large industrial facilities, and may include waste disposal and recycling operations. Odors can cause health symptoms such as nausea and headache. Facilities with odors may also be sources of toxic air pollutants (See Table 1-3). Some common sources of odors emitted by facilities are sulfur compounds, organic solvents, and the decomposition/digestion of biological materials. Because of the subjective nature of an individual's sensitivity to a particular type of odor, there is no specific rule for assigning appropriate separations from odor sources. Under the right meteorological conditions, some odors may still be offensive several miles from the source.

Table 1-4
Sources of Odor Complaints

- Sewage Treatment Plants
- Landfills
- Recycling Facilities
- Waste Transfer Stations
- Petroleum Refineries
- Biomass Operations
- Autobody Shops
- Coating Operations
- Fiberglass Manufacturing
- Foundries
- Rendering Plants
- Livestock Operations

Sources of dust are also common sources of air pollution-related complaints. Operations that can result in dust problems are rock crushing, gravel production, stone quarrying, and mining operations. A common source of complaints is the dust and noise associated with blasting that may be part of these operations. Besides the health impacts of dust as particulate matter, thick dust also impairs visibility, aesthetic values, and can soil homes and automobiles. Local air districts typically have rules for regulating dust sources in their jurisdictions, but dust sources can still be a concern. Therefore, separation of these facilities from residential and other new sensitive land uses should be considered.

In some areas of California, asbestos occurs naturally in stone deposits. Asbestos is a potent carcinogenic substance when inhaled. Asbestos-containing dust may be a public health concern in areas where asbestos-containing rock is mined, crushed, processed, or used. Situations where asbestos-containing gravel has been used in road paving materials are also a source of asbestos exposure to the general public. Planners are advised to consult with local air pollution agencies in areas where asbestos-containing gravel or stone products are produced or used.

2. Handbook Development

ARB and local air districts share responsibility for improving statewide air quality. As a result of California's air pollution control programs, air quality has improved and health risk has been reduced statewide. However, state and federal air quality standards are still exceeded in many areas of California and the statewide health risk posed by toxic air contaminants (air toxics) remains too high. Also, some communities experience higher pollution exposures than others - making localized impacts, as well regional or statewide impacts, an important consideration. It is for this reason that this Handbook has been produced - to promote better, more informed decision-making by local land use agencies that will improve air quality and public health in their communities.

Land use policies and practices, including planning, zoning, and siting activities, can play a critical role in air quality and public health at the local level. For instance, even with the best available control technology, some projects that are sited very close to homes, schools, and other public places can result in elevated air pollution exposures. The reverse is also true – siting a new school or home too close to an existing source of air pollution can pose a public health risk. The ARB recommendations in section 1 address this issue.

> *This Handbook is an informational document that we hope will strengthen the relationship between air quality and land use agencies. It highlights the need for land use agencies to address the potential for new projects to result in localized health risk or contribute to cumulative impacts where air pollution sources are concentrated.*

Avoiding these incompatible land uses is a key to reducing localized air pollution exposures that can result in adverse health impacts, especially to sensitive individuals.

Individual siting decisions that result in incompatible land uses are often the result of locating "sensitive" land uses next to polluting sources. These decisions can be of even greater concern when existing air pollution exposures in a community are considered. In general terms, this is often referred to as the issue of "cumulative impacts." ARB is working with local air districts to better define these situations and to make information about existing air pollution levels (e.g., from local businesses, motor vehicles, and other areawide sources) more readily available to land use agencies.

In December 2001, the ARB adopted "Policies and Actions for Environmental Justice" (Policies). These Policies were developed in coordination with a group of stakeholders, representing local government agencies, community interest

groups, environmental justice organizations, academia, and business (Environmental Justice Stakeholders Group).

The Policies included a commitment to work with land use planners, transportation agencies, and local air districts to develop ways to identify, consider, and reduce cumulative air pollution emissions, exposure, and health risks associated with land use planning and decision-making. Developed under the auspices of the ARB's Environmental Justice Stakeholders Group, this Handbook is a first step in meeting that commitment.

ARB has produced this Handbook to help achieve several objectives:

- Provide recommendations on situations to avoid when siting new residences, schools, day care centers, playgrounds, and medical-related facilities (sensitive sites or sensitive land uses);

- Identify approaches that land use agencies can use to prevent or reduce potential air pollution impacts associated with general plan policies, new land use development, siting, and permitting decisions;

- Improve and facilitate access to air quality data and evaluation tools for use in the land use decision-making process;

- Encourage stronger collaboration between land use agencies and local air districts to reduce community exposure to source-specific and cumulative air pollution impacts; and

- Emphasize community outreach approaches that promote active public involvement in the air quality/land use decision-making process.

This Handbook builds upon California's 2003 General Plan Guidelines. These Guidelines, developed by the Governor's Office of Planning and Research (OPR), explain the land use planning process and applicable legal requirements. This Handbook also builds upon a 1997 ARB report, "The Land Use-Air Quality Linkage" ("Linkage Report").[9] The Linkage Report was an outgrowth of the California Clean Air Act which, among other things, called upon local air districts to focus particular attention on reducing emissions from sources that indirectly cause air pollution by attracting vehicle trips. Such indirect sources include, but are not limited to, shopping centers, schools and universities, employment centers, warehousing, airport hubs, medical offices, and sports arenas. The Linkage Report summarizes data as of 1997 on the relationships between land use, transportation, and air quality, and highlights strategies that can help to reduce the use of single occupancy automobile use. Such strategies

[9] To access this report, please refer to ARB's website or click on: http://www.arb.ca.gov/ch/programs/link97.pdf

complement ARB regulatory programs that continue to reduce motor vehicle emissions.

In this Handbook, we identify types of air quality-related information that we recommend land use agencies consider in the land use decision-making processes such as the development of regional, general, and community plans; zoning ordinances; environmental reviews; project siting; and permit issuance. The Handbook provides recommendations on the siting of new sensitive land uses based on current analyses. It also contains information on approaches and methodologies for evaluating new projects from an air pollution perspective.

The Handbook looks at air quality issues associated with emissions from industrial, commercial, and mobile sources of air pollution. Mobile sources continue to be the largest overall contributors to the state's air pollution problems, representing the greatest air pollution health risk to most Californians. Based on current health risk information for air toxics, the most serious pollutants on a statewide basis are diesel PM, benzene, and 1,3-butadiene, all of which are primarily emitted by motor vehicles. From a state perspective, ARB continues to pursue new strategies to further reduce motor vehicle-related emissions in order to meet air quality standards and reduce air toxics risk.

While mobile sources are the largest overall contributors to the state's air pollution problems, industrial and commercial sources can also pose a health risk, particularly to people near the source. For this reason, the issue of incompatible land uses is an important focus of this document.

Handbook Audience

Even though the primary users of the Handbook will likely be agencies responsible for air quality and land use planning, we hope the ideas and technical issues presented in this Handbook will also be useful for:

- public and community organizations and community residents;
- federal, state and regional agencies that fund, review, regulate, oversee, or otherwise influence environmental policies and programs affected by land use policies; and
- private developers.

3. Key Community Focused Issues Land Use Agencies Should Consider

Two key air quality issues that land use agencies should consider in their planning, zoning, and permitting processes are:

1) **Incompatible Land Uses.** Localized air pollution impacts from incompatible land use can occur when polluting sources, such as a heavily trafficked roadway, warehousing facilities, or industrial or commercial facilities, are located near a land use where sensitive individuals are found such as a school, hospital, or homes.

2) **Cumulative Impacts.** Cumulative air pollution impacts can occur from a concentration of multiple sources that individually comply with air pollution control requirements or fall below risk thresholds, but in the aggregate may pose a public health risk to exposed individuals. These sources can be heavy or light-industrial operations, commercial facilities such as autobody shops, large gas dispensing facilities, dry cleaners, and chrome platers, and freeways or other nearby busy transportation corridors.

Incompatible Land Uses

Land use policies and practices can worsen air pollution exposure and adversely affect public health by mixing incompatible land uses. Examples include locating new sensitive land uses, such as housing or schools, next to small metal plating facilities that use a highly toxic form of chromium, or very near large industrial facilities or freeways. Based on recent monitoring and health-based studies, we now know that air quality impacts from incompatible land uses can contribute to increased risk of illness, missed work and school, a lower quality of life, and higher costs for public health and pollution control.[10]

Avoiding incompatible land uses can be a challenge in the context of mixed-use industrial and residential zoning. For a variety of reasons, government agencies and housing advocates have encouraged the proximity of affordable housing to employment centers, shopping areas, and transportation corridors, partially as a means to reduce vehicle trips and their associated emissions. Generally speaking, typical distances in mixed-use communities between businesses and industries and other land uses such as homes and schools, should be adequate to avoid health risks. However, generalizations do not always hold as we addressed in section 1 of this Handbook.

In terms of siting air pollution sources, the proposed location of a project is a major factor in determining whether it will result in localized air quality impacts. Often, the problem can be avoided by providing an adequate distance or setback

[10] For more information, the reader should refer to ARB's website on community health: http://www.arb.ca.gov/ch/ch.htm

between a source of emissions and nearby sensitive land uses. Sometimes, suggesting project design changes or mitigation measures in the project review phase can also reduce or avoid potential impacts. This underscores the importance of addressing potential incompatible land uses as early as possible in the project review process, ideally in the general plan itself.

Cumulative Air Pollution Impacts

The broad concept of cumulative air pollution impacts reflects the combination of regional air pollution levels and any localized impacts. Many factors contribute to air pollution levels experienced in any location. These include urban background air pollution, historic land use patterns, the prevalence of freeways and other transportation corridors, the concentration of industrial and commercial businesses, and local meteorology and terrain.

When considering the potential air quality impacts of polluting sources on individuals, project location and the concentration of emissions from air pollution sources need to be considered in the land use decision-making process. In section 4, the Handbook offers a series of questions that helps land use agencies determine if a project should undergo a more careful analysis. This holds true regardless of whether the project being sited is a polluting source or a sensitive land use project.

Large industrial areas are not the only land uses that may result in public health concerns in mixed-use communities. Cumulative air pollution impacts can also occur if land uses do not adequately provide setbacks or otherwise protect sensitive individuals from potential air pollution impacts associated with nearby light industrial sources. This can occur with activities such as truck idling and traffic congestion, or from indirect sources such as warehousing facilities that are located in a community or neighborhood.

In October 2004, Cal/EPA published its Environmental Justice Action Plan. In February 2005, the Cal/EPA Interagency Working Group approved a working definition of "cumulative impacts" for purposes of initially guiding the pilot projects that are being conducted pursuant to that plan. Cal/EPA is now in the process of developing a Cumulative Impacts Assessment Guidance document. Cal/EPA will revisit the working definition of "cumulative impacts" as the Agency develops that guidance. The following is the working definition:

> *"Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable, and to the extent data are available."*

4. Mechanisms for Integrating Localized Air Quality Concerns Into Land Use Processes

Land use agencies should use each of their existing planning, zoning, and permitting authorities to address the potential health risk associated with new projects. Land use-specific mechanisms can go a long way toward addressing both localized and cumulative impacts from new air pollution sources that are not otherwise addressed by environmental regulations. Likewise, close collaboration and communication between land use agencies and local air districts in both the planning and project approval stages can further reduce these impacts. Local agency partnerships can also result in early identification of potential impacts from proposed activities that might otherwise escape environmental review. When this happens, pollution problems can be prevented or reduced before projects are approved, when it is less complex and expensive to mitigate.

The land use entitlement process requires a series of planning decisions. At the highest level, the General Plan sets the policies and direction for the jurisdiction, and includes a number of mandatory elements dealing with issues such as housing, circulation, and health hazards. Zoning is the primary tool for implementing land use policies. Specific or community plans created in conjunction with a specific project also perform many of the same functions as a zoning ordinance. Zoning can be modified by means of variances and conditional use permits. The latter are frequently used to insure compatibility between otherwise conflicting land uses. Finally, new development usually requires the approval of a parcel or tract map before grading and building permits can be issued. These parcel or tract maps must be consistent with the applicable General Plan, zoning and other standards.

Land use agencies can use their planning authority to separate industrial and residential land uses, or to require mitigation where separation is not feasible. By separating incompatible land uses, land use agencies can prevent or reduce both localized and cumulative air pollution impacts without denying what might otherwise be a desirable project.[11] For instance:

- a dry cleaner could open a storefront operation in a community with actual cleaning operations performed at a remote location away from residential areas;
- gas dispensing facilities with lower fuel throughput could be sited in mixed-use areas;
- enhanced building ventilation or filtering systems in schools or senior care centers can reduce ambient air from nearby busy arterials; or
- landscaping and regular watering can be used to reduce fugitive dust at a building construction site near a school yard.

[11] It should be noted that such actions should also be considered as part of the General Plan or Plan element process.

The following general and specific land use approaches can help to reduce potential adverse air pollution impacts that projects may have on public health.

General Plans

The primary purpose of planning, and the source of government authority to engage in planning, is to protect public health, safety, and welfare. In its most basic sense, a local government General Plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, forming the basis for most land use decisions. Therefore, the most effective mechanism for dealing with the central land use concept of compatibility and its relationship to cumulative air pollution impacts is the General Plan. Well before projects are proposed within a jurisdiction, the General Plan sets the stage for where projects can be sited, and their compatibility with comprehensive community goals, objectives, and policies.

In 2003, OPR revised its General Plan Guidelines, highlighting the importance of incorporating sustainable development and environmental justice policies in the planning process. The OPR General Plan Guidelines provides an effective and long-term approach to reduce cumulative air pollution impacts at the earliest planning stages. In light of these important additions to the Guidelines, land use agencies should consider updating their General Plans or Plan elements to address these revisions.

The General Plan and related Plan elements can be used to avoid incompatible land uses by incorporating air quality considerations into these documents. For instance, a General Plan safety element with an air quality component could be used to incorporate policies or objectives that are intended to protect the public from the potential for facility breakdowns that may result in a dangerous release of air toxics. Likewise, an air quality component to the transportation circulation element of the General Plan could include policies or standards to prevent or reduce local exposure to diesel exhaust from trucks and other vehicles. For instance, the transportation circulation element could encourage the construction of alternative routes away from residential areas for heavy-duty diesel trucks. By considering the relationship between air quality and transportation, the circulation element could also include air quality policies to prevent or reduce trips and travel, and thus vehicle emissions. Policies in the land use element of the General Plan could identify areas appropriate for future industrial, commercial, and residential uses. Such policies could also introduce design and distance parameters that reduce emissions, exposure, and risk from industrial and some commercial land uses (e.g., dry cleaners) that are in close proximity to residential areas or schools.

Land use agencies should also consider updating or creating an air quality element in the jurisdiction's General Plan. In the air quality element, local decision-makers could develop long-term, effective plans and policies to address

air quality issues, including cumulative impacts. The air quality element can also provide a general reference guide that informs local land use planners about regional and community level air quality, regulatory air pollution control requirements and guidelines, and references emissions and pollution source data bases and assessment and modeling tools. As is further described in Appendix C of the Handbook, new assessment tools that ARB is developing can be included into the air quality element by reference. For instance, ARB's statewide risk maps could be referenced in the air quality element as a resource that could be consulted by developers or land use agencies

Zoning

The purpose of "zoning" is to separate different land uses. Zoning ordinances establish development controls to ensure that private development takes place within a given area in a manner in which:

- All uses are compatible (e.g., an industrial plant is not permitted in a residential area);
- Common development standards are used (e.g., all homes in a given area are set back the same minimum distance from the street); and,
- Each development does not unreasonably impose a burden upon its neighbors (e.g., parking is required on site so as not to create neighborhood parking problems).

To do this, use districts called "zones" are established and standards are developed for these zones. The four basic zones are residential, commercial, industrial and institutional.

Land use agencies may wish to consider how zoning ordinances, particularly those for mixed-use areas, can be used to avoid exacerbating poor land use practices of the past or contributing to localized and cumulative air pollution impacts in the community.

Sometimes, especially in mixed-use zones, there is a potential for certain categories of existing businesses or industrial operations to result in cumulative air pollution impacts to new development projects. For example:

- An assisted living project is proposed for a mixed-use zone adjacent to an existing chrome plating facility, or several dry cleaners;
- Multiple industrial sources regulated by a local air district are located directly upwind of a new apartment complex;
- A new housing development is sited in a mixed-use zone that is downwind or adjacent to a distribution center that attracts diesel-fueled delivery trucks and TRUs; or
- A new housing development or sensitive land use is sited without adequate setbacks from an existing major transportation corridor or rail yard.

As part of the public process for making zoning changes, local land use agencies could work with community planning groups, local businesses, and community residents to determine how best to address existing incompatible land uses.

Land Use Permitting Processes

■ Questions to Consider When Reviewing New Projects

Very often, just knowing what questions to ask can yield critical information about the potential air pollution impacts of proposed projects – both from the perspective of a specific project as well as in the nature of existing air pollution sources in the same impact area. Available land use information can reveal the proximity of air pollution sources to sensitive individuals, the potential for incompatible land uses, and the location and nature of nearby air pollution sources. Air quality data, available from the ARB and local air districts, can provide information about the types and amounts of air pollution emitted in an area, regional air quality concentrations, and health risk estimates for specific sources.

General Plans and zoning maps are an excellent starting point in reviewing project proposals for their potential air pollution impacts. These documents contain information about existing or proposed land uses for a specific location as well as the surrounding area. Often, just looking at a map of the proposed location for a facility and its surrounding area will help to identify a potential adjacent incompatible land use.

The following pages are a “pull-out” list of questions to consider along with cross-references to pertinent information in the Handbook. These questions are intended to assist land use agencies in evaluating potential air quality-related concerns associated with new project proposals.

The first group of questions contains project-related queries designed to help identify the potential for localized project impacts, particularly associated with incompatible land uses. The second group of questions focuses on the issue of potential cumulative impacts by including questions about existing emissions and air quality in the community, and community feedback. Depending on the answers to these questions, a land use agency may decide a more detailed review of the proposal is warranted.

The California Department of Education has already developed a detailed process for school siting which is outlined in Appendix E. However, school districts may also find this section helpful when evaluating the most appropriate site for new schools in their area. At a minimum, using these questions may encourage school districts to engage throughout their siting process with land use agencies and local air districts. The combined expertise of these entities can be useful in devising relevant design standards and mitigation measures that can

reduce exposure to cumulative emissions, exposure, and health risk to students and school workers.

As indicated throughout the Handbook, we strongly encourage land use agencies to consult early and often with local air districts. Local air districts have the expertise, many of the analytical tools, and a working knowledge of the sources they regulate. It is also critical to fully involve the public and businesses that could be affected by the siting decision. The questions provided in the chart below do not imply any particular action should be taken by land use agencies. Rather the questions are intended to improve the assessment process and facilitate informed decision-making.

- **Project-Related Questions**

This section includes project-related questions that, in conjunction with the questions in the next section, can be used to tailor the project evaluation. These questions are designed to help identify the potential for incompatible land uses from localized project impacts.

Questions to Consider When Reviewing New Projects

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
1. Is the proposed project: ▲ A business or commercial license renewal ▲ A new or modified commercial project ▲ A new or modified industrial project ▲ A new or modified public facility project ▲ A new or modified transportation project ▲ A housing or other development in which sensitive individuals may live or play	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.
2. Does the proposed project: ▲ Conform to the zoning designation? ▲ Require a variance to the zoning designation? ▲ Include plans to expand operations over the life of the business such that additional emissions may increase the pollution burden in the community (e.g., from additional truck operations, new industrial operations or process lines, increased hours of operation, build-out to the property line, etc.)?	See Appendix F for a general explanation of land use processes. In addition, Section 3 contains a discussion of how land use planning, zoning, and permitting practices can result in incompatible land uses or cumulative air pollution impacts.
3. Has the local air district provided comments or information to assist in the analysis?	See Section 5 and Appendix C for a description of air quality-related tools that the ARB and local air districts use to provide information on potential air pollution impacts.
4. Have public meetings been scheduled with the affected community to solicit their involvement in the decision-making process for the proposed project?	See Section 7 for a discussion of public participation, information and outreach tools.
5. If the proposed project will be subject to local air district regulations: ▲ Has the project received a permit from the local air district? ▲ Would it comply with applicable local air district requirements? ▲ Is the local air district contemplating new regulations that would reduce emissions from the source over time? ▲ Will potential emissions from the project	See Appendix C for a description of local air district programs.

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
trigger the local air district's new source review for criteria pollutants or air toxics emissions? ▲ Is the local air district expected to ask the proposed project to perform a risk assessment? ▲ Is there sufficient new information or public concern to call for a more thorough environmental analysis of the proposed project? ▲ Are there plans to expand operations over time? ▲ Are there land-use based air quality significance thresholds or design standards that could be applied to this project in addition to applicable air district requirements?	
6. If the proposed project will release air pollution emissions, either directly or indirectly, but is not regulated by the local air district: ▲ Is the local air district informed of the project? ▲ Does the local air district believe that there could be potential air pollution impacts associated with this project category because of the proximity of the project to sensitive individuals? ▲ If the project is one in which individuals live or play (e.g., a home, playground, convalescent home, etc.), does the local air district believe that the project's proximity to nearby sources could pose potential air pollution impacts? ▲ Are there indirect emissions that could be associated with the project (e.g., truck traffic or idling, transport refrigeration unit operations, stationary diesel engine operations, etc.) that will be in close proximity to sensitive individuals? ▲ Will the proposed project increase or serve as a magnet for diesel traffic? ▲ Are there land-use based air quality significance thresholds or design standards that could be applied to this project in addition to applicable air district requirements? ▲ Is there sufficient new information or public concern to call for a more thorough environmental analysis of the proposed project? ▲ Should the site approval process include identification and mitigation of potential	See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
direct or indirect emissions associated with the potential project?	
7. Does the local air district or land use agency have pertinent information on the source, such as: ▲ Available permit and enforcement data, including for the owner or operator of the proposed source that may have other sources in the State. ▲ Proximity of the proposed project to sensitive individuals. ▲ Number of potentially exposed individuals from the proposed project. ▲ Potential for the proposed project to expose sensitive individuals to odor or other air pollution nuisances. ▲ Meteorology or the prevailing wind patterns between the proposed project and the nearest receptor, or between the proposed sensitive receptor project and sources that could pose a localized or cumulative air pollution impact.	See Appendix C for a description of local air district programs. See Appendix B for a listing of useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also, do not hesitate to contact your local air district regarding answers to any of these questions that might not be available at the land use agency. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
8. Based upon the project application, its location, and the nature of the source, could the proposed project: ▲ Be a polluting source that is located in proximity to, or otherwise upwind, of a location where sensitive individuals live or play? ▲ Attract sensitive individuals and be located in proximity to or otherwise downwind, of a source or multiple sources of pollution, including polluting facilities or transportation-related sources that contribute emissions either directly or indirectly? ▲ Result in health risk to the surrounding community?	See Section 3 for a discussion of what is an incompatible land use and the potential cumulative air pollution impacts. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
9. If a CEQA categorical exemption is proposed, were the following questions considered: ▲ Is the project site environmentally sensitive as defined by the project's location? (A project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant.) ▲ Would the project and successive future projects of the same type in the approximate location potentially result in cumulative impacts? ▲ Are there "unusual circumstances" creating the possibility of significant effects?	See CEQA Guidelines section 15300, and Public Resources Code, section 21084. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites). See also Section 5 and Appendix C for a description of air quality-related tools that the ARB and local air districts use to provide information on potential air pollution impacts.

- **Questions Related to Cumulative Impact Assessment**

The following questions can be used to provide the decision-maker with a better understanding of the potential for cumulative air pollution impacts to an affected community. Answers to these questions will help to determine if new projects or activities warrant a more detailed review. It may also help to see potential environmental concerns from the perspective of the affected community. Additionally, responses can provide local decision-makers with information with which to assess the best policy options for addressing neighborhood-scale air pollution concerns.

The questions below can be used to identify whether existing tools and procedures are adequate to address land use-related air pollution issues. This process can also be used to pinpoint project characteristics that may have the greatest impact on community-level emissions, exposure, and risk. Such elements can include: the compliance record of existing sources including those owned or operated by the project proponent; the concentration of emissions from polluting sources within the approximate area of sensitive sites; transportation circulation in proximity to the proposed project; compatibility with the General Plan and General Plan elements; etc.

The local air district can provide useful assistance in the collection and evaluation of air quality-related information for some of the questions and should be consulted early in the process.

Questions Related to Cumulative Impact Assessment

Technical Questions	Cross-Reference to Relevant Handbook Sections
1. Is the community home to industrial facilities?	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.
2. Do one or more major freeways or high-traffic volume surface streets cut through the community?	See transportation circulation element of your general plan. See also Appendix B for useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
3. Is the area classified for mixed-use zoning?	See your general plan and zoning ordinances.
4. Is there an available list of air pollution sources in the community?	Contact your local air district.
5. Has a walk-through of the community been conducted to gather the following information:	See Appendix B for a listing of useful information that land use agencies

Technical Questions	Cross-Reference to Relevant Handbook Sections
▲ Corroborate available information on land use activities in the area (e.g., businesses, housing developments, sensitive individuals, etc.)? ▲ Determine the proximity of existing and anticipated future projects to residential areas or sensitive individuals? ▲ Determine the concentration of emission sources (including anticipated future projects) to residential areas or sensitive individuals?	should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district.
6. Has the local air district been contacted to obtain information on sources in the community?	See Section 7 for a discussion of public participation, information and outreach tools.
7. What categories of commercial establishments are currently located in the area and does the local air district have these sources on file as being regulated or permitted?	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants. Also contact your local air district.
8. What categories of indirect sources such as distribution centers or warehouses are currently located in the area?	See Appendix A for typical land use classifications and associated project categories that emit air pollutants.
9. What air quality monitoring data are available?	Contact your local air district.
10. Have any risk assessments been performed on emission sources in the area?	Contact your local air district.
11. Does the land use agency have the capability of applying a GIS spatial mapping tool that can overlay zoning, sub-development information, and other neighborhood characteristics, with air pollution and transportation data?	See Appendix B for a listing of useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district for tools that can be used to supplement available land use agency tools.
12. Based on available information, is it possible to determine if the affected community or neighborhood experiences elevated health risk due to a concentration of air pollution sources in close proximity, and if not, can the necessary information be obtained?	Contact your local air district. Also see Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
13. Does the community have a history of chronic complaints about air quality?	See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.
14. Is the affected community included in the public participation process for the agency's decision?	See Section 7 for a discussion of public participation, information and outreach tools.
15. Have community leaders or groups been contacted about any pre-existing or chronic community air quality concerns?	See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.

- **Mitigation Approaches**

In addition to considering the suitability of the project location, opportunities for mitigation of air pollution impacts should be considered. Sometimes, a land use agency may find that selection of a different project location to avoid a health risk is not feasible. When that happens, land use agencies should consider design improvements or other strategies that would reduce the risk. Such strategies could include performance or design standards, consultation with local air districts and other agencies on appropriate actions that these agencies should, or plan to, undertake, and consultation and outreach in the affected community. Potential mitigation measures should be feasible, cost-effective solutions within the available resources and authority of implementing agencies to enforce.[12]

- **Conditional Use Permits and Performance Standards**

Some types of land uses are only allowed upon approval of a conditional use permit (also called a CUP or special use permit). A conditional use permit does not re-zone the land but specifies conditions under which a particular land use will be permitted. Such land uses could be those with potentially significant environmental impacts. Local zoning ordinances specify the uses for which a conditional use permit is required, the zones they may be allowed in, and public hearing procedures. The conditional use permit imposes special requirements to ensure that the use will not be detrimental to its surroundings.

In the context of land use planning, performance standards are requirements imposed on projects or project categories through conditional use permits to ensure compliance with general plan policies and local ordinances. These standards could apply to such project categories as distribution centers, very large gas dispensing facilities, autobody shops, dry cleaners, and metal platers. Land use agencies may wish to consider adding land use-based performance standards to zoning ordinances in existing mixed-use communities for certain air pollution project categories. Such standards would provide certainty and equitable treatment to all projects of a similar nature, and reserve the more resource intensive conditional or special use permits to projects that require a more detailed analysis. In developing project design or performance standards, land use agencies should consult with the local air district. Early and regular consultation can avoid duplication or inconsistency with local air district control requirements when considering the site-specific design and operation of a project.

[12] A land use agency has the authority to condition or deny a project based upon information collected and evaluated through the land use decision-making process. However, any denial would need to be based upon identifiable, generally applicable, articulated standards set forth in the local government's General Plan and zoning codes. One way of averting this is to conduct early and regular outreach to the community and the local air district so that community and environmental concerns can be addressed and accommodated into the project proposal.

Examples of land use-based air quality-specific performance standards include the following:

- Placing a process vent away from the direction of the local playground that is nearby or increasing the stack height so that emissions are dispersed to reduce the emissions impact on surrounding homes or schools.
- Setbacks between the project fence line and the population center.
- Limiting the hours of operation of a facility to avoid excess emissions exposure or foul odors to nearby individuals.
- An ordinance that requires fleet operators to use cleaner vehicles before project approval (if a new business), or when expanding the fleet (if an existing business); and
- Providing alternate routes for truck operations that discourage detours into residential neighborhoods.

Outreach to Other Agencies

When questions arise regarding the air quality impacts of projects, including potential cumulative impacts, land use agencies should consult the local air district. Land use agencies should also consider the following suggestions to avoid creating new incompatible land uses:

- Consult with the local air district to help determine if emissions from a particular project will adversely impact sensitive individuals in the area, if existing or future effective regulations or permit requirements will affect the proposed project or other sources in the vicinity of the proposed project, or if additional inspections should be required.
- Check with ARB for new information and modeling tools that can help evaluate projects seeking to site within your jurisdiction.
- Become familiar with ARB's Land Use-Air Quality Linkage Report to determine whether approaches and evaluation tools contained in the Report can be used to reduce transportation-related impacts on communities.
- Contact and collaborate with other state agencies that play a role in the land use decision-making process, e.g., the State Department of Education, the California Energy Commission, and Caltrans. These agencies have information on mitigation measures and mapping tools that could be useful in addressing local problems.

- **Information Clearinghouse**

  - Land use agencies can refer to the ARB statewide electronic information clearinghouse for information on what measures other jurisdictions are using to address comparable issues or sources.[13]

[13] This information can be accessed from ARB's website by going to: http://www.arb.ca.gov/ch/clearinghouse.htm

The next section addresses available air quality assessment tools that land use agencies can use to evaluate the potential for localized or cumulative impacts in their communities.

5. Available Tools to Evaluate Cumulative Air Pollution Emissions and Risk

Until recently, California has traditionally approached air pollution control from the perspective of assessing whether the pollution was regional, category-specific, or from new or existing sources. This methodology has been generally effective in reducing statewide and regional air pollution impacts and risk levels. However, such an incremental, category-by-category, source-by-source approach may not always address community health impacts from multiple sources - including mobile, industrial, and commercial facilities.

As a result of air toxics and children's health concerns over the past several years, ARB and local air districts have begun to develop new tools to evaluate and inform the public about cumulative air pollution impacts at the community level. One aspect of ARB's programs now underway is to consolidate and make accessible air toxics emissions and monitoring data by region, using modeling tools and other analytical techniques to take a preliminary look at emissions, exposure, and health risk in communities.

ARB has developed multiple tools to assist local air districts perform assessments of cumulative emissions, exposure, and risk on a neighborhood scale. These tools include:

- Regional risk maps that show trends in potential cancer risk from toxic air pollutants in southern and central California between 1990 and 2010. These maps are based on the U.S. EPA's ASPEN model. These maps provide an estimate of background levels of toxic air pollutant risk but are not detailed enough to assess individual neighborhoods or facilities.[14]

- The Community Health Air Pollution Information System (CHAPIS) is a user-friendly, Internet-based system for displaying information on emissions from sources of air pollution in an easy to use mapping format. CHAPIS contains information on air pollution emissions from selected large facilities and small businesses that emit criteria and toxic air pollutants. It also contains information on air pollution emissions from motor vehicles. When released in 2004, CHAPIS did not contain information on every source of air pollution or every air pollutant. However, ARB continues to work with local air districts to include all of the largest air pollution sources and those with the highest documented air pollution risk. Additional facilities will be added to CHAPIS as more data become available.[15]

[14] For further information on these maps, please visit ARB's website at: http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm

[15] For further information on CHAPIS, please click on: http://www.arb.ca.gov/ch/chapis1/chapis1.htm

- The Hot Spots Analysis and Reporting Program (HARP) is a software database package that evaluates emissions from one or more facilities to determine the overall health risk posed by the facility(-ies) on the surrounding community. Proper use of HARP ensures that the risk assessment meets the latest risk assessment guidelines published by the State Office of Environmental Health Hazard Assessment (OEHHA). HARP is designed with air quality professionals in mind and is available from the ARB.

- The Urban Emissions Model (URBEMIS) is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, office buildings, and construction projects. URBEMIS uses emission factors available from the ARB to estimate vehicle emissions associated with new land uses.

Local air districts, and others can use these tools to assess a new project, or plan revision. For example, these tools can be used to:

- Identify if there are multiple sources of air pollution in the community;
- Identify the major sources of air pollution in the area under consideration;
- Identify the background potential cancer risk from toxic air pollution in the area under consideration;
- Estimate the risk from a new facility and how it adds to the overall risk from other nearby facilities; and
- Provide information to decision-makers and key stakeholders on whether there may be significant issues related to cumulative emissions, exposure, and health risk due to a permitting or land use decision.

If an air agency wishes to perform a cumulative air pollution impact analysis using any of these tools, it should consult with the ARB and/or the local air district to obtain information or assistance on the data inputs and procedures necessary to operate the program. In addition, land use agencies could consult with local air districts to determine the availability of land use and air pollution data for entry into an electronic Geographical Information System (GIS) format. GIS is an easier mapping tool than the more sophisticated models described in Appendix C. GIS mapping makes it possible to superimpose land use with air pollution information so that the spatial relationship between air pollution sources, sensitive receptors, and air quality can be visually represented. Appendix C provides a general description of the impact assessment process and micro-scale, or community level modeling tools that are available to evaluate potential cumulative air pollution impacts. Modeling protocols will be accessible on ARB's website as they become available. The ARB will also provide land use agencies and local air districts with statewide regional modeling results and information regarding micro-scale modeling.

6. ARB Programs to Reduce Air Pollution in Communities

ARB's regulatory programs reduce air pollutant emissions through statewide strategies that improve public health in all California communities. ARB's overall program addresses motor vehicles, consumer products, air toxics, air-quality planning, research, education, enforcement, and air monitoring. Community health and environmental justice concerns are a consideration in all these programs. ARB's programs are statewide but recognize that extra efforts may be needed in some communities due to historical mixed land-use patterns, limited participation in public processes in the past, and a greater concentration of air pollution sources in some communities.

ARB's strategies are intended to result in better air quality and reduced health risk to residents throughout California. The ARB's priority is to prevent or reduce the public's exposure to air pollution, including from toxic air contaminants that pose the greatest risk, particularly to infants and children who are more vulnerable to air pollution.

In October 2003, ARB updated its statewide control strategy to reduce emissions from source categories within its regulatory authority. A primary focus of the strategy is to achieve federal and state air quality standards for ozone and particulate matter throughout California, and to reduce health risk from diesel PM. Along with local air districts, ARB will continue to address air toxics emissions from regulated sources (see Table 6-1 for a summary of ARB activities). As indicated earlier, ARB will also provide analytical tools and information to land use agencies and local air districts to help assess and mitigate cumulative air pollution impacts.

The ARB will continue to consider the adoption of or revisions to needed air toxics control measures as part of the state's ongoing air toxics assessment program.[16]

As part of its effort to reduce particulate matter and air toxics emissions from diesel PM, the ARB has developed a Diesel Risk Reduction Program[17] that lays out several strategies in a three-pronged approach to reduce emissions and their associated risk:

- Stringent emission standards for all new diesel-fueled engines;
- Aggressive reductions from in-use engines; and
- Low sulfur fuel that will reduce PM and still provide the quality of diesel fuel needed to control diesel PM.

[16] For continuing information and updates on state measures, the reader can refer to ARB's website at http://www.arb.ca.gov/toxics/toxics.htm.
[17] For a comprehensive description of the program, please refer to ARB's website at http://www.arbB.ca.gov/diesel/dieselrrp.htm.

Table 6-1
ARB ACTIONS TO ADDRESS
CUMULATIVE AIR POLLUTION IMPACTS IN COMMUNITIES

Information Collection

- Improve emission inventories, air monitoring data, and analysis tools that can help to identify areas with high cumulative air pollution impacts
- Conduct studies in coordination with OEHHA on the potential for cancer and non-cancer health effects from air pollutants emitted by specific source categories
- Establish web-based clearinghouse for local land use strategies

Emission Reduction Approaches (2004-2006)*

- Through a public process, consider development and/or amendment of regulations and related guidance to reduce emissions, exposure, and health risk at a statewide and local level for the following sources:
  - Diesel PM sources such as stationary diesel engines, transport refrigeration units, portable diesel engines, on-road public fleets, off-road public fleets, heavy-duty diesel truck idling, harbor craft vessels, waste haulers
  - Other air toxics sources, such as formaldehyde in composite wood products, hexavalent chromium for chrome plating and chromic acid anodizing, thermal spraying, and perchloroethylene dry cleaning
- Develop technical information for the following:*
  - Distribution centers
  - Modeling tools such as HARP and CHAPIS
- Adopt rules and pollution prevention initiatives within legal authority to reduce emissions from mobile sources and fuels, and consumer products
- Develop and maintain Air Quality Handbook as a tool for use by land use agencies and local air districts to address cumulative air pollution impacts

Other Approaches

- Establish guidelines for use of statewide incentive funding for high priority mobile source emission reduction projects

*Because ARB will continue to review the need to adopt or revise statewide measures, the information contained in this chart will be updated on an ongoing basis.

A number of ARB's diesel risk reduction strategies have been adopted. These include measures to reduce emissions from refuse haulers, urban buses, transport refrigeration units, stationary and portable diesel engines, and idling trucks and school buses. These sources are all important from a community perspective.[18]

[18] The reader can refer to ARB's website for information on its mobile source-related programs at: http://www.arb.ca.gov/msprog/msprog.htm, as well as regulations adopted and under consideration as part of the Diesel Risk Reduction Program at: http://www.arb.ca.gov/diesel/dieselrrp.htm

The ARB will continue to evaluate the health effects of air pollutants while implementing programs with local air districts to reduce air pollution in all California communities.

Local air districts also have ambitious programs to reduce criteria pollutants and air toxics from regulated sources in their region. Many of these programs also benefit air quality in local communities as well as in the broader region. For more information on what is being done in your area to reduce cumulative air pollution impacts through air pollution control programs, you should contact your local air district.[19]

[19] Local air district contacts can be found on the inside cover to this Handbook.

7. Ways to Enhance Meaningful Public Participation

Community involvement is an important part of the land use process. The public is entitled to the best possible information about the air they breathe and what is being done to prevent or reduce unhealthful air pollution in their communities. In particular, information on how land use decisions can affect air pollution and public health should be made accessible to all communities, including low-income and minority communities.

Effective community participation consistently relies on a two-way flow of information – from public agencies to community members about opportunities, constraints, and impacts, and from community members back to public officials about needs, priorities, and preferences. The outreach process needed to build understanding and local neighborhood involvement requires data, methodologies, and formats tailored to the needs of the specific community. More importantly, it requires the strong collaboration of local government agencies that review and approve projects and land uses to improve the physical and environmental surroundings of the local community.

Many land use agencies, especially those in major metropolitan areas, are familiar with, and have a long-established public review process. Nevertheless, public outreach can often be improved. Active public involvement requires engaging the public in ways that do not require their previous interest in or knowledge of the land use or air pollution control requirements, and a commitment to taking action where appropriate to address the concerns that are raised.

■ Direct Community Outreach

In conjunction with local air districts, land use agencies should consider designing an outreach program for community groups, other stakeholders, and local government agency staffs that address the problem of cumulative air pollution impacts, and the public and government role in reducing them. Such a program could consider analytical tools that assist in the preparation and presentation of information in a way that supports sensible decision-making and public involvement. Table 7-1 contains some general outreach approaches that might be considered.

Table 7-1
Public Participation Approaches

- Staff and community leadership awareness training on environmental justice programs and community-based issues
- Surveys to identify the website information needs of interested community-based organizations and other stakeholders
- Information materials on local land use and air district authorities
- Community-based councils to facilitate and invite resident participation in the planning process
- Neighborhood CEQA scoping sessions that allows for community input prior to technical analysis
- Public information materials on siting issues are under review including materials written for the affected community, and in different media that widens accessibility
- Public meetings
- Identify other opportunities to include community-based organizations in the process

To improve outreach, local land use agencies should consider the following activities:

- Hold meetings in communities affected by agency programs, policies, and projects at times and in places that encourage public participation, such as evenings and weekends at centrally located community meeting rooms, libraries, and schools.
- Assess the need for and provide translation services at public meetings.
- Hold community meetings to update residents on the results of any special air monitoring programs conducted in their neighborhood.
- Hold community meetings to discuss and evaluate the various options to address cumulative impacts in their community.
- In coordination with local air districts, make staff available to attend meetings of community organizations and neighborhood groups to listen to and, where appropriate, act upon community concerns.
- Establish a specific contact person for environmental justice issues.
- Increase student and community awareness of local government land use activities and policies through outreach opportunities.
- Make air quality and land use information available to communities in an easily understood and useful format, including fact sheets, mailings, brochures, public service announcements, and web pages, in English and other languages.
- On the local government web-site, dedicate a page or section to what the land use program is doing regarding environmental justice and cumulative environmental impacts, and, as applicable, activities conducted with local air districts such as neighborhood air monitoring studies, pollution prevention, air pollution sources in neighborhoods, and risk reduction.

- Allow, encourage, and promote community access to land use activities, including public meetings, General Plan or Community Plan updates, zoning changes, special studies, CEQA reviews, variances, etc.
- Distribute information in multiple languages, as needed, on how to contact the land use agency or local air district to obtain information and assistance regarding environmental justice programs, including how to participate in public processes.
- Create and distribute a simple, easy-to-read, and understandable public participation handbook, which may be based on the "Public Participation Guidebook" developed by ARB.

- **Other Opportunities for Meaningful Public Outreach**

  - <u>Community-Based Planning Committees</u>

  Neighborhood-based or community planning advisory councils could be established to invite and facilitate direct resident participation into the planning process. With the right training and technical assistance, such councils can provide valuable input and a forum for the review of proposed amendments to plans, zone changes, land use permits, and suggestions as to how best to prevent or reduce cumulative air pollution impacts in their community.

  - <u>Regional Partnerships</u>

  Consider creating regional coalitions of key growth-related organizations from both the private and public sectors, with corporations, communities, other jurisdictions, and government agencies. Such partnerships could facilitate agreement on common goals and win-win solutions tailored specifically for the region. With this kind of dialogue, shared vision, and collaboration, barriers can be overcome and locally acceptable sustainable solutions implemented. Over the long term, such strategies will help to bring about clean air in communities as well as regionally.

LAND USE CLASSIFICATIONS AND ASSOCIATED FACILITY CATEGORIES THAT COULD EMIT AIR POLLUTANTS

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
COMMERCIAL/ LIGHT INDUSTRIAL: SHOPPING, BUSINESS, AND COMMERCIAL			
▲ Primarily retail shops and stores, office, commercial activities, and light industrial or small business	Dry cleaners; drive-through restaurants; gas dispensing facilities; auto body shops; metal plating shops; photographic processing shops; textiles; apparel and furniture upholstery; leather and leather products; appliance repair shops; mechanical assembly cleaning; printing shops	VOCs, air toxics, including diesel PM, NOx, CO, SOx	Limited; Rules for applicable equipment
▲ Goods storage or handling activities, characterized by loading and unloading goods at warehouses, large storage structures, movement of goods, shipping, and trucking.	Warehousing; freight-forwarding centers; drop-off and loading areas; distribution centers	VOCs, air toxics, including diesel PM, NOx, CO, SOx	No[v]
LIGHT INDUSTRIAL: RESEARCH AND DEVELOPMENT			
▲ Medical waste at research hospitals and labs	Incineration; surgical and medical instrument manufacturers, pharmaceutical manufacturing, biotech research facilities	Air toxics, NOx, CO, SOx	Yes
▲ Electronics, electrical apparatus, components, and accessories	Computer manufacturer; integrated circuit board manufacturer; semi-conductor production	Air toxics, VOCs	Yes
▲ College or university lab or research center	Medical waste incinerators; lab chemicals handling, storage and disposal	Air toxics, NOx, CO, SOx, PM10	Yes
▲ Research and development labs	Satellite manufacturer; fiber-optics manufacturer; defense contractors; space research and technology; new vehicle and fuel testing labs	Air toxics, VOCs	Yes
▲ Commercial testing labs	Consumer products; chemical handling, storage and disposal	Air toxics, VOCs	Yes

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
INDUSTRIAL: NON-ENERGY-RELATED			
▲ Assembly plants, manufacturing facilities, industrial machinery	Adhesives; chemical; textiles; apparel and furniture upholstery; clay, glass, and stone products production; asphalt materials; cement manufacturers, wood products; paperboard containers and boxes; metal plating; metal and canned food product fabrication; auto manufacturing; food processing; printing and publishing; drug, vitamins, and pharmaceuticals; dyes; paints; pesticides; photographic chemicals; polish and wax; consumer products; metal and mineral smelters and foundries; fiberboard; floor tile and cover; wood and metal furniture and fixtures; leather and leather products; general industrial and metalworking machinery; musical instruments; office supplies; rubber products and plastics production; saw mills; solvent recycling; shingle and siding; surface coatings	VOCs, air toxics, including diesel PM, NOx, PM, CO, SOx	Yes
INDUSTRIAL: ENERGY AND UTILITIES			
▲ Water and sewer operations	Pumping stations; air vents; treatment	VOCs, air toxics, NOx, CO, SOx, PM10	Yes
▲ Power generation and distribution	Power plant boilers and heaters; portable diesel engines; gas turbine engines	NOx, diesel PM, NOx, CO, SOx, PM10, VOCs	Yes
▲ Refinery operations	Refinery boilers and heaters; coke cracking units; valves and flanges; flares	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Yes
▲ Oil and gas extraction	Oil recovery systems; uncovered wells	NOx, diesel PM, VOCs, CO, SOx, PM10	Yes
▲ Gasoline storage, transmission, and marketing	Above and below ground storage tanks; floating roof tanks; tank farms; pipelines	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Yes
▲ Solid and hazardous waste treatment, storage, and disposal activities.	Landfills; methane digester systems; process recycling facility for concrete and asphalt materials	VOCs, air toxics, NOx, CO, SOx, PM10	Yes
CONSTRUCTION (NON-TRANSPORTATION)			
	Building construction; demolition sites	PM (re-entrained road dust), asbestos, diesel PM, NOx, CO, SOx, PM10, VOCs	Limited; state and federal off-road equipment standards

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
	Ordnance and explosives demolition; range and testing activities; chemical production; degreasing; surface coatings; vehicle refueling; vehicle and engine operations and maintenance	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Limited; prescribed burning; equipment and solvent rules
TRANSPORTATION			
▲ Vehicular movement	Residential area circulation systems; parking and idling at parking structures; drive-through establishments; car washes; special events; schools; shopping malls, etc.	VOCs, NOx, PM (re-entrained road dust) air toxics e.g., benzene, diesel PM, formaldehyde, acetaldehyde, 1,3 butadiene, CO, SOx, PM10	No
▲ Road construction and surfacing	Street paving and repair; new highway construction and expansion	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	No
▲ Trains	Railroads; switch yards; maintenance yards	VOCs, NOx, CO, SOx, PM10, air toxics, including diesel PM	Limited; Applicable state and federal MV standards, and possible equipment rules
▲ Marine and port activities	Recreational sailing; commercial marine operations; hotelling operations; loading and un-loading; servicing; shipping operations; port or marina expansion; truck idling		
▲ Aircraft	Takeoff, landing, and taxiing; aircraft maintenance; ground support activities		
▲ Mass transit and school buses	Bus repair and maintenance		
NATURAL RESOURCES			
▲ Farming operations	Agricultural burning; diesel operated engines and heaters; small food processors; pesticide application; agricultural off-road equipment	Diesel PM, VOCs, NOx, PM10, CO, SOx, pesticides	Limited[vi]; Agricultural burning requirements, applicable state and federal mobile source standards; pesticide rules
▲ Livestock and dairy operations	Dairies and feed lots	Ammonia, VOCs, PM10	Yes[vii]
▲ Logging	Off-road equipment e.g., diesel fueled chippers, brush hackers, etc.	Diesel PM, NOx, CO, SOx, PM10, VOCs	Limited; Applicable state/federal mobile source standards
▲ Mining operations	Quarrying or stone cutting; mining; drilling or dredging	PM10, CO, SOx, VOCs, NOx, and asbestos in some geographical areas	Applicable equipment rules and dust controls

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
RESIDENTIAL			
Housing	Housing developments; retirement developments; affordable housing	Fireplace emissions (PM10, NOx, VOCs, CO, air toxics); Water heater combustion (NOx, VOCs, CO)	No[vii]
ACADEMIC AND INSTITUTIONAL			
▲ Schools, including school-related recreational activities	Schools; school yards; vocational training labs/classrooms such as auto repair/painting and aviation mechanics	Air toxics	Yes/No[viii]
▲ Medical waste	Incineration	Air toxics, NOx, CO, PM10	Yes
▲ Clinics, hospitals, convalescent homes		Air toxics	Yes

[i] These classifications were adapted from the American Planning Association's "Land Based Classification Standards." The Standards provide a consistent model for classifying land uses based on their characteristics. The model classifies land uses by refining traditional categories into multiple dimensions, such as activities, functions, building types, site development character, and ownership constraints. Each dimension has its own set of categories and subcategories. These multiple dimensions allow users to have precise control over land-use classifications. For more information, the reader should refer to the Association's website at http://www.planning.org/LBCS/GeneralInfo/.

[ii] This column includes key criteria pollutants and air toxic contaminants that are most typically associated with the identified source categories.

Additional information on specific air toxics that are attributed to facility categories can be found in ARB's Emission Inventory Criteria and Guidelines Report for the Air Toxics Hot Spots Program (May 15, 1997). This information can be viewed at ARB's web site at http://www.arb.ca.gov/ab2588/final96/guide96.pdf.

Criteria air pollutants are those air pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Criteria pollutants include ozone (formed by the reaction of volatile organic compounds and nitrogen oxides in the presence of sunlight), particulate matter, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead.

Volatile organic compounds (VOCs) combine with nitrogen oxides to form ozone, as well as particulate matter. VOC emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. On-road mobile sources are the largest contributors to statewide VOC emissions. Stationary sources of VOC emissions include processes that use solvents (such as dry-cleaning, degreasing, and coating operations) and petroleum-related processes (such as petroleum refining, gasoline marketing and dispensing, and oil and gas extraction). Areawide VOC sources include consumer products, pesticides, aerosols and paints, asphalt paving and roofing, and other evaporative emissions.

Nitrogen oxides (NOx) are a group of gaseous compounds of nitrogen and oxygen, many of which contribute to the formation of ozone and particulate matter. Most NOx emissions are produced by the combustion of fuels. Mobile sources make up about 80 percent of the total statewide NOx emissions. Mobile sources include on-road vehicles and trucks, aircraft, trains, ships, recreational boats, industrial and construction equipment, farm

equipment, off-road recreational vehicles, and other equipment. Stationary sources of NOx include both internal and external combustion processes in industries such as manufacturing, food processing, electric utilities, and petroleum refining. Areawide source, which include residential fuel combustion, waste burning, and fires, contribute only a small portion of the total statewide NOx emissions, but depending on the community, may contribute to a cumulative air pollution impact.

Particulate matter (PM) refers to particles small enough to be breathed into the lungs (under 10 microns in size). It is not a single substance, but a mixture of a number of highly diverse types of particles and liquid droplets. It can be formed directly, primarily as dust from vehicle travel on paved and unpaved roads, agricultural operations, construction and demolition.

Carbon monoxide (CO) is a colorless and odorless gas that is directly emitted as a by-product of combustion. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. CO problems tend to be localized.

An Air Toxic Contaminant (air toxic) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serous illness, or which may pose a present or potential hazard to human health. Similar to criteria pollutants, air toxics are emitted from stationary, areawide, and mobile sources. They contribute to elevated regional and localized risks near industrial and commercial facilities and busy roadways. The ten compounds that pose the greatest statewide risk are: acetaldehyde; benzene; 1,3-butadiene; carbon tetrachloride; diesel particulate matter (diesel PM); formaldehyde; hexavalent chromium; methylene chloride; para-dichlorobenzene; and perchloroethylene. The risk from diesel PM is by far the largest, representing about 70 percent of the known statewide cancer risk from outdoor air toxics. The exhaust from diesel-fueled engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute about 26 percent of statewide diesel PM emissions, with an additional 72 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and other equipment. Stationary engines in shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations contribute about two percent of statewide emissions. However, when this number is disaggregated to a sub-regional scale such as neighborhoods, the risk factor can be far greater.

[iii] The level of pollution emitted is a major determinant of the significance of the impact.

[iv] Indicates whether facility activities listed in column 4 are generally subject to local air district permits to operate. This does not include regulated products such as solvents and degreasers that may be used by sources that may not require an operating permit per se, e.g., a gas station or dry cleaner.

[v] Generally speaking, warehousing or distribution centers are not subject to local air district permits. However, depending on the district, motor vehicle fleet rules may apply to trucks or off-road vehicles operated and maintained by the facility operator. Additionally, emergency generators or internal combustion engines operated on the site may require an operating permit.

[vi] Authorized by recent legislation SB700.

[vii] Local air districts do not require permits for woodburning fireplaces inside private homes. However, some local air districts and land use agencies do have rules or ordinances that require new housing developments or home re-sales to install U.S. EPA –certified stoves. Some local air districts also ban residential woodburning during weather inversions that concentrate smoke in residential areas. Likewise, home water heaters are not subject to permits; however, new heaters could be subject to emission limits that are imposed by federal or local agency regulations.

[viii] Technical training schools that conduct activities normally permitted by a local air district could be subject to an air permit.

LAND USE-BASED REFERENCE TOOLS TO EVALUATE NEW PROJECTS FOR POTENTIAL AIR POLLUTION IMPACTS

Land use agencies generally have a variety of tools and approaches at hand, or accessible from local air districts that can be useful in performing an analysis of potential air pollution impacts associated with new projects. These tools and approaches include:

- Base map of the city or county planning area and terrain elevations.
- General Plan designations of land use (existing and proposed).
- Zoning maps.
- Land use maps that identify existing land uses, including the location of facilities that are permitted or otherwise regulated by the local air district. Land use agencies should consult with their local air district for information on regulated facilities.
- Demographic data, e.g., population location and density, distribution of population by income, distribution of population by ethnicity, and distribution of population by age. The use of population data is a normal part of the planning process. However, from an air quality perspective, socioeconomic data is useful to identify potential community health and environmental justice issues.
- Emissions, monitoring, and risk-based maps created by the ARB or local air districts that show air pollution-related health risk by community across the state.
- Location of public facilities that enhance community quality of life, including parks, community centers, and open space.
- Location of industrial and commercial facilities and other land uses that use hazardous materials, or emit air pollutants. These include chemical storage facilities, hazardous waste disposal sites, dry cleaners, large gas dispensing facilities, auto body shops, and metal plating and finishing shops.
- Location of sources or facility types that result in diesel on-road and off-road emissions, e.g., stationary diesel power generators, forklifts, cranes, construction equipment, on-road vehicle idling, and operation of transportation refrigeration units. Distribution centers, marine terminals and ports, rail yards, large industrial facilities, and facilities that handle bulk goods are all examples of complex facilities where these types of emission sources are frequently concentrated.[1] Very large facilities, such as ports, marine terminals, and airports, could be analyzed regardless of proximity to a receptor if they are within the modeling area.
- Location and zoning designations for existing and proposed schools, buildings, or outdoor areas where sensitive individuals may live or play.
- Location and density of existing and proposed residential development.
- Zoning requirements, property setbacks, traffic flow requirements, and idling restrictions for trucks, trains, yard hostlers[2], construction equipment, or school buses.
- Traffic counts (including diesel truck traffic counts), within a community to validate or augment existing regional motor vehicle trip and speed data.

[1] The ARB is currently evaluating the types of facilities that may act as complex point sources and developing methods to identify them.

[2] Yard hostler means a tractor less than 300 horsepower that is used to transfer semi-truck or tractor-trailer containers in and around storage, transfer, or distribution yards or areas and is often equipped with a hydraulic lifting fifth wheel for connection to trailer containers.

ARB AND LOCAL AIR DISTRICT INFORMATION AND TOOLS CONCERNING CUMULATIVE AIR POLLUTION IMPACTS

It is the ARB's policy to support research and data collection activities toward the goal of reducing cumulative air pollution impacts. These efforts include updating and improving the air toxics emissions inventory, performing special air monitoring studies in specific communities, and conducting a more complete assessment of non-cancer health effects associated with air toxics and criteria pollutants.[1] This information is important because it helps us better understand links between air pollution and the health of sensitive individuals -- children, the elderly, and those with pre-existing serious health problems affected by air quality.

ARB is working with CAPCOA and OEHHA to improve air pollutant data and evaluation tools to determine when and where cumulative air pollution impacts may be a problem. The following provides additional information on this effort.

How are emissions assessed?

Detailed information about the sources of air pollution in an area is collected and maintained by local air districts and the ARB in what is called an emission inventory. Emission inventories contain information about the nature of the business, the location, type and amount of air pollution emitted, the air pollution-producing processes, the type of air pollution control equipment, operating hours, and seasonal variations in activity. Local districts collect emission inventory data for most stationary source categories.

Local air districts collect air pollution emission information directly from facilities and businesses that are required to obtain an air pollution operating permit. Local air districts use this information to compile an emission inventory for areas within their jurisdiction. The ARB compiles a statewide emission inventory based on the information collected by the ARB and local air districts. Local air districts provide most of the stationary source emission data, and ARB provides mobile source emissions as well as some areawide emission sources such as consumer products and paints. ARB is also developing map-based tools that will display information on air pollution sources.

Criteria pollutant data have been collected since the early 1970's, and toxic pollutant inventories began to be developed in the mid-1980's.

[1] A criteria pollutant is any air pollutant for which EPA has established a National Ambient Air Quality Standard or for which California has established a State Ambient Air Quality Standard, including: carbon monoxide, lead, nitrogen oxides, ozone, particulates and sulfur oxides. Criteria pollutants are measured in each of California's air basins to determine whether the area meets or does not meet specific federal or state air quality standards. Air toxics or air toxic contaminants are listed pollutants recognized by California or EPA as posing a potential risk to health.

How is the toxic emission inventory developed?

Emissions data for toxic air pollutants is a high priority for communities because of concerns about potential health effects. Most of ARB's air toxics data is collected through the toxic "Hot Spots" program. Local air districts collect emissions data from industrial and commercial facilities. Facilities that exceed health-based thresholds are required to report their air toxics emissions as part of the toxic "Hot Spots" program and update their emissions data every four years. Facilities are required to report their air toxics emissions data if there is an increase that would trigger the reporting threshold of the hotspots program. Air toxics emissions from motor vehicles and consumer products are estimated by the ARB. These estimates are generally regional in nature, reflecting traffic and population.

The ARB also maintains chemical speciation profiles that can be used to estimate toxics emissions when no toxic emissions data is available.

What additional toxic emissions information is needed?

In order to assess cumulative air pollution impacts, updated information from individual facilities is needed. Even for sources where emissions data are available, additional information such as the location of emissions release points is often needed to better model cumulative impacts. In terms of motor vehicles, emissions data are currently based on traffic models that only contain major roads and freeways. Local traffic data are needed so that traffic emissions can be more accurately assigned to specific streets and roads. Local information is also needed for off-road emission sources, such as ships, trains, and construction equipment. In addition, hourly maximum emissions data are needed for assessing acute air pollution impacts.

What work is underway?

ARB is working with CAPCOA to improve toxic emissions data, developing a community health air pollution information system to improve access to emission information, conducting neighborhood assessment studies to better understand toxic emission sources, and conducting surveys of sources of toxic pollutants.

How is air pollution monitored?

While emissions data identify how much air pollution is going into the air, the state's air quality monitoring network measures air pollutant levels in outdoor air. The statewide air monitoring network is primarily designed to measure regional exposure to air pollutants, and consists of more than 250 air monitoring sites.

The air toxics monitoring network consists of approximately 20 permanent sites. These sites are supplemented by special monitoring studies conducted by ARB and local air districts. These sites measure approximately sixty toxic air pollutants. Diesel PM, which is the major driver of urban air toxic risk, is not monitored directly. Ten of the

60 toxic pollutants, not including diesel, account for most of the remaining potential cancer risk in California urban areas.

What additional monitoring has been done?

Recently, additional monitoring has been done to look at air quality at the community level. ARB's community monitoring was conducted in six communities located throughout the state. Most sites were in low-income, minority communities located near major sources of air pollution, such as refineries or freeways. The monitoring took place for a year or more in each community, and included measurements of both criteria and toxic pollutants.

What is being learned from community monitoring?

In some cases, the ARB or local air districts have performed air quality monitoring or modeling studies covering a particular region of the state. When available, these studies can give information about regional air pollution exposures.

The preliminary results of ARB's community monitoring are providing insights into air pollution at the community level. Urban background levels are a major contributor to the overall risk from air toxics in urban areas, and this urban background tends to mask the differences between communities. When localized elevated air pollutant levels were measured, they were usually associated with local ground-level sources of toxic pollutants. The most common source of this type was busy streets and freeways. The impact these ground-level sources had on local air quality decreased rapidly with distance from the source. Pollutant levels usually returned to urban background levels within a few hundred meters of the source.

These results indicate that tools to assess cumulative impacts must be able to account for both localized, near-source impacts, as well as regional background air pollution. The tools that ARB is developing for this purpose are air quality models.

How can air quality modeling be used?

While air monitoring can directly measure cumulative exposure to air pollution, it is limited because all locations cannot be monitored. To address this, air quality modeling provides the capability to estimate exposure when air monitoring is not feasible. Air quality modeling can be refined to assess local exposure, identify locations of potential hot spots, and identify the relative contribution of emission sources to exposure at specific locations. The ARB has used this type of information to develop regional cumulative risk maps that estimate the cumulative cancer air pollution risk for most of California. While these maps only show one air pollution-related health risk, it does provide a useful starting point.

What is needed for community modeling?

Air quality models have been developed to assess near-source impacts, but they have very exacting data requirements. These near-source models estimate the impact of local sources, but do not routinely include the contribution from regional air pollution background. To estimate cumulative air pollution exposure at a neighborhood scale, a modeling approach needs to combine features of both micro-scale and regional models.

In addition, improved methods are needed to assess near-source impacts under light and variable wind conditions, when high local concentrations are more likely to occur. A method for modeling long-term exposure to air pollutants near freeways and other high traffic areas is also needed.

What modeling work has ARB developed?

A key component of ARB's Community Health Program is the Neighborhood Assessment Program (NAP). As described later in this section, the NAP studies are being conducted to better understand pollution impacts at the community level. Through two such studies conducted in Barrio Logan (San Diego) and Wilmington (Los Angeles), ARB is refining community-level modeling methodologies. Regional air toxics modeling is also being performed to better understand regional air pollution background levels.

In a parallel effort, ARB is developing modeling protocols for estimating cumulative emissions, exposure, and risk from air pollution. The protocols will cover modeling approaches and uncertainties, procedures for running the models, the development of statewide risk maps, and methods for estimating health risks. The protocols are subject to an extensive peer review process prior to release.

How are air pollution impacts on community health assessed?

On a statewide basis, ARB's toxic air contaminant program identifies and reduces public exposure to air toxics. The focus of the program has been on reducing potential cancer risk, because monitoring results show potential urban cancer risk levels are too high. ARB has also looked for potential non-cancer risks based on health reference levels provided by OEHHA. On a regional basis, the pollutants measured in ARB's toxic monitoring network are generally below the OEHHA non-cancer reference exposure levels.

As part of its community health program, the ARB is looking at potential cancer and non-cancer risk. This could include chronic or acute health effects. If the assessment work shows elevated exposures on a localized basis, ARB will work with OEHHA to assess the health impacts.

What tools has ARB developed to assess cumulative air pollution impacts?

ARB has developed the following tools and reports to assist land use agencies and local air districts assess and reduce cumulative emissions, exposure, and risk on a neighborhood scale.

Statewide Risk Maps

ARB has produced regional risk maps that show the statewide trends for Southern and Central California in estimated potential cancer risk from air toxics between 1990 and 2010.[2] These maps will supplement U.S. EPA's ASPEN model and are available on the ARB's Internet site. These maps are best used to obtain an estimate of the regional background air pollution health risk and are not detailed enough to estimate the exact risk at a specific location.

ARB also has maps that focus in more detail on smaller areas that fall within the Southern and Central California regions for these same modeled years. The finest visual resolution available in the maps on this web site is two by two kilometers. These maps are not detailed enough to assess individual neighborhoods or facilities.

Community Health Air Pollution Information System (CHAPIS)

CHAPIS is an Internet-based procedure for displaying information on emissions from sources of air pollution in an easy to use mapping format. CHAPIS uses Geographical Information System (GIS) software to deliver interactive maps over the Internet. CHAPIS relies on emission estimates reported to the ARB's emission inventory database - California Emissions Inventory Development and Reporting System, or CEIDARS.

Through CHAPIS, air district staff can quickly and easily identify pollutant sources and emissions within a specified area. CHAPIS contains information on air pollution emissions from selected large facilities and small businesses that emit criteria and toxic air pollutants. It also contains information on air pollution emissions from motor vehicle and areawide emissions. CHAPIS does not contain information on every source of air pollution or every air pollutant. It is a major long-term objective of CHAPIS to include all of the largest air pollution sources and those with the highest documented air pollution risk. CHAPIS will be updated on a periodic basis and additional facilities will be added to CHAPIS as more data becomes available.

CHAPIS is being developed in stages to assure data quality. The initial release of CHAPIS will include facilities emitting 10 or more tons per year of nitrogen oxides, sulfur dioxide, carbon monoxide, PM10, or reactive organic gases; air toxics from refineries and power plants of 50 megawatts or more; and facilities that conducted health risk

[2]ARB maintains state trends and local potential cancer risk maps that show statewide trends in potential inhalable cancer risk from air toxics between 1990 and 2010. This information can be viewed at ARB's web site at http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm)

assessments under the California Air Toxics "Hot Spots" Information and Assessment Program.[3]

CHAPIS can be used to identify the emission contributions from mobile, area, and point sources on that community.

"Hot Spots" Analysis and Reporting Program (HARP)

HARP[4] is a software package available from the ARB and is designed with air quality professionals in mind. It models emissions and release data from one or more facilities to estimate the potential health risk posed by the selected facilities on the neighboring community. HARP uses the latest risk assessment guidelines published by OEHHA.

With HARP, a user can perform the following tasks:

- Create and manage facility databases;
- Perform air dispersion modeling;
- Conduct health risk analyses;
- Output data reports; and
- Output results to GIS mapping software.

HARP can model downwind concentrations of air toxics based on the calculated emissions dispersion at a single facility. HARP also has the capability of assessing the risk from multiple facilities, and for multiple locations of concern near those facilities. While HARP has the capability to assess multiple source impacts, there had been limited application of the multiple facility assessment function in the field at the time of HARP's debut in 2003. HARP can also evaluate multi-pathway, non-inhalation health risk resulting from air pollution exposure, including skin and soil exposure, and ingestion of meat and vegetables contaminated with air toxics, and other toxics that have accumulated in a mother's breast milk.

Neighborhood Assessment Program (NAP)

The NAP[5] has been a key component of ARB's Community Health Program. It includes the development of tools that can be used to perform assessments of cumulative air pollution impacts on a neighborhood scale. The NAP studies have been done to better understand how air pollution affects individuals at the neighborhood level. Thus far, ARB has conducted neighborhood scale assessments in Barrio Logan and Wilmington.

As part of these studies, ARB is collecting data and developing a modeling protocol that can be used to conduct cumulative air pollution impact assessments. Initially these

[3] California Health & Safety Code section 44300, et seq.
[4] More detailed information can be found on ARB's website at: http://www.arb.ca.gov/toxics/harp/harp.htm
[5] For more information on the Program, please refer to: http://www.arb.ca.gov/ch/programs/nap/nap.htm

assessments will focus on cumulative inhalation cancer health risk and chronic non-cancer impacts. The major challenge is developing modeling methods that can combine both regional and localized air pollution impacts, and identifying the critical data necessary to support these models. The objective is to develop methods and tools from these studies that can ultimately be applied to other areas of the state. In addition, the ARB plans to use these methods to replace the ASPEN regional risk maps currently posted on the ARB Internet site.

Urban Emissions Model (URBEMIS)

URBEMIS[6] is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, office buildings, and construction projects. URBEMIS uses emission factors available from the ARB to estimate vehicle emissions associated with new land uses. URBEMIS estimates sulfur dioxide emissions from motor vehicles in addition to reactive organic gases, nitrogen oxides, carbon monoxide, and PM10.

Land-Use Air Quality Linkage Report[7]

This report summarizes data currently available on the relationships between land use, transportation and air quality. It also highlights strategies that can help to reduce the use of the private automobile. It also briefly summarizes two ARB-funded research projects. The first project analyzes the travel patterns of residents living in five higher density, mixed use neighborhoods in California, and compares them to travel in more auto-oriented areas. The second study correlates the relationship between travel behavior and community characteristics, such as density, mixed land uses, transit service, and accessibility for pedestrians.

[6] For more information on this model, please refer to ARB's website at http://www.arb.ca.gov/html/soft.htm.

[7] To access this report, please refer to ARB's website or click on: http://www.arb.ca.gov/ch/programs/link97.pdf

LAND USE AND AIR QUALITY AGENCY ROLES IN THE LAND USE PROCESS

A wide variety of federal, state, and local government agencies are responsible for regulatory, planning, and siting decisions that can have an impact on air pollution. They include local land use agencies, regional councils of government, school districts, local air districts, ARB, the California Department of Transportation (Caltrans), and the Governor's Office of Planning and Research (OPR) to name a few. This Section will focus on the roles and responsibilities of local and state agencies. The role of school districts will be discussed in Appendix E.

Local Land Use Agencies

Under the State Constitution, land use agencies have the primary authority to plan and control land use.[1] Each of California's incorporated cities and counties are required to adopt a comprehensive, long-term General Plan.[2]

The General Plan's long-term goals are implemented through zoning ordinances. These are local laws adopted by counties and cities that describe for specific areas the kinds of development that will be allowed within their boundaries.

Land use agencies are also the lead for doing environmental assessments under CEQA for new projects that may pose a significant environmental impact, or for new or revised General Plans.

Local Agency Formation Commissions (LAFCOs)

Operating in each of California's 58 counties, LAFCOs are composed of local elected officials and public members who are responsible for coordinating changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structures, and preparing a sphere of influence for each city and special district within each county. Each Commission's efforts are directed toward seeing that local government services are provided efficiently and economically while agricultural and open-space lands are protected. LAFCO decisions strive to balance the competing needs in California for efficient services, affordable housing, economic opportunity, and conservation of natural resources.

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[1] The legal basis for planning and land use regulation is the "police power" of the city or county to protect the public's health, safety and welfare. The California Constitution gives cities and counties the power to make and enforce all local police, sanitary and other ordinances and regulations not in conflict with general laws. State law reference: California Constitution, Article XI §7.

[2] OPR General Plan Guidelines, 2003: http://www.opr.ca.gov/planning/PDFs/General_Plan_Guidelines_2003.pdf

Councils of Government (COG)

COGs are organizations composed of local counties and cities that serve as a focus for the development of sound regional planning, including plans for transportation, growth management, hazardous waste management, and air quality. They can also function as the metropolitan planning organization for coordinating the region's transportation programs. COGs also prepare regional housing need allocations for updates of General Plan housing elements.

Local Air Districts

Under state law, air pollution control districts or air quality management districts (local air districts) are the local government agencies responsible for improving air quality and are generally the first point of contact for resolving local air pollution issues or complaints. There are 35 local air districts in California[3] that have authority and primary responsibility for regional clean air planning. Local air districts regulate stationary sources of air pollutants within their jurisdiction including but not limited to industrial and commercial facilities, power plants, construction activities, outdoor burning, and other non-mobile sources of air pollution. Some local air districts also regulate public and private motor vehicle fleet operators such as public bus systems, private shuttle and taxi services, and commercial truck depots.

- **Regional Clean Air Plans**

Local air districts are responsible for the development and adoption of clean air plans that protect the public from the harmful effects of air pollution. These plans incorporate strategies that are necessary to attain ambient air quality standards. Also included in these regional air plans are ARB and local district measures to reduce statewide emissions from mobile sources, consumer products, and industrial sources.

- **Facility-Specific Considerations**

Permitting. In addition to the planning function, local air districts adopt and enforce regulations, issue permits, and evaluate the potential environmental impacts of projects.

Pollution is regulated through permits and technology-based rules that limit emissions from operating units within a facility or set standards that vehicle fleet operators must meet. Permits to construct and permits to operate contain very specific requirements and conditions that tell each regulated source what it must do to limit its air pollution in compliance with local air district rules, regulations, and state law. Prior to receiving a permit, new facilities must go through a New Source Review (NSR) process that establishes air pollution control requirements for the facility. Permit conditions are typically contained in the permit to operate and specify requirements that businesses must follow; these may include limits on the amount of pollution that can be emitted, the

[3] Contact information for local air districts in California is listed in the front of this Handbook.

type of pollution control equipment that must be installed and maintained, and various record-keeping requirements.

Local air districts also notify the public about new permit applications for major new facilities, or major modifications to existing facilities that seek to locate within 1,000 feet of a school.

Local air districts can also regulate other types of sources to reduce emissions. These include regulations to reduce emissions from the following sources:

- hazardous materials in products used by industry such as paints, solvents, and de-greasers;
- agricultural and residential burning;
- leaking gasoline nozzles at service stations;
- public fleet vehicles such as sanitation trucks and school buses; and
- fugitive or uncontrolled dust at construction sites.

However, while emissions from industrial and commercial sources are typically subject to the permit authority of the local air district, sensitive sites such as a day care center, convalescent home, or playground are not ordinarily subject to an air permit. Local air district permits address the air pollutant emissions of a project but not its location.

Under the state's air toxics program, local air districts regulate air toxic emissions by adopting ARB air toxic control measures, or more stringent district-specific requirements, and by requiring individual facilities to perform a health risk assessment if emissions at the source exceed district-specific health risk thresholds[4], [5] (See the section on ARB programs for a more detailed summary of this program).

One approach by which local air districts regulate air toxics emissions is through the "Hot Spots" program.[6] The risk assessments submitted by the facilities under this

[4] Cal/EPA's Office of Environmental Health Hazard Assessment has published "A Guide to Health Risk Assessment" for lay people involved in environmental health issues, including policymakers, businesspeople, members of community groups, and others with an interest in the potential health effects of toxic chemicals. To access this information, please refer to http://www.oehha.ca.gov/pdf/HRSguide2001.pdf

[5] Section 44306 of the California Health & Safety Code defines a health risk assessment as a detailed comprehensive analysis that a polluting facility uses to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

[6] AB-2588 (the Air Toxics "Hot Spots" Information and Assessment Act) requires local air districts to prioritize facilities by high, intermediate, and low priority categories to determine which must perform a health risk assessment. Each district is responsible for establishing the prioritization score threshold at which facilities are required to prepare a health risk assessment. In establishing priorities for each facility, local air districts must consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant risk. All facilities within the highest category must prepare a health risk assessment. In addition, each district may require facilities in the intermediate and low priority categories to also submit a health risk assessment.

Table D-1
Local Sources of Air Pollution, Responsible Agencies, and Associated Regulatory Programs

Source	Examples	Primary Agency	Applicable Regulations
Large Stationary	Refineries, power plants, chemical facilities, certain manufacturing plants	Local air districts	Operating permit rules Air Toxics "Hot Spots" Law (AB 2588) Local district rules Air Toxic Control Measures (ATCMs)* New Source Review rules Title V permit rules
Small Stationary	Dry cleaners, auto body shops, welders, chrome plating facilities, service stations, certain manufacturing plants	Local air districts	Operating permit conditions, Air Toxics "Hot Spots" Law (AB 2588) Local district rules ATCMs* New Source Review rules
Mobile (non-fleet)	Cars, trucks, buses	ARB	Emission standards Cleaner-burning fuels (e.g., unleaded gasoline, low-sulfur diesel) Inspection and repair programs (e.g., Smog Check)
Mobile Equipment	Construction equipment	ARB, U.S. EPA	ARB rules U.S. EPA rules
Mobile (fleet)	Truck depots, school buses, taxi services	Local air districts, ARB	Local air district rules ARB urban bus fleet rule
Areawide	Paints and consumer products such as hair spray and spray paint	Local air district, ARB	ARB rules Local air district rules

*ARB adopts ATCMs, but local air districts have the responsibility to implement and enforce these measures or more stringent ones.

program are reviewed by OEHHA and approved by the local air district. Risk assessments are available by contacting the local air district.

Enforcement. Local air districts also take enforcement action to ensure compliance with air quality requirements. They enforce air toxic control measures, agricultural and residential burning programs, gasoline vapor control regulations, laws that prohibit air pollution nuisances, visible emission limits, and many other requirements designed to

clean the air. Local districts use a variety of enforcement tools to ensure compliance. These include notices of violation, monetary penalties, and abatement orders. Under some circumstances, a permit may be revoked.

- **Environmental Review**

As required by the California Environmental Quality Act (CEQA), local air districts also review and comment on proposed land use plans and development projects that can have a significant effect on the environment or public health.[7]

California Air Resources Board

The ARB is the air pollution control agency at the state level that is responsible for the preparation of air plans required by state and federal law. In this regard, it coordinates the activities of all local air districts to ensure all statutory requirements are met and to reduce air pollution emissions for sources under its jurisdiction.

Motor vehicles are the single largest emissions source category under ARB's jurisdiction as well as the largest overall emissions source statewide. ARB also regulates emissions from other mobile equipment and engines as well as emissions from consumer products such as hair sprays, perfumes, cleaners, and aerosol paints.

Air Toxics Program

Under state law, the ARB has a critical role to play in the identification, prioritization, and control of air toxic emissions. The ARB statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, Tanner 1983) created California's program to reduce exposure to air toxics.[8] The Air Toxics "Hot Spots" Information and Assessment Act (Hot Spots program) supplements the AB 1807 program, by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Under AB 1807, the ARB is required to use certain criteria to prioritize the identification and control of air toxics. In selecting substances for review, the ARB must consider criteria relating to emissions, exposure, and health risk, as well as persistence in the atmosphere, and ambient concentrations in the community. AB 1807 also requires the ARB to use available information gathered from the Hot Spots program when prioritizing compounds.

The ARB identifies pollutants as toxic air contaminants and adopts statewide air toxic control measures (ATCMs). Once ARB adopts an ATCM, local air districts must

[7] Section 4 of this Handbook contains more information on the CEQA process.
[8] For a general background on California's air toxics program, the reader should refer to ARB's website at http://www.arb.ca.gov/toxics/tac/appendxb.htm.

implement the measure, or adopt and implement district-specific measures that are at least as stringent as the state standard. Taken in the aggregate, these ARB programs will continue to further reduce emissions, exposure, and health risk statewide.

With regard to the land use decision-making process, ARB, in conjunction with local air districts, plays an advisory role by providing technical information on land use-related air issues.

Other Agencies

Governor's Office of Planning and Research (OPR)

In addition to serving as the Governor's advisor on land use planning, research, and liaison with local government, OPR develops and implements the state's policy on land use planning and coordinates the state's environmental justice programs. OPR updated its General Plan Guidelines in 2003 to highlight the importance of sustainable development and environmental justice policies in the planning process. OPR also advises project proponents and government agencies on CEQA provisions and operates the State Clearinghouse for environmental and federal grant documents.

California Department of Housing and Community Development

The Department of Housing and Community Development (HCD) administers a variety of state laws, programs and policies to preserve and expand housing opportunities, including the development of affordable housing. All local jurisdictions must update their housing elements according to a staggered statutory schedule, and are subject to certification by HCD. In their housing elements, cities and counties are required to include a land inventory which identifies and zones sites for future residential development to accommodate a mix of housing types, and to remove barriers to the development of housing.

An objective of state housing element law is to increase the overall supply and affordability of housing. Other fundamental goals include conserving existing affordable housing, improving the condition of the existing housing stock, removing regulatory barriers to housing production, expanding equal housing opportunities, and addressing the special housing needs of the state's most vulnerable residents (frail elderly, disabled, large families with children, farmworkers, and the homeless).

Transportation Agencies

Transportation agencies can also influence mobile source-related emissions in the land use decision-making process. Local transportation agencies work with land use agencies to develop a transportation (circulation) element for the General Plan. These local government agencies then work with other transportation-related agencies, such as the Congestion Management Agency (CMA), Metropolitan Planning Organization

(MPO), Regional Transportation Planning Agency (RTPA), and Caltrans to develop long and short range transportation plans and projects.

Caltrans is the agency responsible for setting state transportation goals and for state transportation planning, design, construction, operations and maintenance activities. Caltrans is also responsible for delivering California's multibillion-dollar state Transportation Improvement Program, a list of transportation projects that are approved for funding by the California Transportation Commission in a 4-year cycle.

When safety hazards or traffic circulation problems are identified in the existing road system, or when land use changes are proposed such as a new residential subdivision, shopping mall or manufacturing center, Caltrans and/or the local transportation agency ensure the projects meet applicable state, regional, and local goals and objectives.

Caltrans also evaluates transportation-related projects for regional air quality impacts, from the perspective of travel-related emissions as well as road congestion and increases in road capacity (new lanes).

California Energy Commission (CEC)

The CEC is the state's CEQA lead agency for permitting large thermal power plants (50 megawatts or greater). The CEC works closely with local air districts and other federal, state and local agencies to ensure compliance with applicable laws, ordinances, regulations and standards in the permitting, construction, operation and closure of such plants. The CEC uses an open and public review process that provides communities with outreach and multiple opportunities to participate and be heard. In addition to its comprehensive environmental impact and engineering design assessment process, the CEC also conducts an environmental justice evaluation. This evaluation involves an initial demographic screening to determine if a qualifying minority or low-income population exists in the vicinity of the proposed project. If such a population is present, staff considers possible environmental justice impacts including from associated project emissions in its technical assessments.[9]

Department of Pesticides Regulation (DPR)

Pesticides are industrial chemicals produced specifically for their toxicity to a target pest. They must be released into the environment to do their job. Therefore, regulation of pesticides focuses on using toxicity and other information to ensure that when pesticides are used according to their label directions, potential for harm to people and the environment is minimized. DPR imposes strict controls on use, beginning before pesticide products can be sold in California, with an extensive scientific program to ensure they can be used safely. DPR and county enforcement staff tracks the use of pesticides to ensure that pesticides are used properly. DPR collects periodic

[9] See California Energy Commission, "Environmental Performance Report," July 2001 at http://www.energy.ca.gov/reports/2001-11-20_700-01-001.PDF

measurements of any remaining amounts of pesticides in water, air, and on fresh produce. If unsafe levels are found, DPR requires changes in how pesticides are used, to reduce the possibility of harm. If this cannot be done - that is, if a pesticide cannot be used safely - use of the pesticide will be banned in California.[10]

Federal Agencies

Federal agencies have permit authority over activities on federal lands and certain resources, which have been the subject of congressional legislation, such as air, water quality, wildlife, and navigable waters. The U.S. Environmental Protection Agency generally oversees implementation of the federal Clean Air Act, and has broad authority for regulating certain activities such as mobile sources, air toxics sources, the disposal of toxic wastes, and the use of pesticides. The responsibility for implementing some federal regulatory programs such as those for air and water quality and toxics is delegated by management to specific state and local agencies. Although federal agencies are not subject to CEQA they must follow their own environmental process established under the National Environmental Policy Act (NEPA).

[10] For more information, the reader is encouraged to visit the Department of Pesticide Regulation web site at www.cdpr.ca.gov/docs/empm/pubs/tacmenu.htm.

SPECIAL PROCESSES THAT APPLY TO SCHOOL SITING

The California Education Code and the California Public Resources Code place primary authority for siting public schools with the local school district, which is the 'lead agency' for purposes of CEQA. The California Education Code requires public school districts to notify the local planning agency about siting a new public school or expanding an existing school. The planning agency then reports back to the school district regarding a project's conformity with the adopted General Plan. However, school districts can overrule local zoning and land use designations for schools if they follow specified procedures. In addition, all school districts must evaluate new school sites using site selection standards established in Section 14010 of Title 5 of the California Code of Regulations. Districts seeking state funding for school site acquisition must also obtain site approval from the California Department of Education.

Before making a final decision on a school site acquisition, a school district must comply with CEQA and evaluate the proposed site acquisition/new school project for air emissions and health risks by preparing and certifying an environmental impact report or negative declaration. Both the California Education Code section 17213 and the California Public Resources Code section 21151.8 require school districts to consult with administering agencies and local air districts when preparing the environmental assessment. Such consultation is required to identify both permitted and non-permitted "facilities" that might significantly affect health at the new site. These facilities include, but are not limited to, freeways and other busy traffic corridors, large agricultural operations, and rail yards that are within one-quarter mile of the proposed school site, and that might emit hazardous air emissions, or handle hazardous or acutely hazardous materials, substances, or waste.

As part of the CEQA process and before approving a school site, the school district must make a finding that either it found none of the facilities or significant air pollution sources, or alternatively, if the school district finds that there are such facilities or sources, it must determine either that they pose no significant health risks, or that corrective actions by another governmental entity would be taken so that there would be no actual or potential endangerment to students or school workers.

In addition, if the proposed school site boundary is within 500 feet of the edge of the closest traffic lane of a freeway or traffic corridor that has specified minimum average daily traffic counts, the school district is required to determine through specified risk assessment and air dispersion modeling that neither short-term nor long term exposure poses significant heath risks to pupils.

State law changes effective January 1, 2004 (SB352, Escutia 2003, amending Education Code section 17213 and Public Resources Code section 21151.8) also provides for cases in which the school district cannot make either of those two findings and cannot find a suitable alternative site. When this occurs, the school district must adopt a statement of over-riding considerations, as part of an environmental impact

report, that the project should be approved based on the ultimate balancing of the merits.

Some school districts use a standardized assessment process to determine the environmental impacts of a proposed school site. In the assessment process, school districts can use maps and other available information to evaluate risk, including a local air district's database of permitted source emissions. School districts can also perform field surveys and record searches to identify and calculate emissions from non-permitted sources within one-quarter mile radius of a proposed site. Traffic count data and vehicular emissions data can also be obtained from Caltrans for major roadways and freeways in proximity to the proposed site to model potential emissions impacts to students and school employees. This information is available from the local COG, Caltrans, or local cities and counties for non-state maintained roads.

GENERAL PROCESSES USED BY LAND USE AGENCIES TO ADDRESS AIR POLLUTION IMPACTS

There are several separate but related processes for addressing the air pollution impacts of land use projects. One takes place as part of the planning and zoning function. This consists of preparing and implementing goals and policies contained in county or city General Plans, community or area plans, and specific plans governing land uses such as residential, educational, commercial, industrial, and recreational activities. It also includes recommending locations for thoroughfares, parks and other public improvements.

Land use agencies also have a permitting function that includes performing environmental reviews and mitigation when projects may pose a significant environmental impact. They conduct inspections for zoning permits issued, enforce the zoning regulations and issue violations as necessary, issue zoning certificates of compliance, and check compliance when approving certificates of occupancy.

Planning

- **General Plan**[1]

The General Plan is a local government "blueprint" of existing and future anticipated land uses for long-term future development. It is composed of the goals, policies, and general elements upon which land use decisions are based. Because the General Plan is the foundation for all local planning and development, it is an important tool for implementing policies and programs beneficial to air quality. Local governments may choose to adopt a separate air quality element into their General Plan or to integrate air quality-beneficial objectives, policies, and strategies in other elements of the Plan, such as the land use, circulation, conservation, and community design elements.

More information on General Plan elements is contained in Appendix D.

- **Community Plans**

Community or area plans are terms for plans that focus on a particular region or community within the overall general plan area. It refines the policies of the general plan as they apply to a smaller geographic area and is implemented by ordinances and other discretionary actions, such as zoning.

[1] In October 2003, OPR revised its General Plan Guidelines. An entire chapter is now devoted to a discussion of how sustainable development and environmental justice goals can be incorporated into the land use planning process. For further information, the reader is encouraged to obtain a copy of OPR's General Plan Guidelines, or refer to their website at: http://www.opr.ca.gov/planning/PDFs/General_Plan_Guidelines_2003.pdf

- **Specific Plan**

A specific plan is a hybrid that can combine policies with development regulations or zoning requirements. It is often used to address the development requirements for a single project such as urban infill or a planned community. As a result, its emphasis is on concrete standards and development criteria.

- **Zoning**

Zoning is the public regulation of the use of land. It involves the adoption of ordinances that divide a community into various districts or zones. For instance, zoning ordinances designate what projects and activities can be sited in particular locations. Each zone designates allowable uses of land within that zone, such as residential, commercial, or industrial. Zoning ordinances can address building development standards, e.g., minimum lot size, maximum building height, minimum building setback, parking, signage, density, and other allowable uses.

Land Use Permitting

In addition to the planning and zoning function, land use agencies issue building and business permits, and evaluate the potential environmental impacts of projects. To be approved, projects must be located in a designated zone and comply with applicable ordinances and zoning requirements.

Even if a project is sited properly in a designated zone, a land use agency may require a new source to mitigate potential localized environmental impacts to the surrounding community below what would be required by the local air district. In this case, the land use agency could condition the permit by limiting or prescribing allowable uses including operating hour restrictions, building standards and codes, property setbacks between the business property and the street or other structures, vehicle idling restrictions, or traffic diversion.

Land use agencies also evaluate the environmental impacts of proposed land use projects or activities. If a project or activity falls under CEQA, the land use agency requires an environmental review before issuing a permit to determine if there is the potential for a significant impact, and if so, to mitigate the impact or possibly deny the project.

- **Land Use Permitting Process**

In California, the authority to regulate land use is delegated to city and county governments. The local land use planning agency is the local government administrative body that typically provides information and coordinates the review of development project applications. Conditional Use Permits (CUP) typically fall within a land use agency's discretionary authority and therefore are subject to CEQA. CUPs are

intended to provide an opportunity to review the location, design, and manner of development of land uses prior to project approval. A traditional purpose of the CUP is to enable a municipality to control certain uses that could have detrimental environmental effects on the community.

The process for permitting new discretionary projects is quite elaborate, but can be broken down into five fundamental components:

- Project application
- Environmental assessment
- Consultation
- Public comment
- Public hearing and decision

Project Application

The permit process begins when the land use agency receives a project application, with a detailed project description, and support documentation. During this phase, the agency reviews the submitted application for completeness. When the agency deems the application to be complete, the permit process moves into the environmental review phase.

Environmental Assessment

If the project is discretionary and the application is accepted as complete, the project proposal or activity must undergo an environmental clearance process under CEQA and the CEQA Guidelines adopted by the California Resources Agency.[2] The purpose of the CEQA process is to inform decision-makers and the public of the potential significant environmental impacts of a project or activity, to identify measures to minimize or eliminate those impacts to the point they are no longer significant, and to discuss alternatives that will accomplish the project goals and objectives in a less environmentally harmful manner.

What is a "Lead Agency"?

A lead agency is the public agency that has the principal responsibility for carrying out or approving a project that is subject to CEQA. In general, the land use agency is the preferred public agency serving as lead agency because it has jurisdiction over general land uses. The lead agency is responsible for determining the appropriate environmental document, as well as its preparation.

What is a "Responsible Agency"?

A responsible agency is a public agency with discretionary approval authority over a portion of a CEQA project (e.g., projects requiring a permit). As a responsible agency, the agency is available to the lead agency and project proponent for early consultation on a project to apprise them of applicable rules and regulations, potential adverse impacts, alternatives, and mitigation measures, and provide guidance as needed on applicable methodologies or other related issues.

What is a "Commenting Agency"?

A commenting agency is any public agency that comments on a CEQA document, but is neither a lead agency nor a responsible agency. For example, a local air district, as the agency with the responsibility for comprehensive air pollution control, could review and comment on an air quality analysis in a CEQA document for a proposed distribution center, even though the project was not subject to a permit or other pollution control requirements.

[2] Projects and activities that may have a significant adverse impact on the environment are evaluated under CEQA Guidelines set forth in title 14 of the California Code of Regulations, sections 15000 et seq.

To assist the lead agency in determining whether the project or activity may have a significant effect that would require the preparation of an EIR, the land use agency may consider criteria, or thresholds of significance, to assess the potential impacts of the project, including its air quality impacts. The land use agency must consider any credible evidence in addition to the thresholds, however, in determining whether the project or activity may have a significant effect that would trigger the preparation of an EIR.

The screening criteria to determine significance is based on a variety of factors, including local, state, and federal regulations, administrative practices of other public agencies, and commonly accepted professional standards. However, the final determination of significance for individual projects is the responsibility of the lead agency. In the case of land use projects, the lead agency would be the City Council or County Board of Supervisors.

A new land use plan or project can also trigger an environmental assessment under CEQA if, among other things, it will expose sensitive sites such as schools, day care centers, hospitals, retirement homes, convalescence facilities, and residences to substantial pollutant concentrations.[3]

CEQA only applies to "discretionary projects." Discretionary means the public agency must exercise judgment and deliberation when deciding to approve or disapprove a particular project or activity, and may append specific conditions to its approval. Examples of discretionary projects include the issuance of a CUP, re-zoning a property, or widening of a public road. Projects that are not subject to the exercise of agency discretion, and can therefore be approved administratively through the application of set standards are referred to as ministerial projects. CEQA does not apply to ministerial projects.[4] Examples of typical ministerial projects include the issuance of most building permits or a business license.

Once a potential environmental impact associated with a project is identified through an environmental assessment, mitigation must be considered. A land use agency should incorporate mitigation measures that are suggested by the local air district as part of the project review process.

Consultation

Application materials are provided to various departments and agencies that may have an interest in the project (e.g., air pollution, building, police, fire, water agency, Fish and Game, etc.) for consultation and input.

[3] Readers interested in learning more about CEQA should contact OPR or visit their website at http://www.opr.ca.gov/.

[4] See California Public Resources Code section 21080(b)(1).

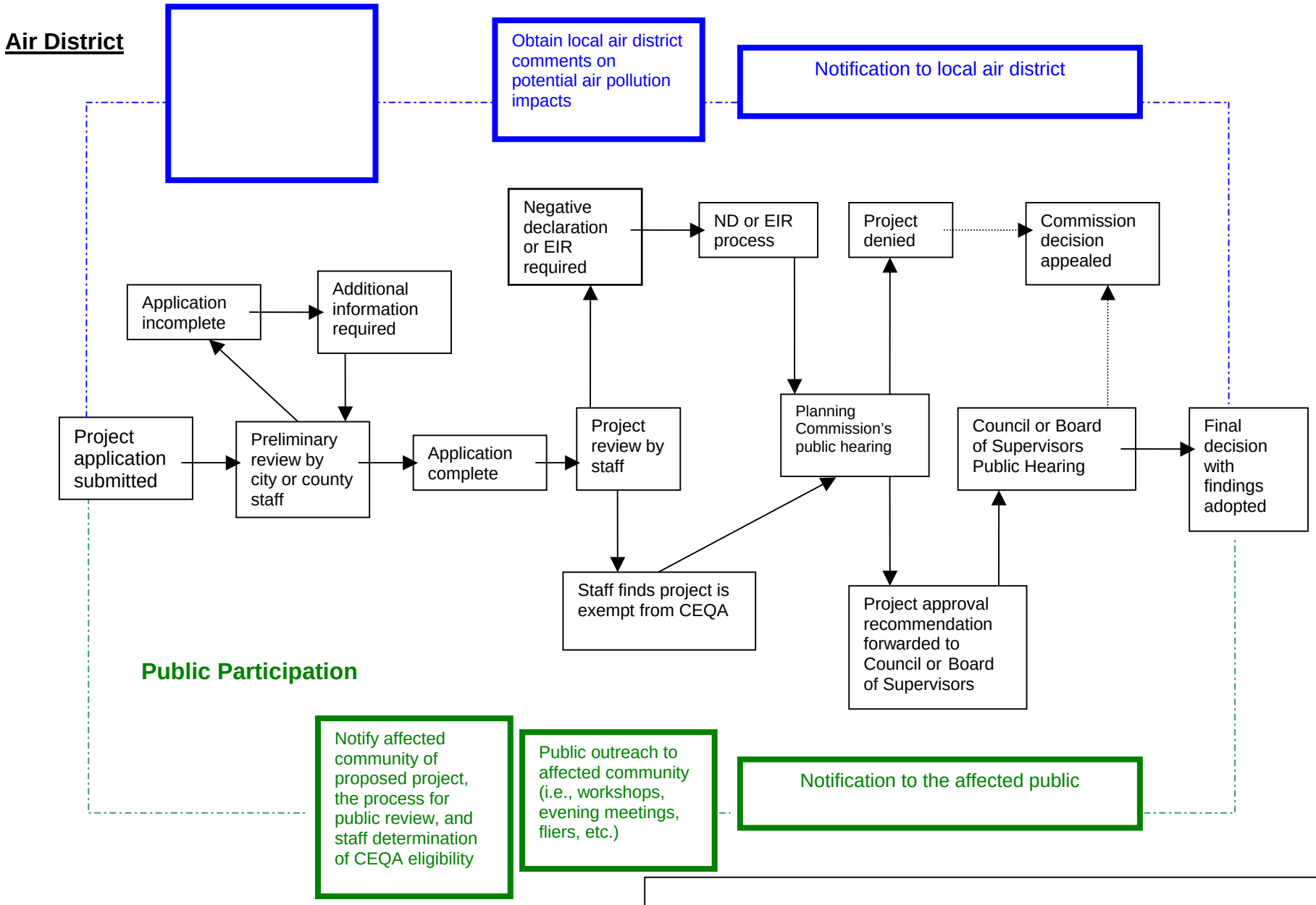
Public Comment

Following the environmental review process, the Planning Commission reviews application along with the staff's report on the project assessment and a public comment period is set and input is solicited.

Public Hearing and Decision

Permit rules vary depending on the particular permit authority in question, but the process generally involves comparing the proposed project with the land use agency standards or policies. The procedure usually leads to a public hearing, which is followed by a written decision by the agency or its designated officer. Typically, a project is approved, denied, or approved subject to specified conditions.

USE PERMIT (DISCRETIONARY ACTION) REVIEW PROCESS*



illustrative purposes only. In reality, the land use siting process involves the ongoing participation of multiple affected agencies and stakeholders throughout the process.

GLOSSARY OF KEY AIR POLLUTION TERMS

Air Pollution Control Board or Air Quality Management Board: Serves as the governing board for local air districts. It consists of appointed or elected members from the public or private sector. It conducts public hearings to adopt local air pollution regulations.

Air Pollution Control Districts or Air Quality Management Districts (local air district): A county or regional agency with authority to regulate stationary and area sources of air pollution within a given county or region. Governed by a district air pollution control board.

Air Pollution Control Officer (APCO): Head of a local air pollution control or air quality management district.

Air Toxic Control Measures (ATCM): A control measure adopted by the ARB (Health and Safety Code section 39666 et seq.), which reduces emissions of toxic air contaminants.

Ambient Air Quality Standards: An air quality standard defines the maximum amount of a pollutant that can be present in the outdoor air during a specific time period without harming the public's health. Only U.S. EPA and the ARB may establish air quality standards. No other state has this authority. Air quality standards are a measure of clean air. More specifically, an air quality standard establishes the concentration at which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Federal standards are referred to as National Ambient Air Quality Standards (NAAQS); state standards are referred to as California ambient air quality standards (CAAQS).

Area-wide Sources: Sources of air pollution that individually emit small amounts of pollution, but together add up to significant quantities of pollution. Examples include consumer products, fireplaces, road dust, and farming operations.

Attainment vs. Nonattainment Area: An attainment area is a geographic area that meets the National Ambient Air Quality Standards for the criteria pollutants and a non-attainment area is a geographic area that doesn't meet the NAAQS for criteria pollutants.

Attainment Plan: Attainment plans lay out measures and strategies to attain one or more air quality standards by a specified date.

California Clean Air Act (CCAA): A California law passed in 1988, which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air districts in violation of the CAAQS

must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

California Environmental Quality Act (CEQA): A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process helps decision-makers determine whether any potential, significant, adverse environmental impacts are associated with a proposed project and to identify alternatives and mitigation measures that will eliminate or reduce such adverse impacts.[1]

California Health and Safety Code: A compilation of California laws, including state air pollution laws, enacted by the Legislature to protect the health and safety of people in California. Government agencies adopt regulations to implement specific provisions of the California Health and Safety Code.

Clean Air Act (CAA): The federal Clean Air Act was adopted by the United States Congress and sets forth standards, procedures, and requirements to be implemented by the U.S. Environmental Protection Agency (U.S. EPA) to protect air quality in the United States.

Councils of Government (COGs): There are 25 COGs in California made up of city and county elected officials. COGs are regional agencies concerned primarily with transportation planning and housing; they do not directly regulate land use.

Criteria Air Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM10 and PM2.5. The term "criteria air pollutants" derives from the requirement that the U.S. EPA and ARB must describe the characteristics and potential health and welfare effects of these pollutants. The U.S. EPA and ARB periodically review new scientific data and may propose revisions to the standards as a result.

District Hearing Board: Hears local air district permit appeals and issues variances and abatement orders. The local air district board appoints the members of the hearing board.

Emission Inventory: An estimate of the amount of pollutants emitted into the atmosphere from mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

Environmental Impact Report (EIR): The public document used by a governmental agency to analyze the significant environmental effects of a proposed project, to identify

[1] To track the submittal of CEQA documents to the State Clearinghouse within the Office of Planning and Research, the reader can refer to CEQAnet at http://www.ceqanet.ca.gov.

alternatives, and to disclose possible ways to reduce or avoid the possible negative environmental impacts.

Environmental Justice: California law defines environmental justice as the fair treatment of people of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code sec.65040.12(c)).

General Plans: A statement of policies developed by local governments, including text and diagrams setting forth objectives, principles, standards, and plan proposals for the future physical development of the city or county.

Hazardous Air Pollutants (HAPs): An air pollutant listed under section 112 (b) of the federal Clean Air Act as particularly hazardous to health. U.S. EPA identifies emission sources of hazardous air pollutants, and emission standards are set accordingly. In California, HAPs are referred to as toxic air contaminants.

Land Use Agency: Local government agency that performs functions associated with the review, approval, and enforcement of general plans and plan elements, zoning, and land use permitting. For purposes of this Handbook, a land use agency is typically a local planning department.

Mobile Source: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes.

National Ambient Air Quality Standard (NAAQS): A limit on the level of an outdoor air pollutant established by the US EPA pursuant to the Clean Air Act. There are two types of NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare.

Negative Declaration (ND): When the lead agency (the agency responsible for preparing the EIR or ND) under CEQA, finds that there is no substantial evidence that a project may have a significant environmental effect, the agency will prepare a "negative declaration" instead of an EIR.

New Source Review (NSR): A federal Clean Air Act requirement that state implementation plans must include a permit review process, which applies to the construction and operation of new or modified stationary sources in nonattainment areas. Two major elements of NSR to reduce emissions are best available control technology requirements and emission offsets.

Office of Planning and Research (OPR): OPR is part of the Governor's office. OPR has a variety of functions related to local land-use planning and environmental programs. It provides General Plan Guidelines for city and county planners, and coordinates the state clearinghouse for Environmental Impact Reports.

Ordinance: A law adopted by a City Council or County Board of Supervisors. Ordinances usually amend, repeal or supplement the municipal code; provide zoning specifications; or appropriate money for specific purposes.

Overriding Considerations: A ruling made by the lead agency in the CEQA process when the lead agency finds the importance of the project to the community outweighs potential adverse environmental impacts.

Public Comment: An opportunity for the general public to comment on regulations and other proposals made by government agencies. You can submit written or oral comments at the public meeting or send your written comments to the agency.

Public Hearing: A public hearing is an opportunity to testify on a proposed action by a governing board at a public meeting. The public and the media are welcome to attend the hearing and listen to, or participate in, the proceedings.

Public Notice: A public notice identifies the person, business, or local government seeking approval of a specific course of action (such as a regulation). It describes the activity for which approval is being sought, and describes the location where the proposed activity or public meeting will take place.

Public Nuisance: A public nuisance, for the purposes of air pollution regulations, is defined as a discharge from any source whatsoever of such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. (Health and Safety Code section 41700).

Property Setback: In zoning parlance, a setback is the minimum amount of space required between a lot line and a building line.

Risk: For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g.,10 chances in a million).

Sensitive Individuals: Refers to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality).

Sensitive Sites or Sensitive Land Uses: Land uses where sensitive individuals are most likely to spend time, including schools and schoolyards, parks and playgrounds, day care centers, nursing homes, hospitals, and residential communities.

Setback: An area of land separating one parcel of land from another that acts to soften or mitigate the effects of one land use on the other.

State Implementation Plan (SIP): A plan prepared by state and local agencies and submitted to U.S. EPA describing how each area will attain and maintain national ambient air quality standards. SIPs include the technical information about emission inventories, air quality monitoring, control measures and strategies, and enforcement mechanisms. A SIP is composed of local air quality management plans and state air quality regulations.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities.

Toxic Air Contaminant (TAC): An air pollutant, identified in regulation by the ARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650 et seq.) than pollutants subject to State Ambient Air Quality Standards. Health effects associated with TACs may occur at extremely low levels. It is often difficult to identify safe levels of exposure, which produce no adverse health effects.

Urban Background: The term is used in this Handbook to represent the ubiquitous, elevated, regional air pollution levels observed in large urban areas in California.

Zoning ordinances: City councils and county boards of supervisors adopts zoning ordinances that set forth land use classifications, divides the county or city into land use zones as delineated on the official zoning, maps, and set enforceable standards for future develop

Click here to enlarge the FHSZ viewer (mobile friendly)

Find your Fire Hazard Severity Zone (FHSZ) and local public contacts

95765, Rocklin, California

Results:3

Your Responsibility Area

This property is in **Local Responsibility Area (LRA)**, meaning the financial responsibility of preventing and suppressing wildfires is primarily the responsibility of a Local agency (city, county, city and county, or district).

View additional information about your local jurisdiction below.

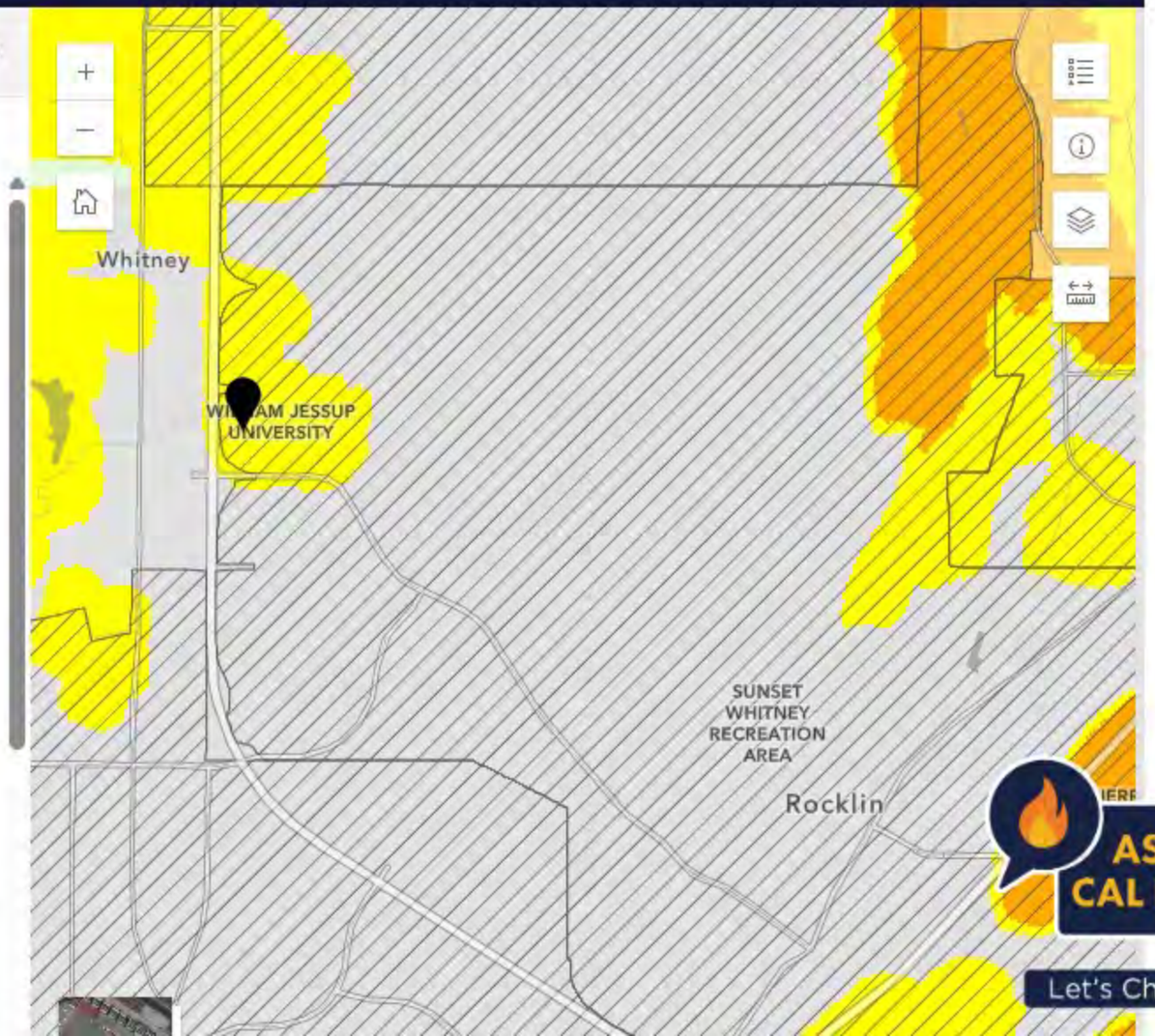
Your Recommended Fire Hazard Severity Zone

The geographic center of this parcel is located in a **Moderate** Fire Hazard Severity Zone (FHSZ), as recommended by the State Fire Marshal in 2025. Please inspect the map visually to determine if other zone recommendations exist in your parcel.

Local jurisdictions are currently reviewing the recommended FHSZs in LRA prior to adoption; the final adopted zones may differ from what is currently shown on this map.

Your Jurisdiction

Based on CAL FIRE's statewide jurisdictional layer, your local jurisdiction is



SWIS Facility/Site Activity Details

Western Regional Landfill (31-AA-0210)

Activity
Solid Waste Landfill

Classification
Solid Waste Facility

Category
Disposal

Operational Status
Active

Regulatory Status
Permitted

Ceased Operation Date
1/1/2058

Closure Type
Estimate

Inspection Frequency
Monthly

Max. Permitted Throughput
1,900

Volume Unit Type
Tons per day

Remaining Capacity
29,093,819

Remaining Capacity Date
6/30/2005

Max. Permit Capacity
36,350,000

Capacity Unit Type
Cubic Yards

Total Acreage
281.00

Disposal Acreage
231.00

Permitted Elevation
295

Elevation Type
MSL

Permitted Depth

57

Depth Type

MSL

WDR Landfill Class

II,III

Waste Types

Sludge (BioSolids)
Mixed Municipal
Construction/demolition
Ash

CalRecycle Contact: Lauren Grant (916) 341-6115

Back

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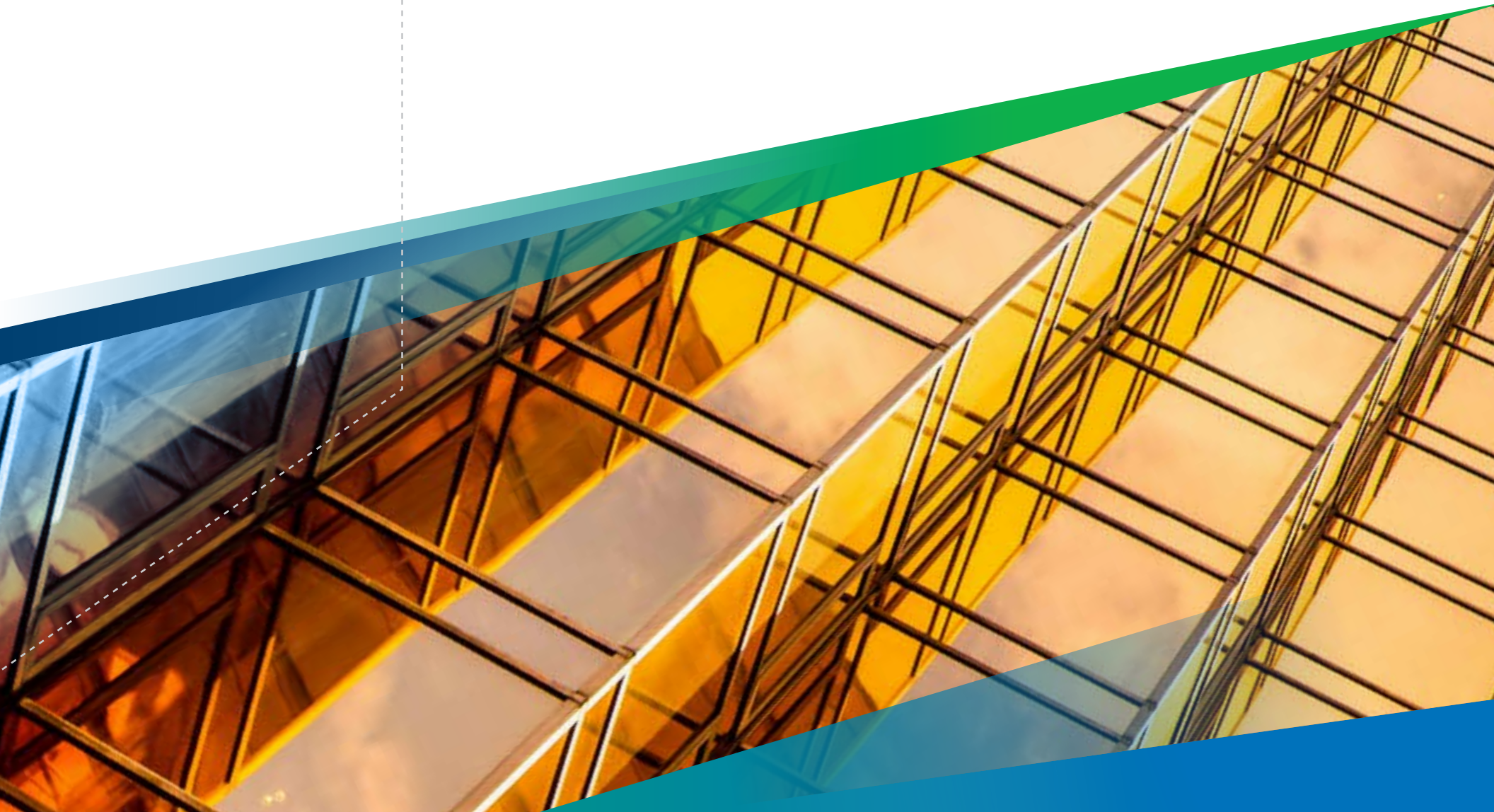
DISTRICT	RTE	RTE_SFX	CNTY	PM_PFX	PM	PM_SFX
03	065		PLA	R	4.863	
03	065		PLA	R	5.926	
03	065		PLA	R	7.100	
03	065		PLA	M	8.258	
03	065		PLA	R	9.569	
03	065		PLA	R	11.921	
03	065		PLA	R	12.412	
03	065		PLA	R	13.359	
03	065		PLA	R	15.546	
03	065		PLA	R	15.568	
03	065		PLA	R	17.446	
03	065		PLA	R	19.442	
03	065		PLA	R	19.461	
03	065		PLA	L	23.168	
03	065		PLA	L	23.193	
03	065		PLA	R	24.259	

DESCRIPTION
ROSEVILLE, JCT. RTE. 80
ROSEVILLE, GALLERIA BOULEVARD
PLEASANT GROVE
WASHINGTON BOULEVARD
PLACER/SUNSET BOULEVARDS
TWELVE BRIDGES OVERCROSSING
INDUSTRIAL AVENUE
FERRARI RANCH RD
NELSON LANE
NELSON RD NB 65
NICOLAUS ROAD
W. WISE RD SB 65
WEST WISE RD SB 65
RIOSA RD NB 65
RIOSA RD
PLACER/YUBA COUNTY LINE

BACK_PEAK_HOUR	BACK_PEAK_MADT	BACK_AADT	AHEAD_PEAK_HOUR	AHEAD_PEAK_MADT	AHEAD_AADT
			9400	127000	123000
9400	127000	123000	10700	120000	84000
10700	120000	84000	9200	119000	81000
8100	107000	81000	6800	91000	88000
6800	91000	88000	6600	88000	83000
5900	73000	70000	5900	68000	66000
5900	69000	66000	5700	66000	64000
5700	67000	65000	2900	35000	32500
1650	30000	28500	1900	22900	21600
1900	30000	28500	1900	22900	21600
1900	22900	22200	1900	23200	22800
1900	22600	21500	1900	24700	22600
1800	21300	18000	1900	22800	21300
1900	22900	21500	2000	24200	22800
1900	23000	21500	2000	24200	22800
1850	25000	23300			

2022
BUILDING ENERGY EFFICIENCY STANDARDS SUMMARY



Executive Summary

The California Energy Commission (CEC) is the state's primary energy policy and planning agency with a mission to lead the state to a 100 percent clean energy future. The CEC develops policy to reduce energy usage and costs, limit the environmental impacts of energy generation and use, and ensure a safe, resilient, and reliable supply of energy.

What Does the CEC Have to Do With the Building Code?

Homes and businesses use nearly 70 percent of California's electricity and are responsible for a quarter of California's greenhouse gas (GHG) emissions. As California's energy policy agency, the CEC was mandated by the Warren-Alquist Act to periodically update and adopt building standards to increase energy efficiency of buildings and reduce GHGs. Part 6 of Title 24 implemented this mandate so that every three years the CEC presents Building Energy Efficiency Standards (Energy Code) updates for new construction and renovations to existing buildings.

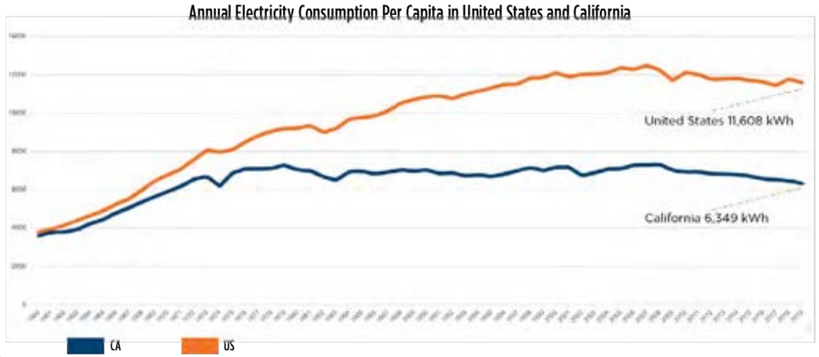
After the CEC adopts these standards, they are submitted to the California Building Standards Commission for approval and inclusion with other changes to the building code. The Energy Code is designed to be cost-effective so that implementation is affordable while helping California manage energy demand and advance the state's climate and clean air goals.

HOMES AND BUSINESSES USE NEARLY 70 PERCENT OF CALIFORNIA'S ELECTRICITY AND ARE RESPONSIBLE FOR A QUARTER OF CALIFORNIA'S GREENHOUSE GAS (GHG) EMISSIONS.

How Do Standards Affect Me?

The standards help everyone! As standards require upgrades such as better insulation and more effective climate control in buildings, the increases in energy efficiency reduce utility bills. This also improves comfort inside buildings. The standards increase the market value of properties by making them more affordable to operate. They reduce GHGs by using less energy from fossil fuel-burning power plants that emit harmful smog-forming pollutants and climate-changing gases. Some of the water-saving measures in the standards lead to more efficient appliances and building fixtures that buoy California's water supply and save energy by using and moving less water.

Thanks in part to California's efficiency standards, the state's per capita energy use has stayed nearly flat since the early 1970s, even as the state's economy grew by 80 percent.



CALIFORNIANS USE 31 PERCENT LESS ENERGY COMPARED TO THE AVERAGE AMERICAN

WHAT'S NEW FOR 2022?

The proposed 2022 Energy Code update focuses on four key areas in new construction of homes and businesses:

- Encouraging electric heat pump technology and use
- Establishing electric-ready requirements when natural gas is installed
- Expanding solar photovoltaic (PV) system and battery storage standards
- Strengthening ventilation standards to improve indoor air quality

2022 Energy Code: Better for the Environment and You

Heat pumps use less energy and produce fewer emissions than traditional HVACs and water heaters.

Electric-ready building sets up owners to use cleaner electric heating, cooking, and electric vehicle (EV) charging when they're ready to invest in those technologies.

Using battery storage allows onsite energy to be available when needed and reduces the grid's reliance on fossil fuel power plants.

Better ventilation can reduce illness from poor air quality and reduce disease transmission.

The Energy Code in Action

Since 1978, energy standards have supported California's long-term strategy to meet energy demand, conserve resources, and act as an environmental steward. All building standards under consideration must be cost-effective and technically feasible to be adopted.

The Energy Code governs:

- Window and door materials
- Lighting
- Electrical panels
- Insulation
- Faucets
- And more

40 YEARS OF ENERGY EFFICIENCY STANDARDS FOR BUILDINGS AND APPLIANCES HAVE SAVED CALIFORNIANS MORE THAN $100 BILLION

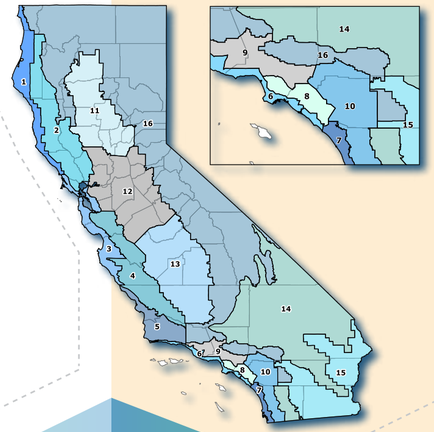
These requirements vary between home and business buildings, as well as among climate zones in which they are implemented. The Energy Code applies to new construction and renovations to existing buildings.

The Energy Code has not only revolutionized building construction in California, but influenced efficiency goals and practices in countries around the globe. Every update helps the state meet its energy and environmental goals while directly benefiting building owners and occupants through more comfortable buildings that save money on energy costs and, not incidentally, increase market value.

With climate change impacts accelerating, there is an even greater need for homes that are comfortable, efficient, and resilient. Each updated code guides the construction of buildings to keep energy use down, better withstand extreme weather, and reduce climate and air pollution.

It's an Area We Call the "Climate Zone"

California is so vast and varied in landscape and weather that there is no one building design that can be the most energy-efficient everywhere. To accommodate those differences, the state is divided into 16 climate zones. Each climate zone represents a geographic area based on such factors as temperature, weather, and typical energy use. Each zone has an assigned energy budget, based on the maximum amount of energy that a building (or portion of a building) can be designed to consume per year. Minimum efficiency requirements are created from that energy budget.



The Energy-Efficient Revolution Continues

The CEC was born of the energy crisis that affected the United States in the early 1970s. To address energy demand that outstripped supply, California created the CEC to design energy policy that reduced use through better efficiencies. The core focus of the building standards has been efficiency, but the 2019 Energy Code ventured into onsite generation by requiring solar PV on new homes, providing significant GHG savings. The 2022 update builds off this progress with expanded solar standards and the move to onsite energy storage that will help Californians save on utility bills while bolstering the grid.

UPDATES FOR 2022

New and more efficient technologies are being developed all the time, with many supported by funding from state programs that bring these energy innovations to markets and consumers. The 2022 Energy Code builds on California's technology innovations, encouraging inclusion of market-ready electric products in new construction, such as heat pumps for climate control and water heating.

The update also requires all new homes be electric-ready. That means buildings with gas stoves have the electrical panels and wiring to support a switch to electric stoves. Further advancements and cost reductions will continue to expand electric options for heating, cooking, laundering, and EV charging to meet all Californians' needs. These are crucial steps in the state's progress toward 100 percent clean electricity and carbon neutrality by midcentury, or earlier.

Proposed Standards

The 2022 Energy Code update revises energy efficiency standards for newly constructed buildings, as well as additions and alterations to existing buildings. The CEC engaged in a lengthy public process leading up to adoption of the proposed 2022 standards.

2022 Energy Code Benefits

- Increases on-site renewable energy generation from solar.
- Increases electric load flexibility to support grid reliability.
- Reduces emissions from newly constructed buildings.
- Reduces air pollution for improved public health.
- Encourages adoption of environmentally beneficial efficient electric technologies.

How Does the 2022 Energy Code Affect Homes?

- Establishes energy budgets based on efficient heat pumps for space or water heating to encourage builders to install heat pumps over gas-fueled HVAC units.
- Requires homes to be electric-ready, with dedicated 240-volt outlets and space (with plumbing for water heaters) so electric appliances can eventually replace installed gas appliances.
- Increases minimum kitchen ventilation requirements so that fans over cooktops have higher airflow or capture efficiency to better exhaust pollution from gas cooking and improve indoor air quality.
- Allows exceptions to existing solar PV standards when roof area is not available (such as for smaller homes).

How Does It Affect Businesses?

- Establishes combined solar PV and battery standards for select businesses. Systems are sized to maximize onsite use of solar energy and avoid electricity demand during times when the grid must use gas-powered plants.
- Establishes new efficiency standards for commercial greenhouses (primarily cannabis growing).
- Improves efficiency standards for building envelope, various internal systems, and grid integration equipment, such as demand-responsive controls to buoy grid stability.

OVER 30 YEARS, THE 2022 ENERGY CODE IS ESTIMATED TO PROVIDE $1.5 BILLION IN CONSUMER BENEFITS AND REDUCE 10 MILLION METRIC TONS OF GHGS, EQUIVALENT TO TAKING NEARLY 2.2 MILLION CARS OFF THE ROAD FOR A YEAR.

Breaking Down the Updates

Heat Pumps: The New Standard

Heat pumps are an electric technology for water and space heating that increases efficiency, reduces GHGs, and enables load flexibility. Current California market share is less than 6 percent in new home construction.

Standards include:

- Single-family homes — heat pump water or space standard.
- Multifamily homes such as apartment buildings — heat pump space heating standard.
- Businesses — heat pumps standard for schools, offices, banks, libraries, retail, grocery.

New Homes to Be Electric-Ready

The standards require single-family homes to be electric-ready, including:

- Electrical circuits for space heating, water heating, cooking/ovens, and clothes dryers.
- Electrical panel, branch circuits, and transfer switch for battery storage.
- Dedicated circuits and panels to easily convert from natural gas to electric in the future.

Solar and Storage Use Expanded

The 2022 Energy Code extends solar and introduces battery storage standards to the following building types:

- High-rise multifamily (apartments and condos)
- Hotel-motel
- Tenant space
- Office, medical office, and clinics
- Retail and grocery stores
- Restaurants
- Schools
- Civic (theaters, auditoriums, and convention centers)

The Challenge of Existing Buildings

In addition to new buildings, the standards apply to substantial upgrades to existing homes and businesses.

At least 50 percent of single-family homes and nearly 60 percent of California's apartment complexes (about 14 million total residences) were built before the state's first energy standards.

Updating older buildings is critical to achieving the state's climate and clean energy goals.

Communities Ahead of the Curve

California is already an international leader in energy efficiency and clean energy. However, after each update, many cities and counties choose to adopt standards that exceed the state minimum. The California Green Building Standards ("CALGreen" or Part 11 of Title 24) include voluntary reach standards, which offer model building code language for local governments that wish to go beyond the minimum statewide requirements.

Reach standards are an important tool for jurisdictions to meet their own climate goals. It allows them to decide on standards that meet their needs and interests, so long as they also meet or exceed state code requirements.

Historically, such local ordinances have served as a bellwether for statewide standards. They provide a place to test market readiness for new technologies and regulations, drive innovation of new technologies and efficiencies, and bring down the cost of efficient building technologies by creating an installed user base that encourages scale manufacturing.

What's Next?

In developing the standards over the past two years, the CEC met with more than 50 industry stakeholder groups, and 43 public workshops were held.

Under the rulemaking, the standards are vetted over a 45- to 60-day period before they go to the CEC for adoption. Then they are submitted to the California Building Standards Commission for approval as one part of the whole building code. Builders, contractors, and other stakeholders have one year until implementation to gear up for the change.

2022 Energy Code Update Timeline

California Energy Commission Adoption	August 2021
California Building Standards Commission Approval Hearing	December 2021
Effective Date	January 1, 2023

For Further Reading

- The Rulemaking Process: bit.ly/3fPO2H8
- 2019 Building Energy Efficiency Standards Frequently Asked Questions: bit.ly/3fJHOs8
- 2019 California Energy Efficiency Action Plan: (overall webpage) bit.ly/3s4fYMc
- California Building Decarbonization Assessment: bit.ly/3iwpuEM

Governor
Gavin Newsom

Chair
David Hochschild

Executive Director
Drew Bohan

Commissioners
Karen Douglas, J.D.
Siva Gunda
J. Andrew McAllister, Ph.D.
Patricia Monahan

August 2021

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C-10 A. Maintain a minimum traffic Level of Service "C" for all signalized intersections during the p.m. peak hour on an average weekday, except in the circumstances described in C-10.B and C. below.

B. Recognizing that some signalized intersections within the City serve and are impacted by development located in adjacent jurisdictions, and that these impacts are outside the control of the City, a development project which is determined to result in a Level of Service worse than "C" may be approved, if the approving body finds (1) the diminished level of service is an interim situation which will be alleviated by the implementation of planned improvements or (2) based on the specific circumstances described in Section C. below, there are no feasible street improvements that will improve the Level of Service to "C" or better as set forward in the Action Plan for the Circulation Element.

C. All development in another jurisdiction outside of Rocklin's control which creates traffic impacts in Rocklin should be required to construct all mitigation necessary in order to maintain a LOS C in Rocklin unless the mitigation is determined to be infeasible by the Rocklin City Council. The standard for determining the feasibility of the mitigation would be whether or not the improvements create unusual economic, legal, social, technological, physical or other similar burdens and considerations.

C-11 Continue to participate with adjacent jurisdictions toward the completion and improvement of streets that extend into other communities through individual cooperation and/or use of the Placer County Transportation Planning Agency (PCTPA), joint powers authorities, and similar entities.

C-12 Encourage improvements to the existing Federal Interstate and State highway system, and the addition of new routes that would benefit the City of Rocklin.

C-13 Consider a variety of funding mechanisms, either independently or with other government agencies, to fund needed regional improvements.

C-14 Prohibit residential driveways along collector or arterial streets within newly developing residential areas. This policy does not apply to multi-family residential uses, or where past decisions have created existing lots with residential frontages on collector or arterial streets.

C-15 Reduce the potential for the use of local residential streets as shortcuts for through traffic on streets that are not improved to full City standards.

C-16 Provide each new elementary school site with a minimum of two full street frontages.

C-17 Keep truck traffic away from residential areas and streets not structurally designed for truck traffic by designating truck routes.

C-18 Designate truck routes that can be used for the hauling of hazardous materials.

This section describes the public services that serve the City of Rocklin General Plan Update Planning Area. These services include fire protection and emergency medical services, law enforcement services, schools, and parks and recreation. Each subsection includes descriptions of existing service provider(s), facilities, service standards, and potential impacts on each service resulting from implementation of the proposed project. Key issues include increased demand for fire, police, and school services, provision of adequate fire flow, and increased demand for parks and recreation. Relevant state and local plans are identified. General Plan policies and mitigation measures that would serve to reduce impacts are also identified. This section is based on available information from City websites as well as consultation with the service providers. Abbreviated citations for each information source are provided in the text, with full references provided at the end of this section.

Other utilities and services such as wastewater, solid waste, and energy and communication services are discussed in Section 4.13, Utilities and Service Systems. Water supply and water infrastructure are discussed in Section 4.14, Water Resources.

4.12.1 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

4.12.1.1 EXISTING SETTING

CITY OF ROCKLIN FIRE DEPARTMENT

The City of Rocklin Fire Department (RFD) provides fire suppression, emergency medical, and special operations/rescue services to the City of Rocklin. The RFD has 39 full-time personnel including administration, prevention, and suppression staff, as well as an additional volunteer firefighting and support force. The RFD has a mutual aid agreement with the Western Placer County Fire Chief's Association. All Placer County fire agencies are signatory agencies to the agreement, with the closest to Rocklin being Roseville, Lincoln, South Placer, Loomis, the California Department of Forestry and Fire Protection (Cal-Fire), Penryn, Newcastle, and Auburn. In addition, the RFD has automatic aid agreements with Roseville, Loomis, South Placer, and CalFire.

The RFD responded to 3,536 calls for service in 2007, up 143 calls from 2006 and 239 calls from 2005. Table 4.12.1-1 below shows the number and type of calls to which the RFD responded from 2000 to 2007.

TABLE 4.12.1-1
ROCKLIN FIRE DEPARTMENT RESPONSES 2000–2007

Type of Call	2000	2001	2002	2003	2004	Type of Call*	2005	2006	2007
Structure Fire	223	272	260	313	298	Fire	179	174	187
Vehicle Fire	57	49	63	55	68	Rupture	2	7	2
Grass Fire	79	122	94	92	112	EMS	2,187	2,286	2,378
Refuse Fire	15	8	17	9	24	Haz Cond	64	65	58
Medical Aid	1,369	1,537	1,727	1,986	1,996	Pub Ser	305	311	316
Vehicle Accident	171	177	248	237	214	Good Intent	340	348	390
Public Service	300	388	519	357	309	False Call	212	197	202
Totals	2,214	2,553	2,928	3,049	3,021	Severe Weather	6	0	2
						Other	2	5	1
						Totals	3,297	3,393	3,536

Note: **Change in format due to change in Incident Reporting Software.*

Source: *City of Rocklin 2008c*

Facilities

The RFD currently operates three fire stations, as shown in Figure 4.12-1. The location and operational characteristics of each fire station is provided below (City of Rocklin 2008d; Shelton 2008):

- Station #1, County Station #23 is located at 4060 Rocklin Road, adjacent to Memorial Park and City Hall. There are 3 personnel at this station per shift, with three shifts, each rotating after a 48-hour tour of duty. Equipment at this station includes a staffed engine, a reserve engine, a brush engine, a utility/air unit, and several staff vehicles.

- Station #2, County Station #24 is located at 3401 Crest Drive. There are 3 to 4 personnel at this station per shift, with three shifts, each rotating after a 48-hour tour of duty. Equipment at this station includes a staffed truck, a reserve engine, a brush engine, a grass unit, a staffed Battalion Chief vehicle, a utility unit, and a training truck.

- Station #3, County Station #25 is located at 2001 Wildcat Boulevard. There are 3 personnel at this station per shift, with three shifts, each rotating after a 48-hour tour of duty. Equipment at this station includes a staffed engine, a brush engine, and a grass unit.

A fourth station (Station #4, County Station #26) is planned, but is currently being postponed until adequate funding for construction and staff needs is identified.

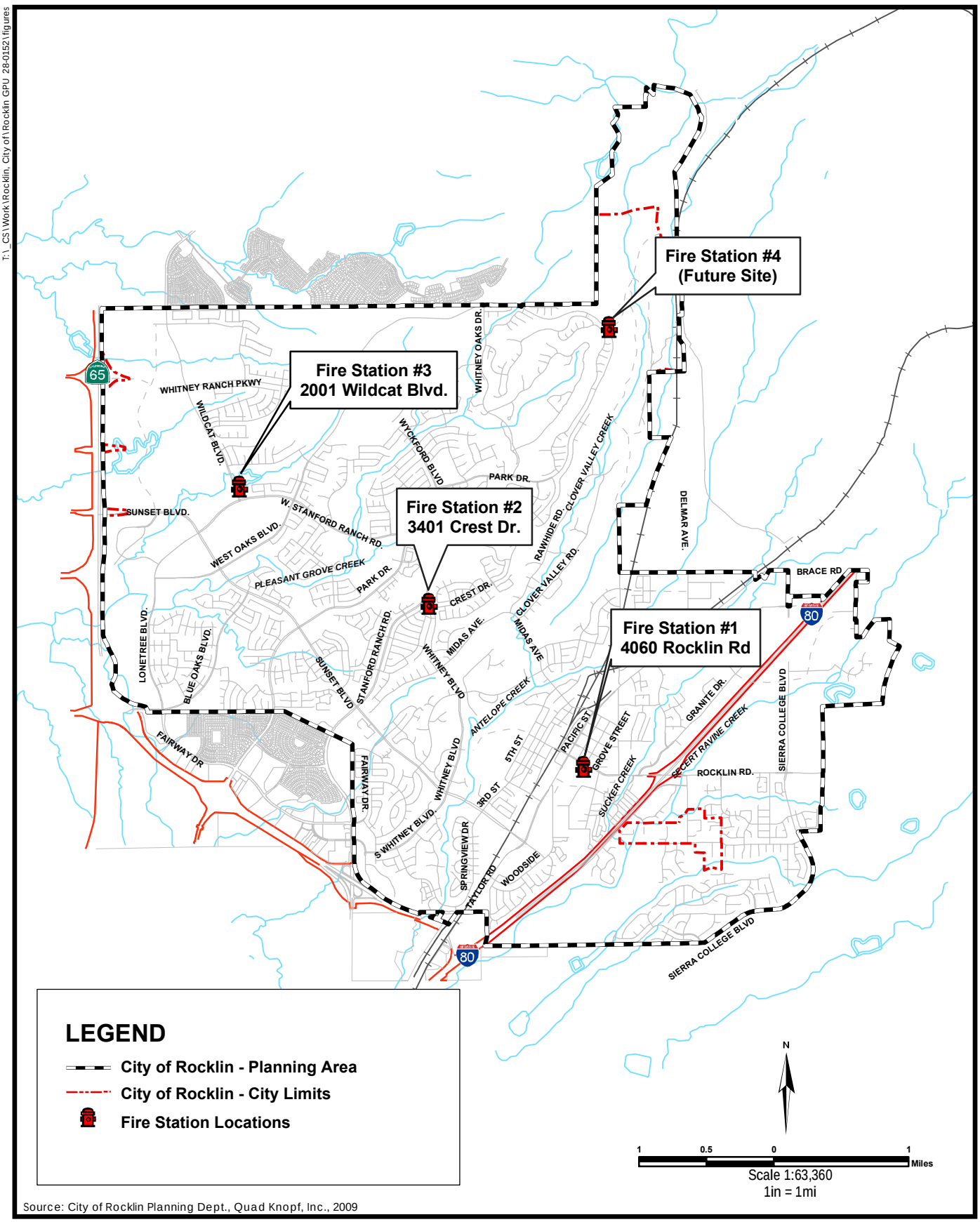

Figure 4.12-1
RFD Fire Station Locations

Response Times and Service Standards

The RFD's current average response time for all incidents is 5 minutes, 31 seconds.

ISO Rating

The Insurance Services Office (ISO) is an independent organization that serves insurance companies, fire departments, insurance regulators, and others by providing information about risk. ISO's Public Protection Classification (PPC) service gauges the quality of local fire departments by collecting information on a community's public fire protection and then analyzing the data using a Fire Suppression Rating Schedule (FSRS). ISO then assigns a PPC from 1 to 10. Class 1 represents the best public protection, and Class 10 indicates no recognized protection. A community's PPC depends on the following criteria (ISO 2008):

- Fire alarm and communications systems, including telephone systems, telephone lines, staffing, and dispatching systems;
- The fire department, including equipment, staffing, training, and geographic distribution of fire companies; and
- The water supply system, including condition and maintenance of hydrants, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires.

The RFD currently has an ISO Public Protection Classification rating of 3 (City of Rocklin 2008d).

Funding

The Fire Department is primarily funded through General Fund revenues, with some fee-based revenue, grants, and educational reimbursements through Sierra College. The City of Rocklin charges a construction tax that is used for the acquisition of fire equipment, as well as parks, open space, bike trails, and public buildings, needed as a result of increased development in the city (City of Rocklin 2008a, pg. 23). Additional funds for recently annexed areas are collected through Community Facilities District (CFD) #1. The Fire Department also charges fees for some services, including fire inspections, false alarm response, and fire and rescue services (City of Rocklin 2008a, pg. 37).

Emergency Medical Services

Ambulance service is provided by American Medical Response (AMR) ambulance, a private provider, through contract. AMR provides ambulance services to Rocklin, Roseville, Auburn, Lincoln, and portions of rural Placer County. In Rocklin, AMR's 9-1-1 response time standard is 8 minutes, 90 percent of the time (SSVEMSA 2008b).

SIERRA-SACRAMENTO VALLEY EMERGENCY MEDICAL SERVICES AGENCY

The Sierra-Sacramento Valley Emergency Medical Services Agency (SSVEMSA) is a Joint Powers Agency (JPA) that was founded in 1975 and serves as the regional emergency medical services (EMS) agency for the five counties of Placer, Yolo, Nevada, Sutter, and Yuba. The Governing Board of Directors for the JPA consists of a county supervisor from each member county. The

SSVEMSA is designated as the local EMS agency for each of the member counties under the authority of the Government Code, State of California (Section 6500, et seq.).

Planning, development, and implementation of all EMS components, including regional trauma system planning, has been delegated to the SSVEMSA with the exception of disaster planning and ambulance ordinance responsibilities. Nevada, Placer, and Yolo counties have separately contracted with the SSVEMSA to perform ambulance ordinance responsibilities. The SSVEMSA has direct responsibility for the following (SSVEMSA 2008a):

- Qualification, accreditation, authorization of all pre-hospital care personnel;
- EMS system design; and
- Compliance with local and state regulations.

4.12.1.2 REGULATORY FRAMEWORK

STATE

California Fire Code

The 2007 California Fire Code (Title 24, Part 9 of the California Code of Regulations) established regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California (CBSC 2008, pg. 3). The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas. The City has adopted the California Fire Code as part of its building regulations (Rocklin Municipal Code, Chapter 15.04).

California Health and Safety Code

Additional state fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which include regulations for building standards, fire protection and notification systems, fire protection devices such as extinguishers, smoke alarms, high-rise buildings, childcare facility standards, and fire suppression training.

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Fighting Equipment," the California Occupational Safety and Health Administration (Cal-OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

LOCAL

City of Rocklin Municipal Code

The City of Rocklin Municipal Code, Chapter 8.20, Section 8.20.010, authorizes the Fire Department to clean up or abate the effects of any hazardous substance or waste deposited on property or within facilities in the city. In addition, the code states that any person who intentionally or negligently causes such a deposit will be liable for the payment of all costs incurred by the City as a result of such cleanup or abatement activity.

The City of Rocklin Municipal Code, Chapter 8.12, Section 8.12.030, authorizes the City Council, upon recommendation of the Fire Chief, to adopt standards for the maintenance and control of weeds on vacant parcels. In addition, the code states that the standards shall be reviewed and may be amended from time-to-time in response to environmental or geographical conditions, and that the standards shall be effective upon adoption by the City Council. As previously mentioned, Chapter 15.04, Section 15.04.110 adopts the California Fire Code. Section 15.04.120 amends the Fire Code as it applies to the city regarding sprinkler systems, open burning, and the location of aboveground storage tanks.

4.12.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. A fire protection and emergency services impact is considered significant if implementation of the project would:

1. Create substantial adverse physical impacts associated with the provision of new or physically altered fire related facilities or services, the construction and/or provision of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency services.

2. Expose people or structures to significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

METHODOLOGY

Evaluation of potential fire protection and emergency medical service impacts was based on information provided by the RFD, as well as review of the applicable fire codes and regulations, the existing City of Rocklin General Plan and Municipal Code, and other relevant literature. A detailed list of reference material used in preparing this analysis can be found at the end of this section.

While the major fire threat in the city is related to urban development, there are areas in Rocklin that are subject to a threat of wildfire. These areas include Clover Valley, areas at the southern end of China Garden Road, portions of Whitney Oaks, the Croftwood/Dias Lane area, Whitney Ranch, open space easements, and recreational properties. Wildland fire hazards and the General Plan Update's environmental impacts associated with wildland fires are discussed in Section 4.7, Human Health/Hazards, of this Draft EIR.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Fire Protection and Emergency Medical Services

Impact 4.12.1.1 Implementation of the proposed project would result in increased demand for fire protection and emergency medical services within the Planning Area. For the City to meet the increased demand and in order to maintain acceptable response times or other performance objectives for fire protection and emergency services, it may be necessary to provide or construct new or physically altered fire-related facilities or services, the construction of which could cause significant environmental impacts. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps ensure the impact will be less than significant. Therefore, this is a less than significant impact.

Implementation of the proposed General Plan Update is expected to result in a total of 29,283 housing units and a population of 76,136 in the Planning Area within the 2030 planning horizon. This represents an increase of 8,247 housing units and 22,293 persons over baseline (2008) conditions in the Planning Area. The proposed General Plan Update would result in the need for additional RFD personnel, along with associated equipment and facilities, to provide adequate fire protection services at buildout. In addition, it is anticipated that increased population in the City of Rocklin would require AMR to provide additional services and associated equipment and facilities as demand increases.

As shown in Figure 4.12-1, the proposed General Plan Update indicates that a fourth fire station is planned off of Park Drive near Boulder Ridge Park. This site has already been designated as Public/Quasi-Public (PQP) on the existing and proposed General Plan Land Use Diagrams. The updated General Plan also identifies requirements for future developments to ensure adequate fire protection services, which could result in new or expanded facilities as discussed above. Typical environmental effects regarding the construction and operation of a fire protection/EMS facility may involve issues with noise (sirens), air quality (during the construction of the facility), biological resources (depending on location), cultural resources (depending on location), public utilities (demand for electric, water, and wastewater service), and traffic on a local level due to the interruption of traffic light timing by fire engines. The environmental effects of construction of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this DEIR as part of overall development of the Planning Area.

Future fire protection/EMS facilities would be subject to project-level CEQA review at such time as they are proposed for development.

Proposed General Plan Update Policies That Provide Mitigation

The following proposed General Plan policies would assist in avoiding or minimizing impacts associated with increased demand for fire protection and emergency medical services:

Policy PF-1 *Provide for adequate lead time in the planning of needed expansions of public services and facilities.*

Policy PF-2 *Require a study of infrastructure needs, public facility needs and a financing plan for newly annexing areas.*

Policy PF-3 *Require that any development that generates the need for public services and facilities, including equipment, pay its proportional share of providing those services and facilities. Participation may include, but is not limited to, the formation of assessment districts, special taxes, payment of fees, payment of the City's Construction Tax, purchase of equipment, and/or the construction and dedication of facilities.*

Policy PF-4 *Disapprove development proposals that would negatively impact City-provided public services, unless the negative impact is mitigated.*

Policy PF-5 *Require that construction of private development projects be coordinated with the construction of public facilities and services that are needed to serve the project.*

Policy PF-9 *Provide for the ongoing operation and maintenance of City services through the use of existing or new Community Facilities Districts, Lighting and Landscaping Districts, Park Development and Maintenance Districts, special taxes and other similar financing mechanisms.*

Policy PF-11 *Ensure that new development will not create a significant negative impact on the existing level of police and fire protection services.*

Policy PF-12 *Identify certain types of development, such as assisted living facilities and group homes, that may generate higher demand or special needs for emergency services and require developer participation to mitigate the needs/demands.*

Policy PF-13 *Analyze the cost of fire protection, police services and emergency medical response for annexations and major project developments and require a funding mechanism to offset any shortfall.*

Policy PF-20 *Provide fire apparatus access in new development consistent with Rocklin Fire Department requirements, including appropriate access into open space and undeveloped portions of properties.*

Policy PF-21 *Provide progressive fire protection resources as necessary to meet community needs.*

Policy PF-22 *Require new development and projects proposing land use changes to annex into existing or new Community Facilities Districts for fire prevention/suppression and medical response, or to create other financing mechanisms as necessary.*

Policy PF-23 *Require special fire suppression mitigation (such as sprinklering) for any new residential development located more than two road miles from a fire station and for any new commercial development located more than one and one-half road miles from a fire station.*

Policy PF-25 *Require new development to meet fire flow requirements based on standards codified in the International Fire Code.*

Policy S-16 *Require new development and projects proposing land use changes to annex into existing or new Community Facilities Districts for fire prevention/suppression and medical response, or to create other financing mechanisms as necessary.*

Policy S-17 *Require substantially vacant newly annexed areas containing wildland fire potential to bear additional costs associated with contracting to CalFire for fire suppression or provide other means of mitigation approved by the Fire Department until such time as urban services become available.*

Policy S-18 *Incorporate fuel modification/fire hazard reduction planning (e.g., weed abatement, open space management plans, firebreaks, planting restrictions) on lands (both public and private) that contain terrain and vegetative features such as grass, woodlands and severe slopes.*

Policy S-19 *Maintain inter-jurisdictional cooperation and coordination, including automatic aid agreements with fire protection/suppression agencies in Placer County.*

Implementation of the above General Plan Update policies, along with project-level CEQA review of future fire protection/EMS facilities, would ensure that impacts associated with fire protection and emergency medical services would be reduced to a less than significant level.

As part of the proposed project, the City plans to amend the Redevelopment Plan to increase tax increment limitations, increase the limit on the principal amount of bonded indebtedness secured by tax increment revenue, and extend the time limit for the commencement of eminent domain proceedings to acquire non-residential property. These amendments are intended to provide the City's Redevelopment Agency with the financial and administrative resources necessary to continue assisting projects that implement its program of blight elimination within the Redevelopment Project Area. While the extended time and financial limits authorized by the Sixth Amendment may foster and encourage new development that might not occur without the Sixth Amendment, or may occur faster than had the Sixth Amendment not been adopted, all development would be consistent with the City's General Plan and with the development assumptions analyzed throughout this DEIR. Any future development resulting from amending the Redevelopment Plan would occur in areas designated for such development by the General Plan as the land uses permitted by the Redevelopment Plan are the allowable uses under the City's General Plan. Therefore, the proposed Sixth Amendment to the Redevelopment Plan would not result in increases in demand for fire protection and emergency medical services beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

In addition to the activities identified above, the project includes a Climate Action Plan (CAP) to address climate change and identify greenhouse gas (GHG) emission reduction measures. The City of Rocklin CAP augments the objectives, goals, policies, and actions of the City of Rocklin General Plan Update related to the reduction of GHG emissions; however, the CAP is intended to be updated on a more frequent basis than the General Plan, ensuring that implementation of City efforts to reduce GHG emissions is in compliance with current regulation. The CAP determines whether implementation of the proposed General Plan Update would be consistent with the state's ability to attain the goals identified in Assembly Bill (AB) 32, identifies GHG emission reduction measures, and provides monitoring of the effectiveness of GHG emission reduction measures. The CAP would not result increases in demand for fire protection and

emergency medical services beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

Mitigation Measures

None required.

Adequate Fire Flow

Impact 4.12.1.2 Implementation of the proposed project would result in increased development within the Planning Area and a need for water supply and infrastructure to provide adequate fire flows for fire protection. The creation of new or expansion of existing water supply infrastructure necessary to maintain acceptable response times or other performance objectives for fire protection and emergency services could create substantial adverse physical impacts, which could cause significant environmental impacts. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps ensure the impact will be less than significant. Therefore, this is a less than significant impact.

In addition to the fire protection facilities discussed under Impact 4.12.1.1 above, adequate water supply and fire flows would be necessary to ensure fire protection for future development. In particular, the proposed General Plan Update would result in intensification of land uses in the downtown area, which is served by a 24-inch transmission pipeline that is currently experiencing fire flow shortages. According to the Placer County Water Agency, new development projects served by the pipeline could be required to construct significant off-site improvements to maintain adequate fire flow. Other areas of the Planning Area have already been analyzed for impacts on fire flow. The Whitney Ranch and Clover Valley areas contain large areas of vacant undeveloped land, but both have approved land use entitlements for residential, commercial, office, and recreation development.

The site-specific environmental impacts associated with off-site improvements necessary for fire flows would be determined through project-level CEQA analysis at such time as they are proposed for development.

Proposed General Plan Update Policies That Provide Mitigation

The following proposed General Plan policies would assist in avoiding or minimizing impacts associated with adequate fire flows:

Policy PF-1 *Provide for adequate lead time in the planning of needed expansions of public services and facilities.*

Policy PF-2 *Require a study of infrastructure needs, public facility needs and a financing plan for newly annexing areas.*

Policy PF-5 *Require that construction of private development projects be coordinated with the construction of public facilities and services that are needed to serve the project.*

Policy PF-11 *Ensure that new development will not create a significant negative impact on the existing level of police and fire protection services.*

Policy PF-25 *Require new development to meet fire flow requirements based on standards codified in the International Fire Code.*

Policy S-16 *Require new development and projects proposing land use changes to annex into existing or new Community Facilities Districts for fire prevention/suppression and medical response, or to create other financing mechanisms as necessary.*

Implementation of the General Plan Update policies listed above would ensure that adequate fire flow would be available to serve new development within the Planning Area. Therefore, impacts are considered less than significant.

In addition, as discussed in Section 3.0, Project Description, and under Impact 4.12.1.1 above, the project includes the Sixth Amendment to the Redevelopment Plan and the CAP, both of which would be consistent with the proposed General Plan Update and with the development assumptions analyzed throughout this DEIR. As these project components would not result in land use activities or population growth beyond what is identified in the General Plan Update, they would not result in impacts associated with adequate fire flow beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

Mitigation Measures

None required.

4.12.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for fire protection and emergency medical services includes the service area boundaries of the Rocklin Fire Department and American Medical Response. The RFD provides services within the current city limits of Rocklin. Areas outside of the city but within the Planning Area would be served by the RFD upon annexation into the city. The service area for AMR includes Rocklin, Roseville, Auburn, Lincoln, and portions of rural Placer County. The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development within the RFD and AMR service areas that currently places demand on these services or is expected to place demand on them in the future. Table 4.0-1 and associated assumptions in Section 4.0 of this Draft EIR contain a list of regional development projects that would be included in the cumulative setting.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Demand for Fire Protection and Emergency Medical Services

Impact 4.12.1.3 Implementation of the proposed project, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development within the RFD and AMR service areas, would increase the demand for fire protection and emergency medical services and thus require additional staffing, equipment, and related facilities under cumulative conditions. Provision of these related facilities could cause substantial adverse physical impacts, which could cause significant environmental impacts. However, the proposed Rocklin General Plan

Update's mitigating policies and their associated action steps ensure the impact will be less than significant. Therefore, this impact is considered less than cumulatively considerable.

Future regional growth would result in increased demand for fire protection and emergency medical services throughout Placer County. However, the need for additional fire protection facilities associated with the General Plan Update and its project components would be limited to facilities needed to serve the Planning Area, as the Rocklin Fire Department's service area is generally limited to the city limits, unless the need for regionalization, including consolidation, becomes necessary. Regional growth would also require AMR to provide increased levels of emergency medical services to its service area commensurate with increased demand. As discussed under Impact 4.12.1.1, the environmental effects of construction of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this DEIR, and future fire protection/EMS facilities projects would be subject to project-level CEQA review at such time as they are proposed for development.

Proposed General Plan Update Policies That Provide Mitigation

The proposed General Plan policies identified under Impact 4.12.1.1 would reduce the proposed project's contribution to cumulative impacts associated with providing fire protection and emergency medical services.

Implementation of the proposed General Plan policies would ensure that the provision and expansion of fire protection and emergency medical services to serve development consistent with the General Plan Update would be planned for and funded. Therefore, the proposed project's contributions to the continued provision of fire protection and emergency medical response services in the cumulative setting would be considered less than cumulatively considerable.

As previously discussed, neither the Sixth Amendment to the Redevelopment Plan nor the CAP would result in impacts associated with increased demand for fire protection and emergency medical services or adequate fire flow beyond what is analyzed for the General Plan Update above.

Mitigation Measures

None required.

4.12.2 LAW ENFORCEMENT SERVICES

4.12.2.1 EXISTING SETTING

City of Rocklin Police Department

The Rocklin Police Department (RPD) provides law enforcement services to the City of Rocklin. The RPD is a full-service police agency with 83 full-time staff (54 sworn positions and 29 civilian positions), 5 part-time staff, and 120 citizen volunteers (City of Rocklin 2007, pg. 4). The RPD is currently approved for 89 full-time staff. The RPD has a number of units and specialties including uniformed patrol, traffic enforcement, neighborhood officers, investigations, canines, school resource officers, crime prevention, dispatch, records, evidence, and animal control (City of Rocklin 2008f). Rocklin participates in a statewide agreement to provide mutual aid.

Facilities

The Police Department is headquartered at 4080 Rocklin Road in a 40,000-square-foot facility that includes a 24-hour full-service public lobby and a multipurpose community room that serves as a meeting place for the public, a training room for City employees, and a command center in times of emergency. In addition to the customer facilities that support administration, operations, and support services, the building includes a 1,560-square-foot 9-1-1 dispatch center, a 25-yard firing range, a temporary custody area, and a 2,000-square-foot fitness and training room (Roide 2008).

Calls for Service

The RPD handled 43,730 incidents, and officers and community service officers responded to 24,634 incoming calls for service in 2007 (City of Rocklin 2007, pg. 10). As of 2006, the RPD had a response time of 4 minutes and 23 seconds from the time of dispatch to arrival on scene for Priority 1 calls, which range from office alarms to burglaries and violent felonies. The average response time for other types of calls was 8 minutes and 30 seconds (Roide 2008).

Service Standards

The RPD currently does not have any adopted goals related to officer-to-population ratios or response times (Roide 2008). The RPD provides police services to maintain the current level of crime prevention and low crime rates.

Funding

The RPD is funded primarily through the City's General Fund, along with revenue from citations, fines, and fees. In addition, the RPD receives money from state agencies for specific programs, such as underage drinking and school resource programs. There are no development impact fees or construction assessment fees that fund the RPD (Roide 2008).

4.12.2.2 REGULATORY FRAMEWORK

STATE

Emergency Response/Evacuation Plans

Government Code Section 8607(a) directs the California Emergency Management Agency to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. The program is intended to provide effective management of multi-agency and multijurisdictional emergencies in California. SEMS consists of five organizational levels, which are activated as necessary: (1) Field Response, (2) Local Government, (3) Operational Area, (4) Regional, and (5) State.

Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs. The City of Rocklin is generally responsible for emergencies that occur within city boundaries and has adopted an Emergency Operations Plan that is consistent with the SEMS.

4.12.2.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. An impact to law enforcement services is considered significant if implementation of the proposed project would:

1. Create substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

METHODOLOGY

Evaluation of potential law enforcement impacts was based on information provided by the Rocklin Police Department, as well as review of the existing City of Rocklin General Plan and Municipal Code and other relevant literature. A detailed list of reference material used can be found at this end of this section. This material was then compared to the proposed General Plan Update's specific law enforcement-related impacts. The impact analysis below focuses on whether those impacts would have a significant effect on the physical environment.

PROJECT IMPACTS AND MITIGATION MEASURES

Law Enforcement Services

Impact 4.12.2.1 Implementation of the proposed project would result in increased demand for law enforcement services within the Planning Area. For the City to meet the increased demand and in order to maintain acceptable response times or other performance objectives for law enforcement services, it may be necessary to provide or construct new or physically altered government facilities, the construction and/or provision of which could create substantial adverse physical impacts that could cause significant environmental impacts. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps ensure the impact will be less than significant. Therefore, this is a less than significant impact.

As the city builds out, there will be an increased need for personnel and equipment. The current Police Department facility located at 4080 Rocklin Road is designed to accommodate an increase in personnel proportionate to the need to maintain the current service model. The RPD has indicated that no additional facilities would be needed to accommodate the increase in personnel that would be required by the General Plan Update. Furthermore, although the RPD does not currently have funding for additional personnel or equipment, funding would be expected to increase based on the increased property tax revenue and sales tax revenue associated with any new residential and commercial development associated with the General Plan Update (Butler 2009).

<u>Proposed General Plan Update Policies That Provide Mitigation</u>

The following proposed General Plan policies would assist in avoiding or minimizing impacts associated with increased demand for law enforcement services:

Policy PF-1 *Provide for adequate lead time in the planning of needed expansions of public services and facilities.*

Policy PF-2 *Require a study of infrastructure needs, public facility needs and a financing plan for newly annexing areas.*

Policy PF-3 *Require that any development that generates the need for public services and facilities, including equipment, pay its proportional share of providing those services and facilities. Participation may include, but is not limited to, the formation of assessment districts, special taxes, payment of fees, payment of the City's Construction Tax, purchase of equipment, and/or the construction and dedication of facilities.*

Policy PF-4 *Disapprove development proposals that would negatively impact City-provided public services, unless the negative impact is mitigated.*

Policy PF-5 *Require that construction of private development projects be coordinated with the construction of public facilities and services that are needed to serve the project.*

Policy PF-9 *Provide for the ongoing operation and maintenance of City services through the use of existing or new Community Facilities Districts, Lighting and Landscaping Districts, Park Development and Maintenance Districts, special taxes and other similar financing mechanisms.*

Policy PF-11 *Ensure that new development will not create a significant negative impact on the existing level of police and fire protection services.*

Policy PF-12 *Identify certain types of development, such as assisted living facilities and group homes, that may generate higher demand or special needs for emergency services and require developer participation to mitigate the needs/demands.*

Policy PF-13 *Analyze the cost of fire protection, police services and emergency medical response for annexations and major project developments and require a funding mechanism to offset any shortfall.*

Policy PF-16 *Provide law enforcement resources as necessary to meet community needs.*

Implementation of the above General Plan Update policies would ensure that the City would provide adequate law enforcement services to meet the city's needs and serve new development. Since the General Plan Update would not result in the need for new law enforcement facilities and General Plan policies would ensure the provision of adequate law enforcement services, impacts would be reduced to a less than significant level.

In addition, as discussed in Section 3.0, Project Description, and under Impact 4.12.1.1 above, the project includes the Sixth Amendment to the Redevelopment Plan and the CAP, both of which would be consistent with the proposed General Plan Update and with the development assumptions analyzed throughout this DEIR. As these project components would not result in land use activities or population growth beyond what is identified in the General Plan Update, they would not result in impacts associated with the provision of adequate law enforcement services

beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

Mitigation Measures

None required.

4.12.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for law enforcement services includes the service area boundaries of the Rocklin Police Department. The RPD provides services within the current city limits of Rocklin and would provide services to areas outside of the city but within the Planning Area should they be annexed into the city. Therefore, the cumulative setting is limited to the Planning Area and does not extend to a regional level. The cumulative analysis includes all existing, planned, proposed, approved, and reasonably foreseeable development within the Planning Area.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Demand for Law Enforcement Services

Impact 4.12.2.2 Implementation of the proposed project, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development within the RPD service area, would increase the demand for law enforcement services and thus require additional staffing, equipment, and related facilities under cumulative conditions. Provision of these related facilities could cause substantial adverse physical impacts, which could cause significant environmental impacts. However, the proposed General Plan Update's mitigating policies and their associated action steps ensure the impact will be less than significant. Therefore, this impact is considered less than cumulatively considerable.

As discussed in Impact 4.12.2.1, the General Plan Update and its associated project components would not result in the need for new law enforcement facilities and General Plan policies would require the provision of adequate law enforcement services commensurate with development. Rocklin participates in regional mutual aid as required by law.

Proposed General Plan Update Policies That Provide Mitigation

The proposed General Plan policies identified under Impact 4.12.2.1 would reduce the proposed project's contribution to cumulative impacts associated with law enforcement.

Implementation of the proposed General Plan policies would ensure that the expansion of law enforcement services needed to serve development consistent with the General Plan Update and its associated project components would be planned for and funded. Therefore, the proposed project's contributions to the continued provision of law enforcement services in the cumulative setting would be considered less than cumulatively considerable.

As previously discussed, neither the Sixth Amendment to the Redevelopment Plan nor the CAP would result in impacts associated with increased demand for law enforcement services beyond what is analyzed for the General Plan Update above.

Mitigation Measures

None required.

4.12.3 PUBLIC SCHOOLS

4.12.3.1 EXISTING SETTING

The City of Rocklin is served by three public school districts: the Rocklin Unified School District, the Loomis Union School District, and the Placer Union High School District. The city is also served by the Sierra Community College District. Each is discussed in more detail below.

ROCKLIN UNIFIED SCHOOL DISTRICT

Rocklin Unified School District (RUSD) currently includes 10 elementary schools, 2 middle schools, 2 comprehensive high schools, and 1 continuation school and 1 independent study school (City of Rocklin 2008c). In addition to the RUSD's existing facilities, 2 new elementary school sites and 1 new middle school site are planned as part of the Whitney Ranch development project.

Enrollment in the RUSD has grown rapidly over the last two decades, with total enrollment almost doubling in the last ten years (EPS 2008, pg. 50-51). The most recent enrollment figures for RUSD schools are shown in Table 4.12.3-1 below.

TABLE 4.12.3-1
ROCKLIN UNIFIED SCHOOL DISTRICT ENROLLMENT

School	Enrollment
Elementary (K–6)	
Antelope School	463
Breen School	676
Cobblestone Elementary	462
Parker Whitney	477
Rocklin Elementary	558
Rock Creek Elementary	608
Ruhkala Elementary	402
Twin Oaks Elementary	514
Valley View Elementary	632
Sierra Elementary	493
Subtotal Elementary	**5,285**
Granite Oaks Middle School	814
Spring View Middle School	806

School	Enrollment
Subtotal Middle School	**1,620**
Rocklin High	1,674
Whitney High	1,438
Victory Continuation School	115
Subtotal High School	**3,227**
Rocklin Independent School	96
Total	***10,228***

Source: EPS 2008

**Totals do not include Rocklin Academy and Maria Montessori Charter schools.*

Alternative Education

The RUSD operates the Rocklin Alternative Education Center, located at 3250 Victory Drive, across the street from Rocklin High School. The Alternative Education Center comprises Victory High School (continuation school), the Rocklin Independent School (alternative education school), and intervention programs such as night and summer school. During the 2007/08 school year, the Alternative Education Center had an enrollment of 96 students at the Rocklin Independent School and 115 students at Victory High (CDE 2008). The RUSD also sponsors two charter schools: the Rocklin Academy and the Maria Montessori Charter Academy (City of Rocklin 2008b).

School Capacity

In the RUSD Facilities Master Plan, the current capacity of schools is determined by counting the total number of classrooms and then excluding any classrooms used for supplemental and special programs (EPS 2008, pg. 20). However, there are two other measures of capacity used by the RUSD: design capacity and maximum capacity. Design capacity is the desired enrollment at a school to optimize the delivery of the education program and meet the district goals for providing a safe and secure environment. The maximum capacity is the greatest number of students that a school can accommodate by most efficiently using its facilities and adding the maximum allowable number of portable classrooms (EPS 2008, pg. 62). Table 4.12.3-2 below compares enrollment and capacity at RUSD schools.

TABLE 4.12.3-2
ROCKLIN UNIFIED SCHOOL DISTRICT ENROLLMENT VS. CAPACITY

School	Enrollment	Design Capacity	Maximum Total Capacity
Elementary (K–6)			
Antelope School	463	600	755
Breen School	676	600	755
Cobblestone Elementary	462	600	680
Parker Whitney	477	600	775
Rocklin Elementary	558	530	630
Rock Creek Elementary	608	620	725

School	Enrollment	Design Capacity	Maximum Total Capacity
Ruhkala Elementary	402	360	455
Twin Oaks Elementary	514	600	605
Valley View Elementary	632	650	725
Sierra Elementary	493	525	525
Subtotal Elementary	**5,285**	**5,685**	**6,630**
Middle School			
Granite Oaks Middle School	814	800	1,170
Spring View Middle School	806	800	1,020
Subtotal Middle School	**1,620**	**1,600**	**2,190**
High School			
Rocklin High	1,674	1,800	2,280
Whitney High	1,438	1,800	2,280
Victory Continuation School	115	170	170
Subtotal High School	**3,227**	**3,770**	**4,730**
Rocklin Independent School	96	150	150
Total	**10,228**	**11,205**	**13,700**

Source: EPS 2008

**Totals do not include Rocklin Academy and Maria Montessori Charter schools.*

Based upon the April 16, 2008, Rocklin School District Facilities Master Plan Final Report prepared by EPS, none of the elementary schools are operating above maximum capacity, and only Breen, Rocklin, and Ruhkala elementary schools are operating above design capacity. As shown in Table 4.12.3-2, both of the middle schools are operating below maximum capacity but above design capacity. As shown in Table 4.12.3-2, both high schools are below maximum and design capacity.

LOOMIS UNION SCHOOL DISTRICT

The Loomis Union School District (LUSD) consists of six elementary schools and one charter school. These include H. Clarke Powers Elementary, Franklin Elementary, Loomis Grammar, Penryn Elementary, Placer Elementary, Ophir Elementary, and Loomis Basin Charter School (LUSD 2008). The LUSD does not have any schools in the City of Rocklin attendance areas. However, the LUSD does serve a minimal number of students who reside in Rocklin. Areas located east of Sierra College Boulevard, south of Pacific Street, east of Delmar Avenue, and north of Pacific Street are served by the LUSD. This includes primarily the Croftwood and Clover Valley areas along the eastern edge of Rocklin. The LUSD also serves students residing in Rocklin through inter-district attendance agreements. In addition, some students residing in Rocklin attend the Loomis Basin Charter School (Johnson 2008).

PLACER UNION HIGH SCHOOL DISTRICT

The Placer Union High School District (PUHSD) consists of Placer, Del Oro, Colfax, Chana, Foresthill, and Maidu high schools, as well as the Placer School for Adults (PUHSD 2008). The

PUHSD does not have any schools in Rocklin attendance areas. However, the PUHSD does serve some students residing in the Rocklin High School attendance area based on PUHSD boundaries in the city limits as well as inter-district attendance agreements. As of October 2008, there were 120 students attending LUSD schools on inter-district attendance agreements (Evans 2008). These students predominantly attend Del Oro High School.

SIERRA COMMUNITY COLLEGE DISTRICT

The Sierra Community College District (SCCD) covers over 3,200 square miles and serves Placer, Nevada, and parts of El Dorado and Sacramento counties. The 300-acre main campus of Sierra College is located at 5000 Rocklin Road in Rocklin. In addition, the SCCD has a 115-acre Nevada County Campus in Grass Valley, a campus center in Truckee, and a campus center in Roseville (Sierra College 2008a). Sierra College offers associate of arts and associate of science degrees, along with technical training and certificates in over 70 areas and career fields. Sierra College also offers the first two years of pre-professional programs including medicine, law, engineering, computer science, education, and business administration (Sierra College 2007, pg. 66). In addition, the SCCD operates the Osher Lifelong Learning Institute, which offers short-term, noncredit courses specifically designed to serve the interests of adults 55+ years of age (Sierra College 2008a).

WILLIAM JESSUP UNIVERSITY

William Jessup University is a private Christian college located at 333 Sunset Boulevard in Rocklin. The university offers undergraduate degrees as well as professional studies programs. Total enrollment was approximately 575 in 2008, including full- and part-time students. On-campus housing is available in the form of residence halls.

FUNDING AND FINANCING MECHANISMS

State Funding

The Kindergarten-University Public Education Facilities Bond Act of 1998 (Prop 1A)

Proposition 1A, Kindergarten-University Public Education Facilities Bond Act of 1998, was approved by the voters in November 1998. This proposition provided $6.7 billion in general obligation bonds for K–12 public school facilities and provided the first funding for the new School Facility Program. The School Facility Program provides state funding assistance for two major types of facilities construction projects: new construction and modernization. At the time of the passage of this proposition, it was the largest school bond in the history of the state (California Strategic Growth Plan Bond Accountability 2008)

The Kindergarten-University Public Education Facilities Bond Act of 2002 (Prop 47)

Proposition 47, the Kindergarten-University Public Education Facilities Bond Act of 2002, was the first part of a $25.3 billion statewide bond package. Proposition 47 was a $13.05 billion bond measure approved by voters in November 2002 that provided $11.4 billion in general obligation bonds for K–12 facilities through the School Facility Program, as well as funding for new programs, charter school facilities, critically overcrowded schools, joint-use projects, and small high schools (California Strategic Growth Plan Bond Accountability 2008). Funds are targeted to areas of greatest need and must be spent according to strict accountability measures. The remaining $1.65 billion was allocated to build, repair, and upgrade community colleges and

California State University and University of California facilities in order to provide adequate higher education facilities to accommodate growing student enrollment.

The Kindergarten-University Public Education Facilities Bond Act of 2004 (Prop 55)

On March 2, 2004, voters in California passed Proposition 55, the second part of a $25.3 billion statewide bond package. Proposition 55 authorized $12.3 billion to help fund public school facility needs. The passage of Proposition 55 provided an additional $10.0 billion in general obligation bonds for the construction and renovation of K–12 school facilities. These funds are made available through the School Facility Program and continue to assist school districts with overcrowding, accommodating future enrollment growth, and repairing and modernization of older facilities (California Strategic Growth Plan Bond Accountability 2008). The remaining $2.3 billion is reserved for community college, California State University, and University of California facilities.

The Kindergarten-University Public Education Facilities Bond Act of 2006 (Prop 1D)

Proposition 1D, officially the Kindergarten-University Public Education Facilities Bond Act of 2006, was approved by the voters in November of 2006 and provided $10.416 billion in general obligation bonds for educational facilities, of which $7.329 billion was earmarked for K–12 projects (California Strategic Growth Plan Bond Accountability 2008).

School District Funding

Mello-Roos Community Facilities District Bonds

The 1982 Mello-Roos Community Facilities Act permits a school district to issue Community Facilities District (CFD) bonds and collect special taxes to fund the construction or renovation of school facilities if the bonds receive at least a two-thirds vote in an election. The RUSD has formed three CFDs in order to fund elementary school facilities: CFD No. 1 in 1988, CFD No. 2 in 1990, and CFD No. 3 in 2003. In addition to the annual taxes for each CFD, a one-time payment of $1,500 per single-family home and $1,000 per multi-family unit is required at the time a building permit is pulled. Virtually all new development in Rocklin will be in a CFD (EPS 2008, pg. 80).

Development Impact Fees/Senate Bill 50

Proposition 1A, or Senate Bill (SB) 50, was approved by California voters in 1998. A primary result of SB 50 was the creation of different levels of developer fees, which are discussed in more detail below. The RUSD adopted Level 1 development impact fees for new development in October 1999. The RUSD currently uses Level 1 fees to provide middle school facilities, high school facilities, support facilities, and administrative costs related to facilities development. The current adopted Level 1 fees are $2.97 per square foot for residential units and $0.47 square foot for nonresidential and age-restricted senior development (EPS 2008, pg. 80).

General Obligation Bonds

In addition, the school district can use general obligation (GO) bonds to fund school facilities, although voter approval is required. The RUSD used GO bonds to fund both high schools and the new middle school (EPS 2008, pg. 81).

4.12.3.2 REGULATORY FRAMEWORK

STATE

Leroy F. Greene School Facilities Act of 1998 (SB 50)

As discussed above, California voters approved Proposition 1A in November of 1998. Proposition 1A's companion legislation (Chapter 407, Statutes of 1998, SB 50) went into effect upon the measure's approval. SB 50 significantly altered the system of fees that can be placed on new development in order to pay for the construction of school facilities. Prior to the passage of Proposition 1A, school districts were limited in the amount of school facility developer fees they could charge. Also, as a result of the Mira, Hart, and Murietta decisions made in the years preceding the passage of Proposition 1A, cities and counties were able to impose additional school facility fees on development as a condition of obtaining land use approval. SB 50 and Proposition 1A provided a comprehensive school facilities financing and reform program by authorizing the $9.2 billion school facilities bond issue, school construction cost containment provisions, and an eight-year suspension of the Mira, Hart, and Murrieta court cases. SB 50 created different levels of developer fees and prohibited local agencies from denying either legislative or adjudicative land use approvals on the basis that school facilities are inadequate. They also reinstated the school facility fee cap for legislative actions, which is adjusted bi-annually in January. According to Government Code Section 65996, the development fees authorized by SB 50 are deemed to be full and complete school facilities mitigation. These provisions were in effect until 2006 and will remain in place as long as subsequent state bonds are approved and available.

The three levels of developer fees established by SB 50 are described below:

1. Level 1 fees are base statutory fees. As of January 30, 2008, the maximum assessment for fees was $2.97 per square foot of residential development and $0.47 per square foot of commercial/industrial development (California State Allocation Board 2008).

2. Level 2 fees allow the school district to impose developer fees above the statutory levels, up to 50 percent of certain costs under designated circumstances. The state would match the 50 percent funding if funds are available.

3. Level 3 fees apply if the state runs out of bond funds after 2006, allowing the school district to impose 100 percent of the cost of the school facility or mitigation minus any local dedicated school monies.

In order to levy the alternate (Level 2) fee and qualify for 50 percent state matching funds, a school district must prepare and adopt a School Facilities Needs Analysis, apply and be eligible for state funding, and satisfy specified criteria. The ability of a city or county to impose fees is limited to the statutory and potential additional charges allowed by the act, as described above.

California Department of Education

The California Department of Education (CDE) establishes standards for school sites pursuant to Education Code Section 17251 and adopts school site regulations, which are contained in the California Code of Regulations, Title 5, commencing with Section 14001 (CDE 2000, pg. iv). Certain health and safety requirements for school site selection are governed by state regulations and the policies of the CDE School Facilities Planning Division (SFPD) relating to:

- Proximity to airports, high-voltage power transmission lines, railroads, and major roadways;
- Presence of toxic and hazardous substances;
- Hazardous facilities and hazardous air emissions within one-quarter mile;
- Proximity to high-pressure natural gas lines, propane storage facilities, gasoline lines, pressurized sewer lines, or high-pressure water pipelines;
- Noise;
- Results of geological studies or soil analyses; and
- Traffic and school bus safety issues.

The SFPD originally prepared the *Guide to School Site Analysis and Development* in 1966. The guide assists school districts in determining the amount of land needed to support their educational programs in accord with their stated goals and in accord with recommendations of the CDE. Site size standards were updated in 1999–2000 to reflect significant changes in education, such as class size reduction in kindergarten through grade three, implementation of the (federal) Education Amendments of 1977, Title IX (gender equity), parental and community involvement, and technology. In addition to the educational reforms noted above, changes regarding the expanded use of buildings and grounds for community use and agency joint use and legislative changes in the site-selection process regarding environmental, toxic, and other student and staff safety issues were included in the updated standards. The guide contains specific recommendations for school size and suggests a ratio of 2:1 between the developed grounds and the building area (CDE 2000, pg. 10). The CDE is aware that in a number of cases, primarily in urban settings, smaller sites cannot accommodate this ratio. In such cases, the SFPD may approve an amount of acreage less than the recommended gross site size and building-to-ground ratio.

REGIONAL

Sierra College 2008–2011 Strategic Plan

The Sierra College Strategic Plan addresses the major demographic, educational, and economic challenges facing Sierra College through 2011 and creates a framework to establish goals, set priorities, and provide benchmarks to chart progress. The plan is designed to serve as the foundation for all SCCD planning efforts through 2011 (Sierra College 2008b).

Sierra College Facilities Master Plan

The Sierra College Facilities Master Plan was developed to provide the SCCD with an outline of the facility needs required to meet the educational goals of the college through the year 2015 and a strategy to respond to changing enrollment with functional solutions that meet the physical needs of the college.

The plan proposes a district-wide strategy to develop and modernize existing and future sites including modernization projects to correct the wear that has occurred over 42 years and new construction projects that would provide classrooms and laboratories needed for additional students. The plan emphasizes ensuring current safety standards, improving handicapped

accessibility, supporting educational instruction, updating technology, and improving the efficiency of college operations. The plan includes facilities to increase capacity from 20,000 students in 2005 to a capacity for 30,000 students in 2015.

LOCAL

Rocklin Unified School District Facilities Master Plan

The Rocklin Unified School District Facilities Master Plan lays out the framework for decisions regarding the construction of new schools to accommodate growing enrollment as well as the modernization requirements at various existing schools and RUSD facilities. The plan describes RUSD history and educational goals, existing schools, population and housing growth, enrollment trends, the need for new schools, and a financing strategy to fund modernization and new construction (EPS 2008, pg. 1).

4.12.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. A public schools impact is considered significant if implementation of the proposed project would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

METHODOLOGY

The analysis of potential environmental impacts associated with public schools was based on information provided by the RUSD, including the 2008 Facilities Master Plan, and enrollment information from the California Board of Education. A detailed list of referenced material can be found at the end of this section. This material was compared to the potential number of students that could be generated by the proposed General Plan Update, as well as existing and planned school facilities, in order to determine if the General Plan Update would have a significant effect on the physical environment associated with the provision of public school services.

IMPACTS AND MITIGATION MEASURES

Increased Demand for Public Schools (Grades K through 12)

Impact 4.12.3.1 Implementation of the proposed project would increase population in the Planning Area, which would subsequently increase student enrollment in RUSD's and other districts' schools. It may be necessary to construct new or expanded school facilities to serve the increased demand. Construction or expansion of school facilities could result in substantial adverse physical impacts, which could cause significant environmental impacts. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps, as well as state law requiring mitigation through the

payment of development impact fees, ensure the impact will be less than significant. Therefore, this is a less than significant impact.

Implementation of the proposed General Plan Update is expected to result in a total of 29,283 housing units and a population of 76,136 within the 2030 planning horizon. This represents an increase of 8,247 housing units and 22,293 persons over baseline (2008) conditions in the Planning Area. Projected growth would increase student enrollment in the RUSD and other school districts that serve Rocklin and could thus result in the need for new or expanded public school facilities, the construction of which could cause significant environmental impacts.

The RUSD Facilities Master Plan (EPS 2008) includes enrollment projections, which are presented in Table 4.12.3-3.

TABLE 4-12.3-3
ROCKLIN UNIFIED SCHOOL DISTRICT ENROLLMENT PROJECTIONS – MODERATE AND FAST GROWTH

Grade Level	2007/08 Enrollment	2012/13 Enrollment Projection		2019/20 Enrollment Projection	
		Moderate	Fast	Moderate	Fast
K–6	5,285	6,128	6,428	6,840	7,097
7–8	1,620	1,758	1,844	1,964	2,037
9–12	3,227	3,454	3,622	3,674	3,811
TOTAL	**10,132**	**11,340**	**11,894**	**12,478**	**12,945**

Source: EPS 2008

The RUSD Facilities Master Plan (2008) uses three different projection methodologies to predict future enrollment and determines that the percentage-of-population (POP) method is the most accurate for long-term projections (EPS 2008, pg. 53). The POP method compares the enrollment in each grade level to the population of the city. The RUSD Facilities Master Plan assumes a population of 61,788 in the RUSD at buildout of the District. The Facilities Master Plan projects that enrollment in elementary grades (grades K–6) will be approximately 11 percent of the city's population at buildout, that middle school (grades 7–8) enrollment will be approximately 3 percent of the city's population at buildout, and that high school (grades 9–12) enrollment will be approximately 5.8 percent of the city's population at buildout.

As previously mentioned, implementation of the proposed General Plan Update is expected to result in a population of 76,136 within the Planning Area, which is an increase of 14,348 persons over RUSD projections. This difference in population projections occurs because both the City of Rocklin and Sacramento Area Council of Governments (SACOG) projections include areas outside of the RUSD. As a result, population projections used in the General Plan Update (76,136) are higher than the population projections used in the RUSD Facilities Master Plan (61,788) (EPS 2008, pg. 42). Using the POP methodology and the above percentages to determine projected enrollment, increased population associated with the General Plan Update would result in approximately 1,578 additional elementary school students (14,348 x 0.11), approximately 430 additional middle school students (14,348 x 0.03), and approximately 832 additional high school students (14,348 x 0.058) over what is planned for in the RUSD Facilities Master Plan. These additional students would generate the need for new or expanded facilities beyond those currently planned for in the RUSD.

California Government Code Section 65995(h) states that "the payment or satisfaction of a fee, charge or other requirement levied or imposed… [is] deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073, on the provision of adequate school facilities." This provision applies to elementary, middle, and high school facilities. As discussed under the Funding subsection above, the RUSD currently has formed three CFDs in order to fund school facilities and levies Level 1 fees of $2.97 per square foot for residential units and $0.47 square foot for non-residential and age-restricted senior development to provide elementary school facilities, middle school facilities, high school facilities, support facilities, and administrative costs related to facilities development.

If deemed necessary, the development of new schools, or the expansion of existing schools, would contribute environmental impacts such as increased traffic, increased noise, potential habitat loss, degradation of air quality, degradation of water quality, potential conversion of agricultural land, and increased demand for public services and utilities such as water, wastewater, and solid waste services. The City of Rocklin has no direct control over the location and construction of schools. However, the environmental effects of construction of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this Draft EIR as part of overall development of the Planning Area. Furthermore, the RUSD would be required to conduct the appropriate environmental review prior to any significant expansion of school facilities or the development of new school facilities.

Proposed General Plan Update Policies That Provide Mitigation

The following proposed General Plan policies would assist in avoiding or minimizing impacts associated with increased demand for public schools and services:

Policy PF-26 *Evaluate all residential development project applications for their impact on school services and facilities. Where an impact is found, the project may be conditioned to the extent and in the manner allowed by law to mitigate the impact, such as requiring payment of school district fees and/or participation in a community facilities district to fund school facilities.*

Policy PF-27 *Require applications for annexations into the City which are outside of the Rocklin Unified School District to apply for inclusion into the Rocklin Unified School District.*

Policy PF-28 *Coordinate with school districts serving the City regarding locations for new school sites, and review proposed school sites for General Plan conformity, associated environmental impacts and compatibility with adjacent land uses.*

In addition to the above General Plan Update policies, future school sites proposed by the RUSD would be subject to CEQA and CDE standards for school sites. The CDE standards include the consideration of certain environmental, toxic, and other student and staff safety issues during school site selection. These standards would reduce the potential for significant environmental impacts to occur in association with the construction of new school facilities in the Planning Area. Finally, as noted above, current California law states that the environmental impact of new development on school facilities is considered fully mitigated through the payment of

required development impact fees. Therefore, impacts associated with the provision of public school facilities are considered less than significant.

In addition, as discussed in Section 3.0, Project Description, and under Impact 4.12.1.1 above, the project includes the Sixth Amendment to the Redevelopment Plan and the CAP, both of which would be consistent with the proposed General Plan Update and with the development assumptions analyzed throughout this DEIR. As these project components would not result in land use activities or growth beyond what is identified in the General Plan Update, they would not result in impacts associated with the provision of public school facilities beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

Mitigation Measures

None required.

Increased Demand for Post-Secondary Education Facilities

Impact 4.12.3.2 Implementation of the proposed project would increase population in the Planning Area, which could increase demand for post-secondary education facilities provided by the Sierra Community College District. It may be necessary to construct new or expanded post-secondary education facilities to serve the increased demand. Construction or expansion of post-secondary school facilities could result in substantial adverse physical impacts, which could cause significant environmental impacts. However, the proposed General Plan Update's mitigating policies and their associated action steps, as well as state law regarding siting of school facilities ensure that impacts associated with provision of school facilities will be mitigated. Therefore, this is a less than significant impact.

Implementation of the General Plan Update is expected to result in a population increase of 22,293 persons over baseline (2008) conditions within the Planning Area. However, according to the SCCD Strategic Plan, population growth in the SCCD's service area does not necessarily produce a corresponding increase in the college-going population. Currently, the bulk of students attending Sierra College are in the 18 to 20 age range, a population group that is either stabilizing or decreasing slightly in both Placer and Nevada counties (Sierra College 2008b, pg. 28). Therefore, while the SCCD does acknowledge that a slight increase in the 18 to 20 age range population is possible in the future, it does not anticipate that an overall growth in population will result in an increase in student population at the SCCD, particularly not at the rates experienced in the past. Furthermore, although the Rocklin campus is nearing capacity, no significant expansion of the Rocklin campus is planned in the next three years because the SCCD is currently constructing new facilities at both the Nevada County and Truckee campuses in order to increase capacity in the SCCD. In addition, a future South Placer County site is planned that will ultimately serve 18,000 students (Sierra College 2008b, pg. 7). Facilities planned by the SCCD will increase capacity in the Sierra Community College District to 30,000 students by 2015.

William Jessup University may also experience increases in student enrollment. This institution is a private facility with a small student body, but it could require expansion as population growth continues and students seek alternatives to state or community colleges to complete their degrees.

If deemed necessary, construction of new schools, or the expansion of existing schools (both public and private), could result in impacts to the environment. These impacts include increased traffic, increased noise, potential habitat loss, degradation of air quality, degradation of water quality, potential conversion of agricultural land, and increased demand for public services and utilities such as water, wastewater, and solid waste services. Construction or expansion of post-secondary facilities, whether public or private, would be subject to separate environmental review under CEQA.

Proposed General Plan Update Policies That Provide Mitigation

The General Plan Update does not contain policies specifically related to post-secondary schools. However, implementation of General Plan Policy PF-26 would ensure that all new residential development projects in the city would be required to mitigate impacts to school services and facilities consistent with state law. Likewise, Policy PF-28 would ensure that the City would coordinate with the SCCD regarding future school sites in an effort to minimize environmental impacts and land use conflicts. In addition, future facilities proposed by the SCCD would be subject to CEQA review. Therefore, impacts associated with the provision of post-secondary school facilities are considered less than significant.

In addition, as discussed in Section 3.0, Project Description, and under Impact 4.12.1.1 above, the project includes the Sixth Amendment to the Redevelopment Plan and the CAP, both of which would be consistent with the proposed General Plan Update and with the development assumptions analyzed throughout this DEIR. As these project components would not result in land use activities or growth beyond what is identified in the General Plan Update, they would not result in impacts associated with the provision of post-secondary school facilities beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

Mitigation Measures

None required.

4.12.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for public school impacts includes the district boundaries for the Rocklin Unified School District (RUSD), the Loomis Union School District (LUSD), and the Placer Union High School District (PUHSD) for grade school services, and the service area of the Sierra Community College District for post-secondary education services. Any existing, planned, proposed, approved, and reasonably foreseeable development in the cumulative setting could result in cumulative impacts. Table 4.0-1 and associated assumptions in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, includes a list of cumulative projects that could contribute to cumulative public school impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Public School Impacts

Impact 4.12.3.3 Population growth associated with implementation of the proposed project, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the cumulative setting, would result

in a cumulative increase in student enrollment and require additional school-related facilities to accommodate the growth. The construction of new or expanded school facilities could result in substantial adverse physical impacts, which could cause significant environmental impacts. However, the proposed General Plan Update's mitigating policies and their associated action steps, as well as state law requiring mitigation through payment of development impact fees, ensure the impact will be less than significant. Therefore, this is a less than cumulatively considerable impact.

As discussed under Impacts 4.12.3.1 and 4.12.3.2, implementation of the proposed General Plan Update and its associated project components is expected to result in population growth that would increase student enrollment in the RUSD and other school districts that serve Rocklin and could thus result in the need for new or expanded public school facilities, the construction of which could cause significant environmental impacts.

However, as noted above, current California law states that the environmental impact of new development on elementary through high school facilities is considered fully mitigated through the payment of required development impact fees. Furthermore, any significant expansion of school facilities or the development of new school facilities (elementary through post-secondary) would be subject to the appropriate environmental review.

Proposed General Plan Update Policies That Provide Mitigation

The General Plan Update contains the policies listed under Impact 4.12.3.1, which would address the project's cumulative contribution to impacts on public schools. The RUSD and other school districts that serve Rocklin are subject to CEQA and CDE standards for proposed school projects. These standards would reduce the potential for significant environmental impacts to occur in association with the construction of new school facilities in the Planning Area. Additionally, as noted above, current state law indicates that the environmental impact of new development on grade K–12 school facilities is considered fully mitigated through the payment of required development impact fees. Post-secondary schools are also subject to CEQA review. Both CEQA review and CDE standards (as applicable to K–12 schools) would serve to mitigate impacts associated with school construction. Therefore, cumulative impacts on public school facilities are considered less than cumulatively considerable.

As previously discussed, neither the Sixth Amendment to the Redevelopment Plan nor the CAP would result in impacts associated with increased demand for public schools or post-secondary education facilities beyond what is analyzed for the General Plan Update above.

Mitigation Measures

None required.

4.12.4 PARKS AND RECREATION

4.12.4.1 EXISTING SETTING

CITY OF ROCKLIN COMMUNITY SERVICES AND FACILITIES DEPARTMENT

The City of Rocklin Community Services and Facilities Department oversees parks and recreation services in the city. The department maintains 30 developed parks, one undeveloped park, and

another 200 acres of open space. In addition, the department offers numerous activity and leisure-based programs for all ages, including sports and fitness, theatre and arts, education, and special events (City of Rocklin 2008e).

Community and Neighborhood Parks

The City of Rocklin Community Services and Facilities Department currently operates and maintains five community parks and 25 neighborhood parks, with two future parks planned within the Whitney Ranch development and one future park planned within the Clover Valley development. These parks, along with their location and acreages, are shown in Table 4.12.4-1 and in Figure 4.12-2.

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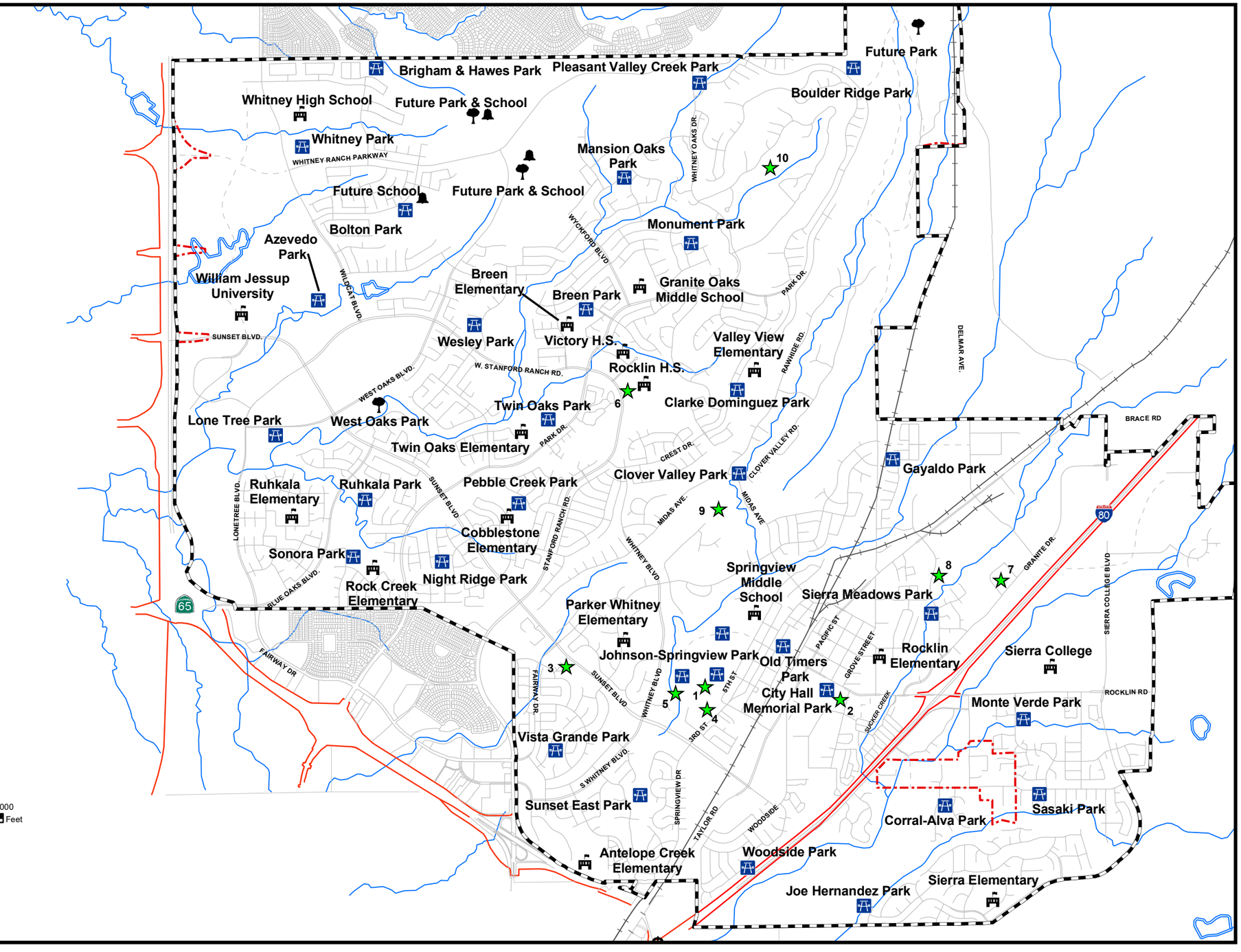
LEGEND

- City of Rocklin - Sphere of Influence
- City of Rocklin - City Limits
- Existing Schools
- Future Schools
- Existing Parks
- Future Parks
- Recreational Facilities
  1. Rocklin Community Center
  2. Finnish Temperance Hall
  3. City of Rocklin Sunset Center
  4. 3rd Street Recreation Center
  5. 5th Street Recreation Center
  6. Aquatics Complex
  7. In-the-Net Sports Center
  8. Rocklin Bowl
  9. Sunset Whitney Golf Course & Club
  10. Whitney Oaks Golf Course & Club



Source: City of Rocklin Planning Dept./ Quad Knopf, inc., 2009

Figure 4.12-2
Park and Recreation Facilities in the Planning Area

TABLE 4.12.4-1
CITY OF ROCKLIN COMMUNITY AND NEIGHBORHOOD PARKS (AS OF APRIL 2008)

Park	Location	Improved Acreage	Unimproved Acreage	Natural Reserve	Total Acreage
Community Parks					
Johnson-Springview	5480 Fifth Street	40	42	50.1	132.1
Lone Tree	West Oaks /Lone Tree Boulevard	25	5	0	30
Margaret Azevedo	1900 Wildcat Blvd. in Stanford Ranch development	14	10.1	0	24.1
Twin Oaks	5500 Park Drive in Stanford Ranch development	28	2	0	30
West Oaks	West Oaks/Sunset Boulevard in West Oaks subdivision	0	17	0	17
Whitney	1801 Whitney Ranch Parkway in Whitney Ranch development	20	20	0	40
Neighborhood Parks					
Bolton	Spring Creek/Ranch View in Whitney Ranch development	3	0	0	3
Boulder Ridge	Park Drive in Whitney Oaks development	8	3.6	0	11.6
Breen	Shelton Street/Swindon Road in Stanford Ranch development	5.9	0	0	5.9
Brigham & Hawes	Bridlewood/Leafy Way in Whitney Ranch development	3.6	0	0	3.6
Clarke Dominguez	Crest Drive in Whitney Oaks development	8	0	0	8
Clover Valley Lakes Park site	Future	0	5	0	5
Clover Valley	Clover Valley Road and Midas Avenue	3	0	0.7	3.7
Corral-Alva (formerly Quarry Ridge Park)	Greenbrae/Aguilar Road	2.5	3	0	5.5
Gayaldo (formerly Yankee Hill)	Aitken Dairy Road/Mockingbird Court/Union Pacific Railroad	1.5	0.5	0	2
Joe Hernandez	Cornwall/Ballantrae Way in Highlands development	3.5	0.5	0	4

Park	Location	Improved Acreage	Unimproved Acreage	Natural Reserve	Total Acreage
Mansion Oaks	Pebble Beach Road and St. Andrews Drive	3	2.8	0	5.8
Memorial Park	Rocklin Road	1	0	0	1
Monte Verde	Rocklin Road and El Don Drive	2	0	2	4
Monument	Ketchikan Drive and Hood Road	3	4.2	0	7.2
Night Ridge	Night RidgeWay and Little Rock Road in Sunset West development	4	0	0	4
Old Timers	Rocklin Road and Front Street	0.1	0	0	0.1
Pebble Creek	Pebble Creek Drive and Sandalwood Road in Stanford Ranch development	4.5	0.5	0	5
Pleasant Valley Creek	Whitney Oaks Drive and Pleasant Creek Drive in Whitney Oaks development	4	5.3	0	9.3
Ruhkala	Surfbird Lane and Arnold Drive in Sunset West development	5	0	0	5
Sasaki	Southside Ranch Road	2	0	0	2
Sierra Meadows	Sierra Meadows Drive and Tamarack Drive	4	0	0.8	4.8
Sonora	Sonora Pass/Great Divide Way in Sunset West development	4	4.2	0	8.2
Sunset East	Willowynd Drive	2	5	8	15
Vista Grande	Onyx Drive in Five Star development	4.5	3.5	0	8
Wesley	Wesley Road and Denton Court in Stanford Ranch development	6	0.7	1.1	7.8
Whitney Ranch	Future (2 sites in Whitney Ranch development)	0	10	0	10
Woodside	Westwood Drive in Woodside subdivision	3.5	1.5	0	5
	Totals	**218.6**	**146.4**	**62.7**	**427.7**

Source: Riemer 2008

Facilities

The Community Services and Facilities Department's facilities include the Rocklin Community Center, the Rocklin Sunset Center, and the Finnish Temperance Hall. The Rocklin Community Center is located at 5480 Fifth Street, adjacent to the Johnson-Springview Park Picnic Pavilion. The single-story brick building has a main hall and adjoining convenience kitchen and is rented out for indoor and outdoor events and gatherings. The Rocklin Sunset Center is located at 2650 Sunset Boulevard and has a large main hall, reception area, large commercial kitchen, six meeting rooms, stage, large grass area, and parking. In addition, offices for the Recreation Division of the Department of Community Services and Facilities are located in the Sunset Center. Registrations for most programs, facility rentals, and event ticket reservations are processed at this location. The Finnish Temperance Hall is located at 4090 Rocklin Road and is registered as a California Point of Historical Interest. Built in 1905 and restored in the late 1980s, the building has a hall and an adjoining convenience kitchen (City of Rocklin, n.d., pg. 12-13).

In addition, there are several sports facilities in the city that were developed through the joint efforts of the City of Rocklin and the Rocklin Unified School District. These include the Rocklin High School/City Aquatic Complex, the Whitney High School/City Aquatic Complex, and the Clarke Dominguez Gymnasium located on the campus of Rocklin Elementary School (City of Rocklin, n.d., pg. 16).

Recreation

The Community Services and Facilities Department offers various recreational programs and services for the city's residents, including:

- Active adult classes for adults ages 50 and older;
- Aquatics program;
- Performing and visual arts classes;
- Youth activities;
- Teen activities;
- Preschool;
- Before and after-school daycare; and
- Sports and fitness classes and leagues.

The Community Services and Facilities Department also sponsors special events such as Rocklin Cleanup Days, Evening in the Park, Make A Difference Day, Children's Trick-or-Treat Faire, and Breakfast with Santa (City of Rocklin 2008g, pg. 18-19).

Parkland Ratios

The City of Rocklin has an adopted standard of 5 acres of parkland per 1,000 residents. However, the standard does not specify whether parks should be improved or unimproved. Unimproved parkland includes open space specifically associated with parks. As of November 2008, the city has a total of 428 acres of parkland, with 219 of those being improved and the rest being unimproved or natural reserve (see Table 4.12.4-1 above). The current park-to-population ratio for both improved and unimproved parkland is approximately 7.94 acres of parkland per 1,000 residents. However, the park-to-population ratio for improved parkland is 4.07 acres per 1,000 residents (Riemer 2008).

Funding

The City of Rocklin requires new development to dedicate parkland or pay in-lieu fees at a rate of 5 acres of parkland per 1,000 residents, using an estimate of 2.6 residents per household. The City attempts to enter into "turnkey" agreements for park development whenever possible. Turnkey agreements require the developer to dedicate a fully improved park and in return the developer receives a credit for in-lieu fees (Riemer 2008). As development occurs, the City collects park fees to offset the demand created for park facilities.

In addition to the above-noted dedication efforts and imposition of fees, the City also imposes a Community Park Fee to finance community park and citywide recreational facilities improvements to reduce the impacts of increased use of existing facilities by the expanding population caused by new development in the city. This fee is charged and paid upon the application for any building permit for all non-exempt new development within the city. The current community park fee is $711 per dwelling unit and $569 per dwelling unit for single-family residential and multi-family residential, respectively (Riemer 2008).

4.12.4.2 REGULATORY FRAMEWORK

STATE

The California Parklands Act of 1980

Although a recreation element is not mandated by law to be included in a general plan, recreation resources are to be considered in the open space element of a general plan (Government Code Section 65560). The California Parklands Act of 1980 (Public Resources Code Section 5096.141–5096.143) identifies "the public interest for the state to acquire, develop, and restore areas for recreation…and to aid local governments of the state in acquiring, developing, and restoring such areas…" The act also identifies the necessity of local agencies to exercise vigilance to see that the parks, recreation areas, and recreational facilities they now have are not lost to other uses.

Quimby Act

The goal of the 1975 Quimby Act (California Government Code Section 66477) was to require developers to help mitigate the impacts of property improvements by requiring them to set aside land, donate conservation easements, or pay fees for park improvements. The Quimby Act gave authority for passage of land dedication ordinances only to cities and counties, thus requiring special districts to work with cities and/or counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services community-wide. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities (Westrup 2002).

Originally, the Quimby Act was designed to ensure "adequate" open space acreage in jurisdictions adopting Quimby Act standards (e.g., 3–5 acres per 1,000 residents). In some California communities, the acreage fee was very high where property values were high, and many local governments did not differentiate on their Quimby fees between infill projects and greenbelt developments. In 1982, the Quimby Act was substantially amended via Assembly Bill (AB) 1600. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (nexus) to a project's impacts as identified

through traffic studies required by CEQA. In other words, AB 1600 requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or parkland and the type of development project upon which the fee is imposed (Westrup 2002). Cities or counties with a high ratio of parkland to inhabitants can set a standard of 5 acres per 1,000 residents for new development. Cities or counties with a lower ratio can only require the provision of up to 3 acres of parkland per 1,000 residents. The calculation of a city's or county's parkland-to-population ratio is based on a comparison of the population count of the last federal census to the amount of city- or county-owned parkland. As discussed above, the City of Rocklin charges fees based on the standard of 5 acres of parkland per 1,000 residents for new development.

LOCAL

City of Rocklin Municipal Code

Chapter 17.71 of the Rocklin Municipal Code provides for the financing of adequate park and recreation facilities by requiring residential uses be conditioned on the payment of a park and recreation fee. Fees collected pursuant to this chapter can be used only for the purpose of providing and maintaining park and recreational facilities.

Park Maintenance and Development Act of 1998

Chapter 3.34 of the Rocklin Municipal Code, also known as the Park Maintenance and Development Act of 1998, imposes a special tax on every residential parcel in the City of Rocklin solely for the purpose of raising revenue necessary for the development and maintenance of parks and related recreation facilities in the city.

4.12.4.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. A park and recreation impact is significant if implementation of the proposed project would:

1. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

METHODOLOGY

Evaluation of potential parks and recreation service impacts was based on information provided by the City of Rocklin Community Services and Facilities Department, as well as review of the most recent recreation and facilities guides, the existing City of Rocklin General Plan and Municipal Code, and other relevant literature. A detailed list of reference material used can be found at this end of this section. This material was then compared to the proposed General Plan Update's specific park and recreation service-related impacts. The impact analysis below focuses on whether those impacts would have a significant effect on the physical environment.

IMPACTS AND MITIGATION MEASURES

Increased Demand for Parks and Recreation Facilities

Impact 4.12.4.1 Implementation of the proposed project could increase population in the Planning Area, which could subsequently increase the use of existing parks and recreation facilities such that substantial physical deterioration of the facilities would occur and/or require the construction or expansion of parks and recreational facilities to meet increased demand which could have an adverse physical effect on the environment. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps ensure the impact will be less than significant. Therefore, this is considered to be a less than significant impact.

The City has adopted park and recreational facilities improvement fees to finance parks and citywide recreation facilities improvements to reduce the impacts of increased use on existing facilities. The City also imposes a special tax on residential properties that provides funds for the development, repair, and maintenance of parks and recreation facilities. New developments are required to either dedicate parkland or pay park development fees based on a General Plan standard of 5 acres per 1,000 residents. In addition, the City has negotiated turnkey provisions whereby developers construct parks and install recreational equipment in parks as part of development projects. This allows developers to market their projects with a known time frame as to when new residents can expect completion of parks in their neighborhoods.

With an estimated 2008 population of 53,843 and 428 acres of parks (219 improved acres), Rocklin has 7.94 acres of parks (4.07 improved acres) per 1,000 residents. With the additional acreage of planned future parks bringing the City's total park acreage to 440, Rocklin's population could increase to approximately 88,000 and still provide 5 acres of parks per 1,000 residents. Based on current land use assumptions and projections including the intensification of land uses in the Downtown Rocklin Area, the city's population is estimated to be 76,136 at buildout.

Typical environmental effects regarding the construction and operation of parks and recreational facilities may involve issues with noise (during construction and use of playfields and playgrounds), air quality (during the construction of the facility), biological resources (depending on location), historic/cultural resources (depending on location), public services and utilities (demand for police and fire protection, electric, water, and wastewater service), and traffic on a local neighborhood level. The environmental effects of construction of such facilities in the Planning Area have been considered in the technical analyses of this DEIR as part of overall development of the Planning Area.

Proposed General Plan Update Policies That Provide Mitigation

The following proposed General Plan policies would assist in avoiding or minimizing impacts associated with increased demand for parks and recreation facilities:

Policy OCR-12 Provide for park and other outdoor recreational needs, both active and passive, through methods including but not limited to: collection of park user fees, dedication of parkland, or a combination of both; rehabilitation of existing park and recreation facilities; requiring the installation of park improvements; and requiring that financial mechanisms be created for long-term park and/or open space operation and maintenance.

Policy OCR-13 Require dedication of parkland, payment of in lieu fees for parkland, or a combination of both, as a condition of approval in the early stages of the development process, including approval of rezonings, where it is necessary to insure consistency with or implementation of the goals and policies contained in this General Plan.

Policy OCR-14 Provide developed as well as undeveloped parkland, recognizing that certain unique open space attributes may be best preserved by retaining them in a natural condition.

Policy OCR-18 Provide park facilities in a timely manner.

Policy OCR-19 Utilize locational and size guidelines that will allow the City to maintain a minimum of 5 acres of parkland per 1,000 residents.

Policy OCR-22 Require new development to mitigate its impact on park development and maintenance.

Policy OCR-23 Seek outside funding from local, State and Federal agencies, as well as the private sector, for new park development and rehabilitation of existing park facilities.

Policy OCR-25 Protect designated outdoor recreation sites from incompatible urban development.

Policy OCR-26 Maintain a Park Repair and Development Fund that receives revenues from a variety of sources.

Policy OCR-27 Establish Class I bikeways where feasible along public roadways when roadways are adjacent to open space and parkland.

Policy OCR-28 Integrate, to the extent practical, the City's bike and trails network with trails in adjacent jurisdictions and the region.

Policy OCR-30 Provide recreation programs that meet resident needs.

Policy OCR-31 Provide recreation programs that foster financially self-supporting recreational facilities.

Policy OCR-33 Provide active recreation facilities and related infrastructure within community parks, such as lighted athletic fields, soccer fields, softball diamonds and parking areas.

Policy OCR-34 Provide recreation facilities for neighborhood residential areas in neighborhood parks that include informal turf areas, playgrounds, and passive recreation opportunities.

Policy OCR-35 Seek funding sources for a variety of recreational programs and facilities, including program fees, lease agreements and concessions, State and Federal funds, and the City Americans with Disabilities Act Superfund.

Policy OCR-36 Participate on a regional level (with other local jurisdictions) in hosting sports tournaments and recreational events that promote tourism, whenever feasible.

Policy OCR-38 Provide additional active recreational opportunities such as community centers, a performing arts center, swimming pools and gymnasiums.

Implementation of the above General Plan policies would ensure that the City would adequately provide for parks and recreation needs for residents and that new development would mitigate project-level impacts to parks and recreation facilities. Implementation of these policies would ensure that impacts to parks and recreation services would be less than significant.

In addition, as discussed in Section 3.0, Project Description, and under Impact 4.12.1.1 above, the project includes the Sixth Amendment to the Redevelopment Plan and the CAP, both of which would be consistent with the proposed General Plan Update and with the development assumptions analyzed throughout this DEIR. As these project components would not result in land use activities or growth beyond what is identified in the General Plan Update, they would not result in impacts to parks and recreation services beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

Mitigation Measures

None required.

4.12.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for parks and recreation consists of the City of Rocklin's parks and recreation service area boundary, which corresponds with the Planning Area. Under buildout conditions, the City would operate and maintain Rocklin's parks and recreation facilities. Any existing, planned, proposed, approved, and reasonably foreseeable development within the Planning Area that currently places demand on Rocklin's parks and recreation facilities, or is expected to place demand on them in the future, could contribute to cumulative impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Park and Recreation Demands

Impact 4.12.4.2 Implementation of the proposed project could increase population in the Planning Area, which could subsequently increase the use of existing parks and recreation facilities such that substantial physical deterioration of the facilities would occur and/or require the construction or expansion of park and recreational facilities to meet increased demand which could have an adverse physical cumulative effect on the environment. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps ensure the impact will be less than significant. This would be a less than cumulatively considerable impact.

Implementation of the proposed General Plan Update and its associated project components would address future city needs for parks and recreation facilities through implementation of the

General Plan policies identified under Impact 4.12.4.1, which ensure that new development would be required to dedicate land for parks or to pay in-lieu fees for the acquisition and development of new parks at a rate of 5 acres of parkland per 1,000 residents.

Proposed General Plan Update Policies That Provide Mitigation

The proposed General Plan Update policies listed under Impact 4.12.4.1 would assist in avoiding or minimizing impacts associated with increased demand for parks and recreation facilities. Implementation of these General Plan policies would ensure that the City would adequately provide for parks and recreation needs for residents and that new development would mitigate the project's cumulative contribution to impacts on parks and recreation facilities. Therefore, the proposed project would have a less than cumulatively considerable impact on parks and recreation services.

As previously discussed, neither the Sixth Amendment to the Redevelopment Plan nor the CAP would result in impacts associated with increased demand for parks and recreation facilities beyond what is analyzed for the General Plan Update above.

Mitigation Measures

None required.

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predicted noise contours are summarized in Table 4.5-3. Existing 60 and 65 L_{dn}/CNEL noise contours for major transportation noise sources, including the UPRR corridors, are depicted in Figure 4.5-3. It is important to note that projected noise levels do not include shielding or reflection of noise from intervening terrain or structures. In addition, actual train noise levels will vary depending on various factors, such as train speed, the number of engines used, track conditions (e.g., welded vs. jointed), and the condition of the train wheels. Additional factors, such as the sounding of train horns and the operation of roadside signaling devices, can also contribute to overall noise levels. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

TABLE 4.5-3
PREDICTED RAILROAD NOISE LEVELS

Railroad Corridor	Wayside Noise Level at 50 feet from Track Centerline (dBA CNEL)		Distance from Track Centerline to CNEL Noise Contour (feet)			
	Without Horns Sounding	With Horns Sounding	Without Horns Sounding		With Horns Sounding	
			60 dBA	65 dBA	60 dBA	65 dBA
Single-Track	68	80	185	85	1,000	540
Double-Track Mainline	71	83	280	130	1,480	750

Source: Ambient 2009

Notes: Noise levels were calculated based on methodology obtained from the Federal Transit Administration's Transit Noise and Vibration Impact Assessment Guidelines (FTA 2006). Assumes 16 freight trains, distributed equally over a 24-hour period,, and 10 Amtrak trains between the daytime hours of 7 a.m. and 10 p.m. The sounding of locomotive horns typically occurs within distances of approximately 1,000 feet of at-grade crossings. Noise contours do not include shielding due to intervening terrain or structures.

Based on the modeling conducted, the predicted 60 dBA CNEL noise contour for the UPRR mainline would extend to approximately 280 feet from the track centerline without the sounding of train warning horns and to approximately 1,480 feet with the sounding of train horns. Along the single-track eastbound and westbound railroad corridors, the predicted 60 dBA CNEL noise contours would extend to approximately 185 feet from the track centerline without the sounding of train warning horns and to approximately 1,000 feet with the sounding of train horns.

Intersection[1]		Existing Conditions		Existing with Buildout of Proposed General Plan Update	
		V/C	LOS	V/C	LOS
142	Wildcat Boulevard & Whitney Ranch Parkway	0.179	A	0.592	A
143	Wildcat Boulevard & South High School Entrance	0.173	A	0.628	B
144	Wildcat Boulevard & North High School Entrance	0.167	A	0.176	A
145	Wildcat Boulevard & Ranch View Drive	0.180	A	0.263	A
152	Stanford Ranch Road & Crest Drive	Not Signalized		0.864	D
153	Whitney Boulevard & Crest Drive			0.739	C
154	Park Drive & Crest Drive			0.328	A
161	Granite Drive & Dominguez Drive			0.817	D
162	Sierra College Boulevard & Dominguez Drive			0.586	A
163	Park Drive & Valley View Parkway			0.516	A
164	Nature Trail Way & Valley View Parkway			0.621	B
165	Sierra College Boulevard & Valley View Parkway			0.381	A
166	University Avenue & Whitney Ranch Parkway			0.379	A
167	West Oaks Boulevard & Whitney Ranch Parkway			0.507	A
168	West Oaks Boulevard & Painted Pony Lane			0.265	A
169	Laredo Drive & Whitney Ranch Parkway			0.819	D
170	Rocklin Road & Civic Center Drive			0.560	A
171	Pacific Street & Civic Center Drive			0.520	A

Source: DKS Associates 2011

Notes: Shaded intersections do not meet LOS standard.

[1] See Figure 4.4-1 for locations of intersections by number.

Figure 4.4-10 shows the projected daily volumes under the Existing Conditions with Buildout of Proposed General Plan Update scenario within the City of Rocklin. The figure compares these volumes to existing volumes.

Table 4.4-12 shows daily traffic volumes on local highway segments. The table shows that volume increases on highway segments range from less than 2 percent to over 15 percent. Increases are highest on I-80 between Rocklin Road and Sierra College Boulevard.

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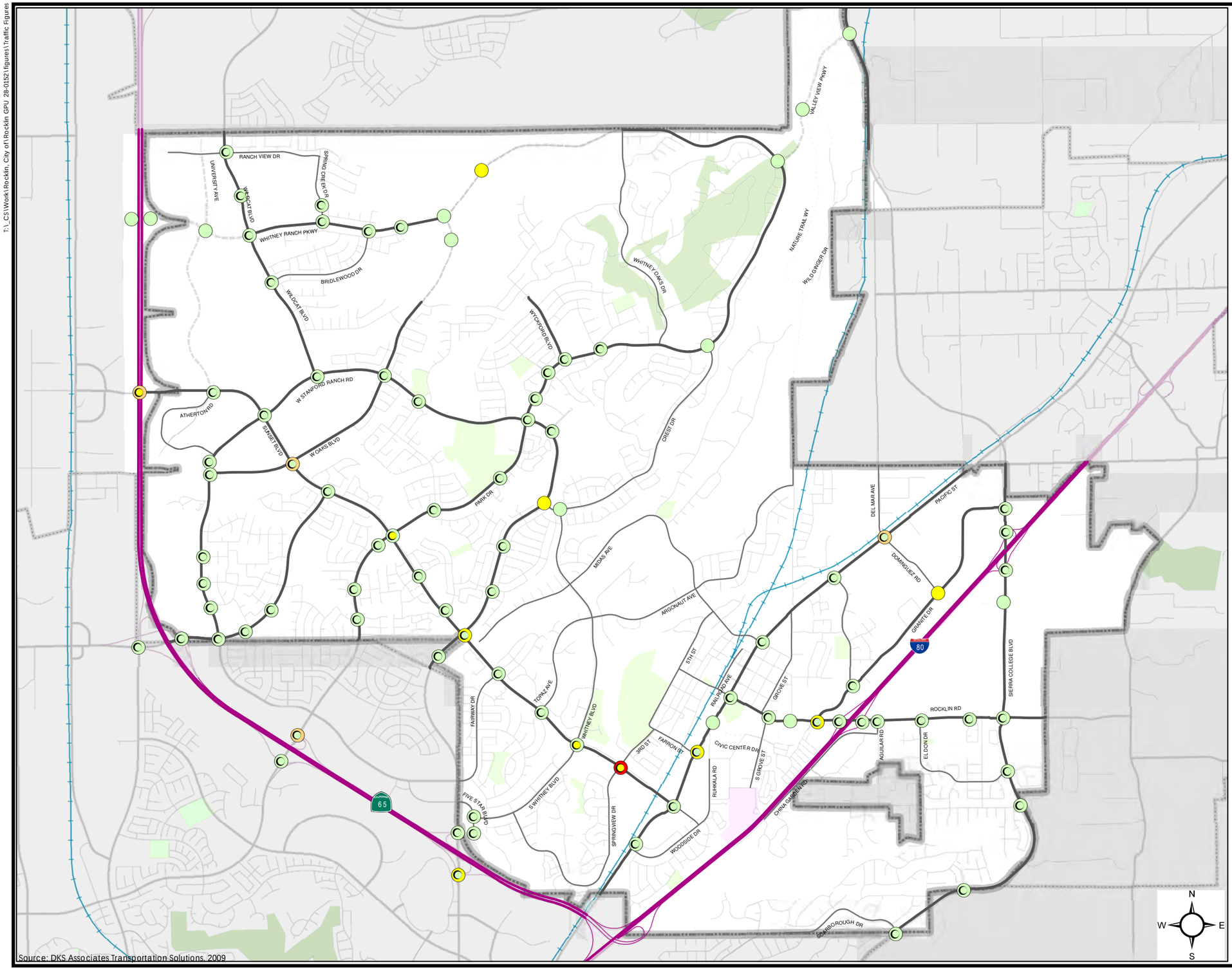

Source: DKS Associates Transportation Solutions, 2009

Existing LOS

EX

- A; B; C
- D
- E
- F

Existing Plus Project LOS

EXPP

- A; B; C
- D
- E
- F

Roadways

Facility Type

- ARTERIAL
- COLLECTOR
- FREEWAY
- FREEWAY RAMP

NO SCALE

N

Figure 4.4-9

Existing Plus Project Level of Service at Signalized Rocklin Intersections

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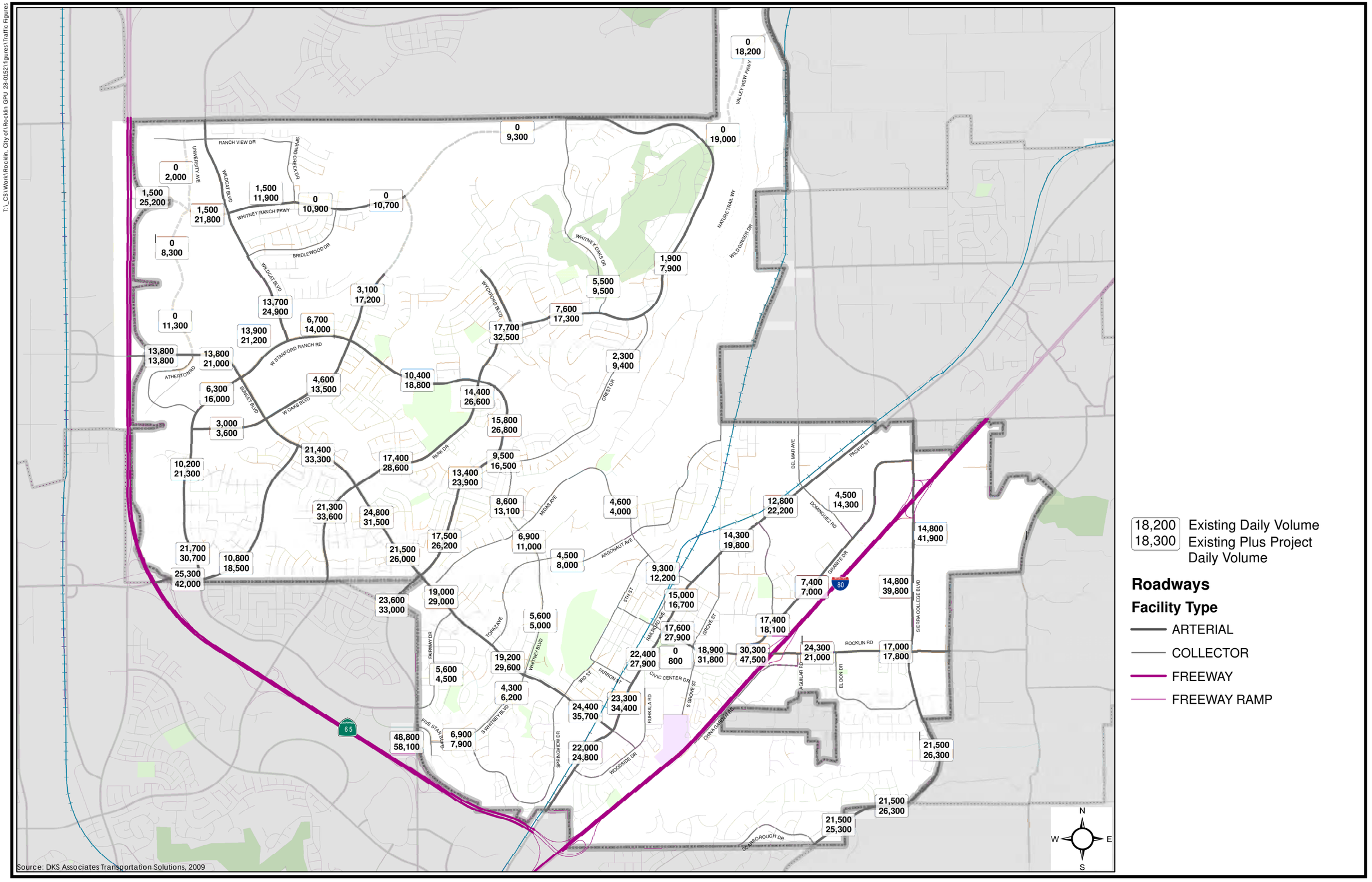


NO SCALE

N

Figure 4.4-10
Existing Plus Project Daily Traffic Volumes on Rocklin Roadways

TABLE 4.4-12
DAILY FREEWAY VOLUMES – STATE/INTERSTATE HIGHWAY FACILITIES
EXISTING CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

		Lanes			Existing Conditions			Existing Conditions with Buildout of Proposed General Plan			
		Main	Aux	HOV	AADT	V/C	LOS	AADT	Change	V/C	LOS
I-80	SR 65 to Rocklin Road	6	–	–	122,000	1.130	F	132,400	+10,400 (8.5%)	1.226	F
	Rocklin Road to Sierra College Boulevard	6	–	–	97,000	0.898	D	112,300	+15,300 (15.8%)	1.040	F
	Sierra College Boulevard to Horseshoe Bar Road	6	–	–	96,000	0.889	D	99,900	+3,900 (4.1%)	0.925	E
SR 65	I-80 to Stanford Ranch Road/Galleria Boulevard	4	1	–	108,000	1.271	F	116,200	+8,200 7.6%)	1.367	F
	Stanford Ranch Road/Galleria Boulevard to Pleasant Grove Boulevard	4	–	–	96,000	1.333	F	97,600	+1,600 (1.7%)	1.356	F
	Pleasant Grove Boulevard to Blue Oaks Boulevard	4	2	–	82,000	0.837	D	85,100	+3,100 (3.8%)	0.868	D
	Blue Oaks Boulevard to Sunset Boulevard	4	–	–	69,000	0.958	E	70,500	+1,500 (2.2%)	0.979	E
	Sunset Boulevard to Twelve Bridges Drive	4	–	–	55,000	0.764	C	56,600	+1,600 (2.9%)	0.786	C

Source: DKS Associates 2011

Note: Shading represents segments that do not meet Caltrans' LOS E policy.

Tables 4.4-13 through 4.4-17 show levels of service for intersections in other jurisdictions under both the Existing Conditions and Existing Conditions with Buildout of Proposed General Plan scenarios. Table 4.4-13 shows that the number of state highway study intersections operating at LOS D or worse increases from one to three with buildout of the proposed General Plan Update. One intersection degrades from LOS C to LOS D, one degrades from LOS C to LOS E, and one degrades from LOS D to LOS E.

TABLE 4.4-13
PM PEAK HOUR LOS – STATE HIGHWAY RAMP INTERSECTIONS
EXISTING CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]		Existing Conditions		Existing with Buildout of Proposed General Plan Update	
		Delay	LOS	Delay	LOS
201	Rocklin Road & I-80 eastbound	26.1	C	31.8	C
202	Rocklin Road & I-80 westbound	21.8	C	23.7	C
203	Sierra College Boulevard & I-80 westbound	19.2	B	26.8	C
204	Sierra College Boulevard & I-80 eastbound	20.6	C	28.4	C
205	Sunset & SR 65 (Existing Signalized Intersection)	39.4	D	71.3	E
210	Blue Oaks Boulevard & SR 65 southbound	24.4	C	25.7	C
211	Blue Oaks Boulevard & SR 65 northbound Off-ramp	7.3	A	7.4	A
212	Pleasant Grove Boulevard & SR 65 northbound	27.2	C	79.4	E
213	Pleasant Grove Boulevard & SR 65 southbound	19.8	B	28.3	C
214	Stanford Ranch Road & SR 65 northbound	26.6	C	30.4	C
215	Stanford Ranch Road & SR 65 southbound	34.1	C	50.9	D

Source: DKS Associates 2011

Notes: Shaded intersections operate at LOS D or worse.

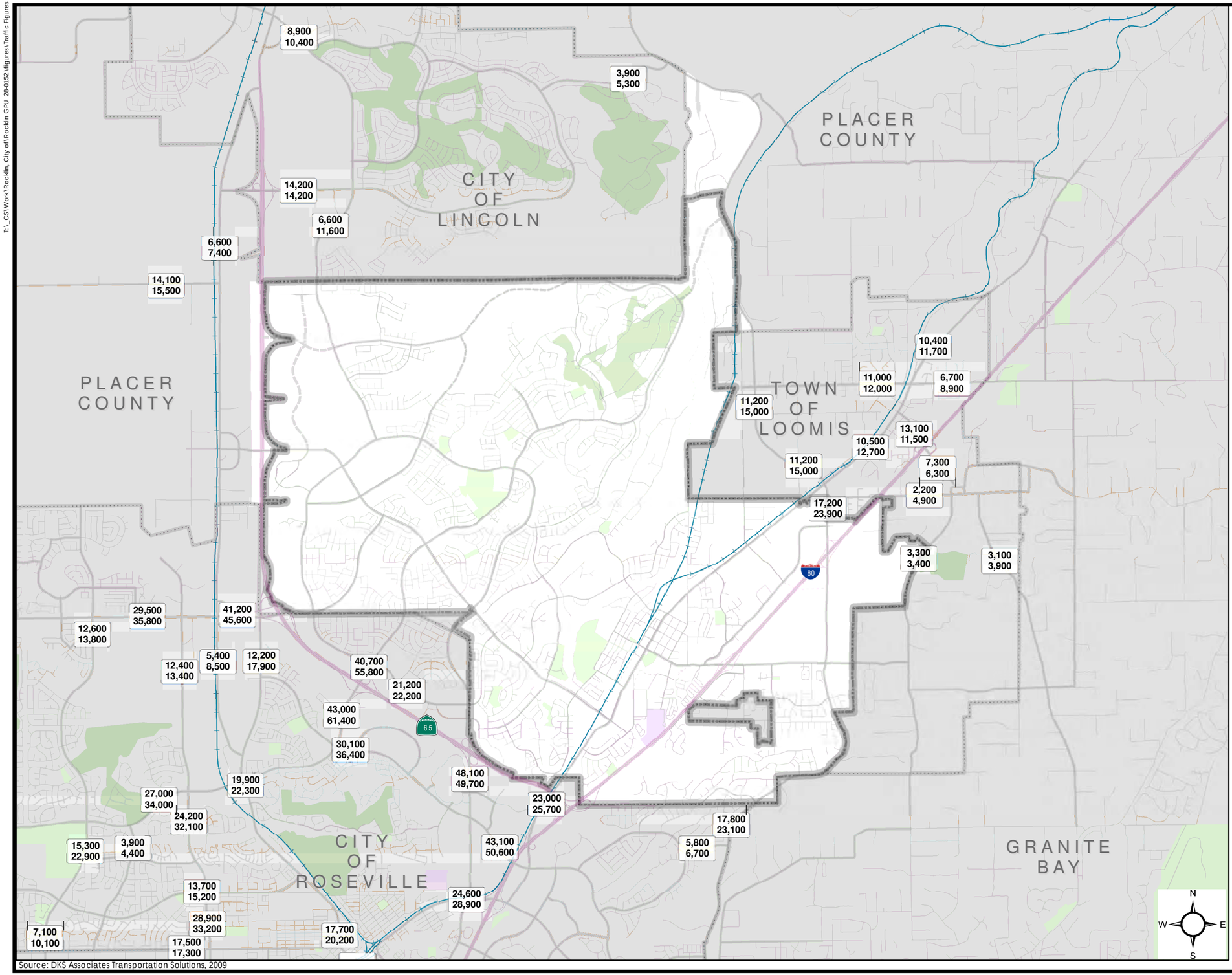
[1] See Figure 4.4-1 for locations of intersections by number.

Figure 4.4-11 shows the projected daily volumes under the Existing Conditions with Buildout of Proposed General Plan Update scenario outside the City of Rocklin. The figure compares these volumes to existing volumes.

Town of Loomis

Table 4.4-14 shows that in the Town of Loomis, one intersection operates at LOS D with or without the proposed project. One signalized intersection (Sierra College Boulevard and Taylor Road) degrades from LOS C to LOS E with buildout of the proposed General Plan Update. Two stop-controlled intersections (Barton Road and Brace Road, Rocklin Road and Barton Road) experience a worst movement level of service degradation from LOS B to LOS D, while the overall intersection level of service remains LOS A and LOS C, respectively.

T:_CS\Work\Rocklin, City of\Rocklin GPU 28-0152\figures\Traffic Figures



Source: DKS Associates Transportation Solutions, 2009

NO SCALE

N

Figure 4.4-11

Existing Plus Project Daily Traffic Volumes on Non Rocklin Roadways

TABLE 4.4-14
PM PEAK HOUR LOS – TOWN OF LOOMIS INTERSECTIONS
EXISTING CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]			Existing Conditions		Existing with Buildout of Proposed General Plan Update	
			Delay	LOS	Delay	LOS
Signalized Intersections						
301	Sierra College Boulevard & Brace Road		16.3	B	18.1	B
302	Sierra College Boulevard & Taylor Road		29.8	C	72.4	E
304	Sierra College Boulevard & King Road		16.1	B	28.7	C
305	Taylor Road & King Road		30.5	C	30.7	C
306	Taylor Road & Horseshoe Bar		38.3	D	35.8	D
309	Horseshoe Bar Road & I-80 Westbound Ramps		26.0	C	26.3	C
Stop-Controlled Intersections						
307	Rocklin Road & Barton Road	Average intersection	10.1	B	20.7	C
		Worst movement	11.2	B	27.3	D
308	Barton Road & Brace Road	Average intersection	6.9	A	8.6	A
		Worst movement	15.0	B	30.7	D
310	Horseshoe Bar Road & I-80 Eastbound Ramps	Average intersection	8.6	A	6.9	A
		Worst movement	18.2	C	16.6	C

Source: DKS Associates 2011

Notes: Shaded intersections operate at LOS D or worse.

[1] See Figure 4.4-1 for locations of intersections by number.

City of Roseville

Table 4.4-15 shows that two intersections in the City of Roseville degrade from LOS C or better to LOS D with buildout of the proposed General Plan Update.

TABLE 4.4-15
PM PEAK HOUR LOS – ROSEVILLE INTERSECTIONS
EXISTING CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]		Existing Conditions		Existing with Buildout of Proposed General Plan Update	
		V/C	LOS	V/C	LOS
401	Pleasant Grove & Fairway	0.68	B	0.92	E
402	Stanford Ranch & Fairway	0.60	B	0.65	B
403	Stanford Ranch & Five Star	0.59	A	0.86	D
404	Pleasant Grove & Roseville Parkway	0.72	C	0.74	C
405	Galleria & Roseville Parkway	0.81	C	0.83	D

Intersection[1]		Existing Conditions		Existing with Buildout of Proposed General Plan Update	
		V/C	LOS	V/C	LOS
406	Roseville Parkway & Taylor	0.66	B	0.71	C
407	Roseville Parkway & North Sunrise	0.75	C	0.68	B
408	Sierra College & Secret Ravine	0.46	A	0.60	B

Source: DKS Associates 2011

Notes: Shaded intersections operate at LOS D or worse.

[1] See Figure 4.4-1 for locations of intersections by number.

City of Lincoln

Table 4.4-16 shows that both study intersections in the City of Lincoln operate at LOS A, both without and with buildout of the proposed General Plan Update.

TABLE 4.4-16
PM PEAK HOUR LOS – LINCOLN INTERSECTIONS
EXISTING CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]		Existing Conditions		Existing with Buildout of Proposed General Plan Update	
		V/C	LOS	V/C or Delay	LOS
501	East Joiner Parkway & Twelve Bridges Drive	0.46	A	0.43	A
502	Sierra College Boulevard & Twelve Bridges Drive	1.3 sec	A	2.5 sec	A

Source: DKS Associates 2011

Note: [1] See Figure 4.4-1 for locations of intersections by number.

Placer County

Table 4.4-17 shows that in unincorporated Placer County, the intersection of Sierra College Boulevard and English Colony Way degrades from LOS A to LOS D with buildout of the proposed General Plan Update.

TABLE 4.4-17
PM PEAK HOUR LOS – PLACER COUNTY INTERSECTIONS
EXISTING CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]		Existing Conditions		Existing with Buildout of Proposed General Plan Update	
		V/C	LOS	Delay	LOS
601	Sierra College Boulevard & English Colony Way	1.2 sec	A	27.3 sec	D

Source: DKS Associates 2011

Notes: Shaded intersections operate at LOS D or worse.

[1] See Figure 4.4-1 for locations of intersections by number.

Development Assumptions: Cumulative (2030) Conditions

Development assumptions for the cumulative scenarios are based on a collaborative effort between DKS Associates and City of Rocklin staff. The cumulative scenarios are based on a year 2030 time horizon. Tables 4.4-18 through 4.4-21 show the land use assumptions for jurisdictions in western Placer County for the cumulative scenarios for residential, retail, office/medical, and industrial land uses, respectively. The development assumptions listed for the City of Rocklin represent buildout of both the current and proposed General Plan Update. Development in the City of Roseville represents buildout of Roseville's General Plan land uses. The assumed amount of development in the City of Lincoln includes approximately half of the proposed development in its General Plan Sphere of Influence.

For the Town of Loomis, buildout of their General Plan land use estimates was assumed. For other jurisdictions and existing communities within western Placer County, including Auburn, Colfax, the Auburn/Bowman area, Granite Bay, the Sunset Industrial Area, and the Dry Creek area, land use projections have all been updated for the recent 2008 model update. Based on agreement with City of Rocklin staff, a number of major development plan areas (including Regional University, Placer Ranch, Riolo Vineyard, Creekview, and Sierra Vista) are estimated to be 60 percent built out. Placer Vineyards Phase 1 is assumed, consistent with the assumption used for recent studies in the City of Roseville.

TABLE 4.4-18
WESTERN PLACER COUNTY CUMULATIVE DEVELOPMENT ASSUMPTIONS:
RESIDENTIAL DWELLING UNITS

Cities and Towns (Current General Plans)	Existing (2008)	Cumulative (2030) Conditions
Rocklin	20,682	27,875
Roseville	45,413	58,465
Lincoln	15,046	22,248
Lincoln SOI	158	15,086
Loomis	2,365	3,652
Auburn	5,734	7,472
Colfax	697	941
Unincorporated Areas (Current General Plans)		
Auburn/Bowman	9,587	17,271
Granite Bay	7,305	7,915
Sunset	–	–
Bickford	10	1,890
Other Dry Creek	1,393	3,520
Other Unincorporated	14,789	20,214
Major Projects in West Placer County		
Curry Creek	–	–
Regional University	–	2,632

Cities and Towns (Current General Plans)	Existing (2008)	Cumulative (2030) Conditions
Placer Ranch	–	4,055
Placer Vineyards	151	7,261
Riolo Vineyard	6	570
Creekview	–	1,499
Sierra Vista	–	5,716
Total	**123,336**	**208,283**

Source: DKS Associates 2011

Note: Assumes buildout of the City of Rocklin's current General Plan.

TABLE 4.4-19
WESTERN PLACER COUNTY CUMULATIVE DEVELOPMENT ASSUMPTIONS:
RETAIL KSF (1,000 SQUARE FEET)

Cities and Towns (Current General Plans)	Existing (2008)	Cumulative (2030) Conditions
Rocklin	3,075	9,233
Roseville	10,769	17,117
Lincoln	763	2,325
Lincoln SOI	–	2,718
Loomis	326	1,501
Auburn	1,375	1,756
Colfax	261	460
Unincorporated Areas (Current General Plans)		
Auburn/Bowman	1,581	2,955
Granite Bay	632	948
Sunset	0	357
Bickford	3	105
Other Dry Creek	47	223
Other Unincorporated	450	1,221
Major Projects in West Placer County		
Curry Creek	–	–
Regional University	–	129
Placer Ranch	–	628
Placer Vineyards	–	900
Riolo Vineyard	–	53
Creekview	–	100

Cities and Towns (Current General Plans)	Existing (2008)	Cumulative (2030) Conditions
Sierra Vista	–	1,299
Total	**19,282**	**44,028**

Source: DKS Associates 2011

Note: Assumes buildout of the City of Rocklin's current General Plan.

TABLE 4.4-20
WESTERN PLACER COUNTY CUMULATIVE DEVELOPMENT ASSUMPTIONS:
OFFICE KSF (1,000 SQUARE FEET)

Cities and Towns (Current General Plans)	Existing (2008)	Cumulative (2030) Conditions
Rocklin	1,067	6,268
Roseville	10,095	16,677
Lincoln	587	1,720
Lincoln SOI	–	3,160
Loomis	133	597
Auburn	714	1,041
Colfax	39	67
Unincorporated Areas (Current General Plans)		
Auburn/Bowman	1,805	3,524
Granite Bay	433	890
Sunset	28	912
Bickford	–	–
Other Dry Creek	1	157
Other Unincorporated	145	397
Major Projects in West Placer County		
Curry Creek	–	–
Regional University	–	45
Placer Ranch	–	3,146
Placer Vineyards	–	162
Riolo Vineyard	–	–
Creekview	–	145
Sierra Vista	–	164
Total	**15,047**	**39,072**

Source: DKS Associates 2011

Notes: Includes Office, Medical, Hospital, Public/Quasi-Public.
Assumes buildout of the City of Rocklin's current General Plan.

TABLE 4.4-21
WESTERN PLACER COUNTY CUMULATIVE DEVELOPMENT ASSUMPTIONS:
INDUSTRIAL KSF (1,000 SQUARE FEET)

Cities and Towns (Current General Plans)	Existing (2008)	Cumulative (2030) Conditions
Rocklin	3,053	5,148
Roseville	9,889	18,780
Lincoln	3,381	5,562
Lincoln SOI	–	1,471
Loomis	763	915
Auburn	278	566
Colfax	200	221
Unincorporated Areas (Current General Plans)		
Auburn/Bowman	1,036	2,809
Granite Bay	77	78
Sunset	4,308	7,933
Bickford	–	–
Other Dry Creek	172	897
Other Unincorporated	546	746
Major Projects in West Placer County		
Curry Creek	–	–
Regional University	–	–
Placer Ranch	–	2,511
Placer Vineyards	31	–
Riolo Vineyard	–	–
Creekview	–	–
Sierra Vista	–	–
Total	**23,734**	**47,637**

Source: DKS Associates 2011

Notes: Includes Industrial and R&D.

Assumes buildout of the City of Rocklin's current General Plan.

Roadway Assumptions: Cumulative (2030) Conditions

Roadway assumptions for the cumulative scenarios within the City of Rocklin are based on the City's adopted General Plan. Improvements in the city are listed in Tables 4.4-22 and 4.4-23, which list arterials and collectors, respectively.

The roadway improvements in the City's General Plan are included in the City's Capital Improvement Program (CIP). The City has various methods for financing improvements identified

in the CIP. One of the methods is the Traffic Impact Mitigation (TIM) Fee Program that collects funds from new development in the city to finance a portion of the roadway improvements that result from the traffic generated by the new development. The CIP, which is overseen by the City's Engineering Division, is updated periodically to respond to changing conditions and to ensure that growth in the city and surrounding jurisdictions does not degrade the level of service on the city's roadways. The roadway improvements that are identified in the CIP in response to anticipated growth in population and development in the city are consistent with the City's Circulation Element. The TIM fee program collects funds from new development in the city to finance a portion of the roadway improvements that result from traffic generated by the new development. Fees are calculated on a citywide basis, differentiated by type of development in relationship to their relative traffic impacts. The intent of the fee program is to provide an equitable means of ensuring that future developments contribute their fair share of roadway improvements, so that the City's General Plan circulation policies and quality of life can be maintained. Other sources of funding for the CIP include developer-funded projects, frontage improvements constructed by developers, South Placer Regional Transportation Authority (SPRTA) regional fees, Highway 65 Joint Powers Authority (JPA) fees, and state and federal sources.

TABLE 4.4-22
CITY OF ROCKLIN ARTERIAL ROADWAYS

Roadway	Segment	Travel Lanes		
		2008	2030	Post-2030
Blue Oaks Boulevard	SR 65 to Sunset Boulevard	4	4	
Granite Drive	Rocklin Road to Sierra College Boulevard	4	4	
Lonetree Boulevard	Blue Oaks Boulevard to Sandhill Drive	4	4	
	Sandhill Drive to West Oaks Boulevard	4	4	
	West Oaks Boulevard to West Stanford Ranch Road	4	4	
Pacific Street	Roseville city limits to Southwest of Sunset Boulevard	4	4	6
	West of Sunset Boulevard to east of Sunset Boulevard	4	6	
	East of Sunset Boulevard to Loomis town limits – includes on-street parking in Downtown Plan Area	4 to 2	4	
Park Drive	Roseville city limits to Sunset Boulevard	4	4	6
	Sunset Boulevard to Valley View Parkway	4	4	
	Valley View Parkway to Whitney Oaks Drive	4	4	
Rocklin Road	Loomis city limits to east of Sierra College Boulevard	2	4	
	East of Sierra College Boulevard to I-80 Eastbound Ramps	4	6	
	I-80 Eastbound Ramps to I-80 Westbound Ramps	4	4	6
	I-80 Westbound Ramps to west of Granite Drive	4	6	
	West of Granite Drive to Pacific Street – includes on-street parking in Downtown Plan Area	4	4	

Roadway	Segment	Travel Lanes		
		2008	2030	Post-2030
Sierra College Boulevard	Roseville city limits to Rocklin Road	2 to 4	6	
	Rocklin Road to Taylor Road	2	6	
	Adjacent to Clover Valley	2	4	
Stanford Ranch Road	SR 65 to Sunset Boulevard	6	6	
	Sunset Boulevard to Crest Drive	4	4	
	Crest Drive to West Stanford Ranch Road	6	6	
Sunset Boulevard	SR 65 to West Stanford Ranch Road	4	6	
	West Stanford Ranch Road to Stanford Ranch Road	6	6	
	Stanford Ranch Road to Pacific Street	4	6	
University Avenue	Sunset Boulevard to West Ranch View	–	4	
Valley View Parkway	Park Drive to 500 feet east of Park Drive	–	4	
	500 feet east of Park Drive to 500 feet west of Sierra College Boulevard	–	2	
	500 feet west of Sierra College Boulevard to Sierra College Boulevard	–	4	
West Oaks Boulevard	Lonetree Boulevard to Sunset Boulevard	2	2	
	Sunset Boulevard to current terminus	4	4	
	Current terminus to Whitney Ranch Parkway	–	4	
West Stanford Ranch Road	Stanford Ranch Road to Sunset Boulevard	6	6	
Whitney Ranch Parkway	SR 65 to east of Wildcat Boulevard	–	6	
	East of Wildcat Boulevard to Whitney Oaks Drive	–	4	
Wildcat Boulevard	West Stanford Ranch Road to current terminus	4 to 2	4	
	Current terminus to Lincoln city limits	2	4	

Source: City of Rocklin 2008, Circulation Element, pages 4c-2 and 4c-3

Other regional roadway improvements include Placer Parkway, improvements along I-80 and SR 65, improvements in other local jurisdictions, and improvements associated with major specific plan areas. For this analysis, it was agreed that Placer Parkway would be assumed to be a four-lane facility beginning at SR 65 (at Whitney Ranch Parkway) and continuing west to a Watt Avenue extension, with interchanges at Foothills Boulevard, Fiddyment Road, and Watt Avenue/Blue Oaks Boulevard. Improvements assumed along I-80 include high occupancy vehicle (HOV) lanes from the Sacramento county line to the SR 65 interchange, along with added auxiliary lanes between interchanges from Riverside Avenue to Taylor Road. Improvements on SR 65 include widening to six lanes between I-80 and Sunset Boulevard, new interchanges at Sunset Boulevard and Whitney Ranch Parkway with mainline auxiliary lanes in between the two interchanges, and construction of the approved Lincoln bypass as a four-lane facility from Industrial Avenue to just north of the town of Sheridan. Sierra College Boulevard is

assumed to be six lanes from the Sacramento county line and four lanes from just north of Pacific Street to its terminus at State Route 193. Other major roadway improvements assumed in the cumulative scenarios include roadways within the following major growth areas:

- Placer Ranch
- Lincoln General Plan SOI Expansion Area
- Regional University
- Creekview
- Sierra Vista
- Placer Vineyards

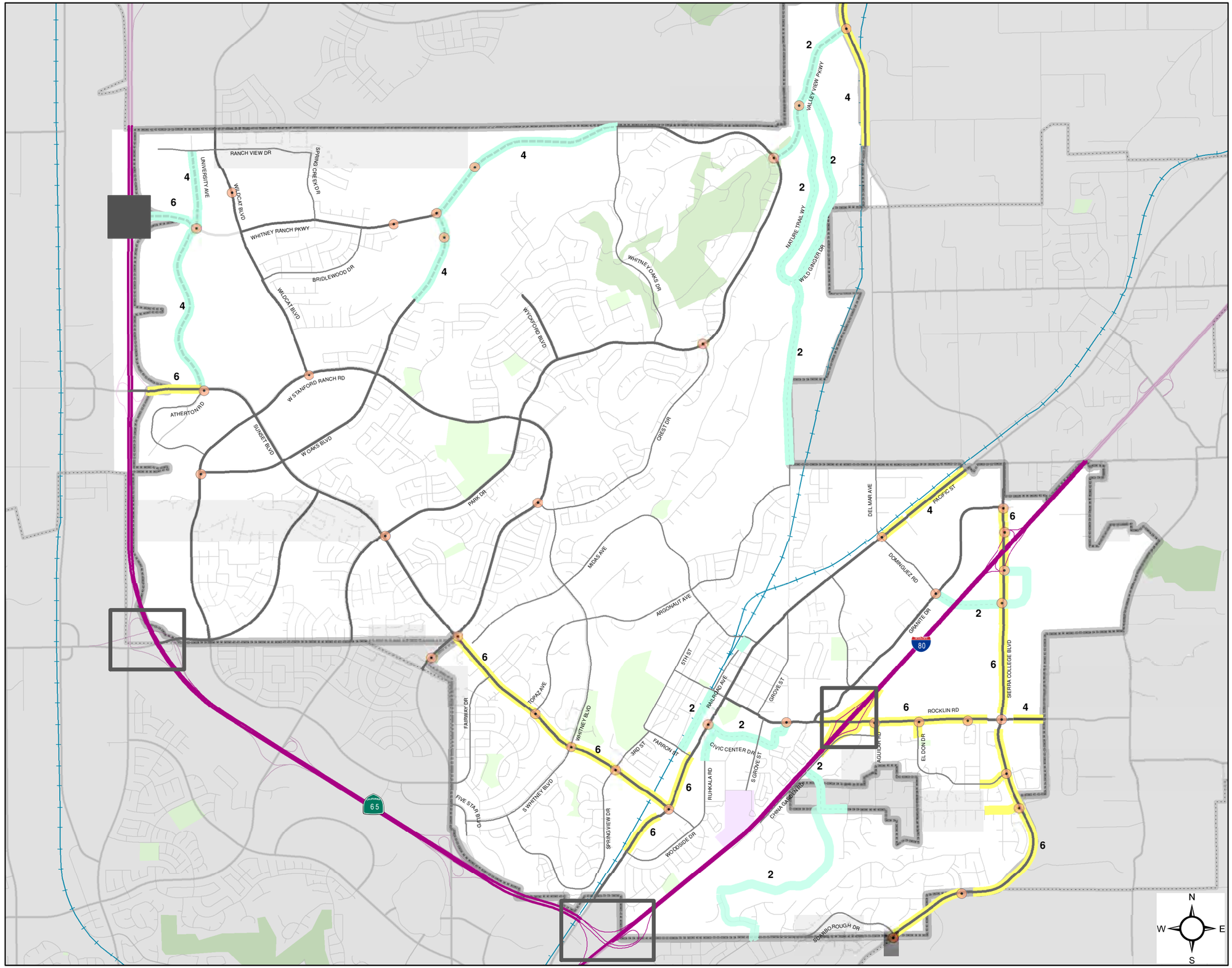
Figure 4.4-12 shows the roadway network assumed for 2030 conditions within the City of Rocklin.

TABLE 4.4-23
CITY OF ROCKLIN COLLECTOR ROADWAYS

Roadway	Segment	Travel Lanes		
		2008	2030	Post-2030
Argonaut Avenue	Midas Avenue to current terminus	2	2	
	Current Terminus to Delmar Avenue	–	2*	
Atherton Road	Sunset Boulevard to current terminus	2	2	
	Current terminus to Lonetree Boulevard	2	2	
Bridlewood Drive	All	2	2	
China Garden Road	All	2	2	
Civic Center Drive	Rocklin Road to Pacific Street – includes some on-street parking in Downtown Plan Area	–	2	
Crest Drive	All	2	2	
Delmar Avenue	All	2	2	
Dominguez Road	Extension from Granite Drive to Sierra College Boulevard	–	2	
	East of Sierra College Boulevard	–	2	
	Pacific Street to Granite Drive	2	2	
El Don Drive	All	2	2	
Fairway Drive	Stanford Ranch Road to Sunset Boulevard	2	2	
Fifth Street	All	2	2	
Midas Avenue	All	2	2	
Monument Springs Drive	Current terminus to Scarborough Drive	–	2	
Nature Trail Way	All	–	2	
Grove Street	All	2	2	
Railroad Avenue	Farron Street to Midas Avenue – includes on-street parking in Downtown Plan Area	–	2	

Roadway	Segment	Travel Lanes		
		2008	2030	Post-2030
Ranch View Drive	All	2	2	
Rocklin Road	Pacific Street to west of Pacific Street	4	4	
	West of Pacific Street to 5th Street	2	2	
	5th Street to Whitney Boulevard	–	2*	
Ruhkala Road	Woodside to Civic Center Drive	–	2	
Scarborough Drive	All	2	2	
Sierra Meadows Drive	All	2	2	
South Grove Street	All	2	2	
Spring Creek Drive	All	2	2	
Springview Drive	All	2	2	
Sunset Boulevard	Pacific Street to Woodside Drive	2	2	
Third Street	Farron Street to Sunset Boulevard	2	2	
West Ranch View	University Avenue to Wildcat Boulevard	2	2	
Whitney Boulevard	All	2	2	
Whitney Oaks Drive	All	2	2	
Wild Ginger Drive	All	–	2	
Woodside Drive	All	2	2	
Wyckford Boulevard	All	2	2	

*Note: * Included in current General Plan, removed from proposed General Plan Update.*



Roadways

Facility Type

- ARTERIAL
- COLLECTOR
- FREEWAY
- FREEWAY RAMP
- Roadway Widenings
- Future Roadways

6 Number of Lanes on New or Widened Roads

Improved/New Intersections

Interchange Reconstruction

Future Interchange

DKS Associates
TRANSPORTATION SOLUTIONS

FIGURE 4.4-12
Cumulative Roadway Improvements: City of Rocklin

Project Trip Generation

Table 4.4-24 compares quantities of major land uses for buildout of Rocklin's current General Plan and the proposed General Plan Update. The table shows that citywide, the number of residential dwelling units increases by 1,408, which represents an increase of approximately 5 percent. Most of this increase consists of high-density residential in Downtown Rocklin. The table also documents changes in non-residential development attributed to the proposed land use changes in the General Plan Update.

TABLE 4.4-24
CITY OF ROCKLIN DEVELOPMENT ASSUMPTIONS
BUILDOUT OF CURRENT AND PROPOSED GENERAL PLANS

Land Use Category	Units	Existing Conditions (2008)	Buildout Conditions			
			Current General Plan	Proposed General Plan	Difference	Percentage Difference
Single-Family Residential	DUs	14,940	19,914	19,899	- 15	- 0.1%
Multi-Family Residential	DUs	4,568	6,787	8,210	+ 1,423	+ 21.0%
Age Restricted Residential	DUs	1,174	1,174	1,174	–	0.0%
Total Residential	**DUs**	**20,682**	**27,875**	**29,283**	**+ 1,408**	**+ 5.1%**
Retail	KSF	3,075	9,233	8,894	- 339	- 3.7%
Office/Medical	KSF	1,067	6,268	7,043	+ 775	+ 12.4%
Industrial	KSF	3,053	5,148	5,099	- 49	- 0.9%
Total Non-Residential	**KSF**	**7,195**	**20,649**	**21,036**	**+ 387**	**+ 1.9%**

Source: DKS Associates 2011

Notes: DUs = dwelling units
KSF = 1,000 square feet

Table 4.4-25 takes the land use changes and documents the associated estimated change in trip generation. The table shows that daily vehicle trip ends increase citywide by approximately 11,300. Individual projects were input as land use in the model and used to determine the daily vehicle trip ends.

TABLE 4.4-25
TRIP GENERATION OF PROPOSED PROJECT

Neighborhood Area	Change in Dwelling Units		Change in Square Footage (1,000 sq ft)				Change in Vehicle Trip Ends
	Single-Family	Multi-Family	Retail	Office	Industrial	Public/ Quasi Public	
Granite Drive/Sierra Meadows	–	- 16	+ 80.9	+ 53.8	- 48.6	–	+ 3,311
Old Town	- 15	+ 1,847	- 365.9	+ 721.5	–	+ 111.9	+ 12,569
Sierra College	–	+ 80	- 54.4	–	–	–	- 1,384
Stanford Ranch	–	- 628	–	–	–	–	- 4,082
Sunset Whitney	–	+ 140	–	–	–	–	+ 910
Citywide	- 15	+ 1,423	- 339.4	775.3	- 48.6	+ 111.9	
Trip Rate (per DU or 1,000 sf)	9	6.5	35	17.7	7.6	*	
Change in Trip Ends	- 135	+ 9,250	- 11,879	+ 13,723	- 369	+ 735	
Citywide Change in Daily Vehicle Trip Ends	11,324						

Source: DKS Associates 2011

*Note: *Public/Quasi Public consists of high generating (25 trips) and low generating (9 trips).*

Figure 4.4-13 shows the roadway network changes associated with the proposed General Plan update.

Table 4.4-26 summarizes vehicle miles traveled (VMT) of vehicle trips originating in or terminating in the City of Rocklin. The table contains estimated data for existing conditions and cumulative conditions with and without implementation of the proposed General Plan Update. The table shows that VMT approximately doubles when comparing existing conditions with cumulative conditions. Under cumulative conditions, VMT increases by approximately 1 percent with implementation of the proposed General Plan Update.

TABLE 4.4-26
VEHICLE MILES TRAVELED (VMT) WITH ORIGIN OR DESTINATION (OR BOTH) IN CITY OF ROCKLIN

	Existing Conditions	Cumulative Conditions			
		Buildout of the Current General Plan	Buildout of the Proposed General Plan	Change in VMT with Proposed General Plan	
Daily	1,092,000	2,478,000	2,498,000	+20,000	0.8%
PM Peak Hour	92,500	209,100	212,200	+3,100	1.5%

Source: DKS Associates 2011

Note: Estimated using the travel demand model

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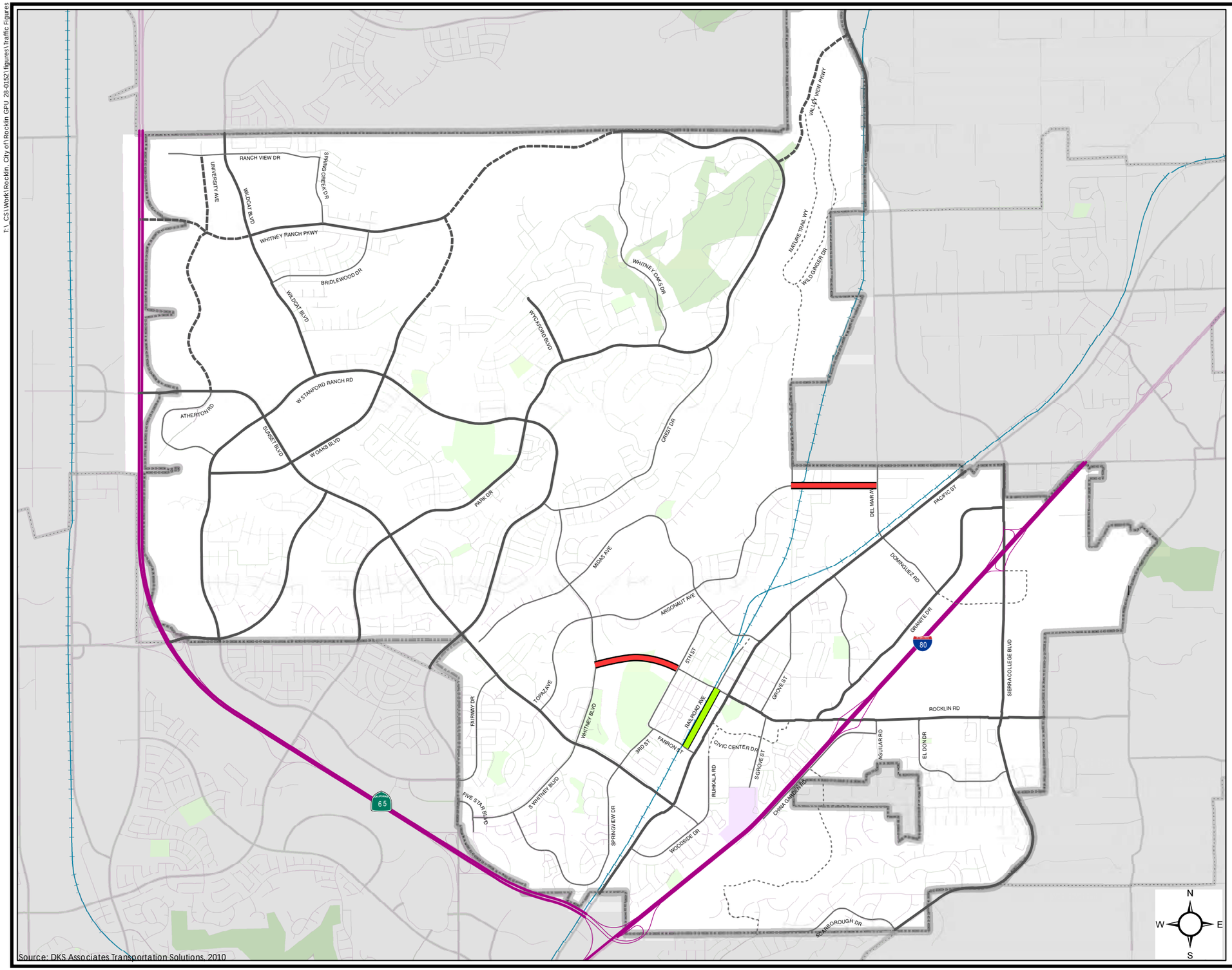

Source: DKS Associates Transportation Solutions, 2010

Roadways

Facility Type

- ARTERIAL
- FUTURE ARTERIAL
- COLLECTOR
- FUTURE COLLECTOR
- FREEWAY
- FREEWAY RAMP
- ROADWAY EXTENSIONS ADDED IN PROPOSED GENERAL PLAN
- ROADWAY EXTENSIONS REMOVED IN PROPOSED GENERAL PLAN

NO SCALE

N

Figure 4.4-13

Proposed General Plan Changes in Roadway Network

PROJECT IMPACTS AND MITIGATION MEASURES

Cumulative (2030) Conditions

Impacts to Signalized Intersections (Buildout): City of Rocklin

Impact 4.4.1 Implementation of buildout of the proposed project would cause intersection operations to deteriorate to levels below the LOS C standard (based on proposed General Plan Update Policy C-10). For intersections already operating below the LOS C standard, the increased traffic could cause intersection operations to deteriorate by volume-to-capacity ratio increases of at least 0.05. This impact is considered potentially significant.

Table 4.4-27 and Figure 4.4-14 show the PM peak hour levels of service at all existing and future signalized intersections in the City of Rocklin under cumulative (2030) conditions with buildout of the current and proposed General Plan land use and roadway network assumptions, respectively. The table shows that, in general, most of the same intersections are projected to operate at a deficient LOS under buildout of both plans (as compared to existing conditions). It should be noted that the LOS methodology and standard of significance are somewhat different for each column, as explained below.

TABLE 4.4-27
PM PEAK HOUR LOS – CITY OF ROCKLIN SIGNALIZED INTERSECTIONS
CUMULATIVE CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]		Cumulative Conditions with Buildout of Current General Plan		Cumulative Conditions with Buildout of Proposed General Plan	
		V/C	LOS	V/C	LOS
Existing Signalized Intersections					
1	Granite Drive & Rocklin Road	0.865	D*	0.859	D
2	Granite Drive & Sierra College Boulevard	0.688	B*	0.655	B
3	Granite Drive & Sierra Meadows	0.612	B*	0.608	B
4	Pacific Street & Delmar/Dominguez	0.920	E	0.957	E
5	Pacific Street & Farron Street	0.975	E	1.120	F
6	Pacific Street & Midas Avenue	0.775	C	0.753	C
7	Pacific Street & Rocklin Road	0.902	E	0.832	D
8	Pacific Street & Sierra Meadows	0.690	B	0.722	C
9	Pacific Street & Woodside Drive	0.665	B	0.640	B
10	Rocklin Road & Aguilar Road	0.682	B*	0.662	B
11	Rocklin Road & El Don Drive	0.748	C*	0.711	C
12	Rocklin Road & Fire Station No 1	0.482	A	0.442	A
13	Rocklin Road & Havenhurst Circle	0.739	C	0.674	B

Intersection[1]		Cumulative Conditions with Buildout of Current General Plan		Cumulative Conditions with Buildout of Proposed General Plan	
		V/C	LOS	V/C	LOS
14	Rocklin Road & Sierra College Boulevard	0.958	E	0.935	E
15	Rocklin Road & South Grove Street	0.662	B*	0.684	B
16	Sierra College Boulevard & El Don Drive	0.688	B	0.659	B
17	Sierra College Boulevard & Nightwatch	0.572	A	0.550	A
18	Sierra College Boulevard & Scarborough	0.574	A	0.551	A
19	Sierra College Boulevard & Southside Ranch	0.568	A	0.547	A
20	Sunset Boulevard & Pacific Street	0.878	D	0.848	D
21	Sunset Boulevard & Springview Drive	1.054	F	1.138	F
22	Sunset Boulevard & Topaz Avenue	0.681	B	0.652	B
23	Sunset Boulevard & Whitney Boulevard	1.098	F	1.156	F
101	Blue Oaks Boulevard & Lonetree	0.958	E*	0.914	E
102	Blue Oaks Boulevard & Market Place	0.317	A*	0.298	A
103	Blue Oaks Boulevard & Van Buren Way	0.368	A	0.347	A
104	Five Star & Destiny Drive	0.204	A*	0.193	A
105	Lonetree Boulevard & Adams Drive	0.636	B	0.606	B
106	Lonetree Boulevard & Atherton Road	0.469	A	0.449	A
107	Lonetree Boulevard & Grand Canyon Drive	0.808	D*	0.767	C
108	Lonetree Boulevard & Redwood Drive	0.775	C*	0.737	C
109	Lonetree Boulevard & West Oaks Boulevard	0.580	A	0.552	A
110	Park Drive & Blaydon Road	0.273	A	0.262	A
111	Park Drive & Quarry Way	0.545	A	0.507	A
112	Park Drive & Farrier Road	0.644	B	0.457	A
113	Park Drive & King Pine Drive	0.526	A	0.489	A
114	Park Drive & Shelton	0.340	A	0.324	A
115	Park Drive & Victory Lane	0.406	A	0.387	A
116	Park Drive & Wyckford Boulevard	0.416	A	0.395	A
117	Park Drive & Twin Oaks/Boardwalk	0.402	A	0.384	A
118	Park Drive & Safeway	0.727	C	0.676	B
119	South Whitney & Five Star Boulevard	0.553	A*	0.583	A
120	Spring Creek Drive & Broken Rail Lane	0.053	A	0.049	A
121	Stanford Ranch Road & Cobblestone Drive	0.326	A	0.318	A
122	Stanford Ranch Road & Darby Road	0.655	B	0.582	A

Intersection[1]		Cumulative Conditions with Buildout of Current General Plan		Cumulative Conditions with Buildout of Proposed General Plan	
		V/C	LOS	V/C	LOS
123	Stanford Ranch Road & Park Drive	0.709	C	0.675	B
124	Stanford Ranch Road & Plaza	0.591	A	0.561	A
125	Stanford Ranch Road & Stoney Drive	0.405	A	0.393	A
126	Stanford Ranch Road & Victory Lane	0.341	A	0.317	A
127	Stanford Ranch Road & West Oaks Boulevard	0.688	B	0.647	B
128	Sunset Boulevard & Atherton	0.953	E*	0.910	E
129	Sunset Boulevard & Blue Oaks Boulevard	0.842	D	0.791	C
130	Sunset Boulevard & Fairway Drive	0.754	C	0.743	C
131	Sunset Boulevard & Little Rock	0.621	B	0.583	A
132	Sunset Boulevard & Park Drive	0.856	D	0.821	D
133	Sunset Boulevard & Pebble Creek	0.720	C	0.678	B
134	Sunset Boulevard & Stanford Ranch Road	0.718	C	0.699	B
135	Sunset Boulevard & West Oaks Boulevard	1.112	F	1.051	F
136	W Stanford Ranch Road & Sunset Boulevard	1.240	F	1.164	F
137	W Stanford Ranch Road & Wildcat Boulevard	0.856	D	0.796	C
138	Whitney Ranch Parkway & Bridlewood Drive	0.354	A	0.334	A
139	Whitney Ranch Parkway & Painted Pony Lane	0.316	A	0.299	A
140	Whitney Ranch Parkway & Spring Creek Drive	0.311	A	0.294	A
141	Wildcat Boulevard & Bridlewood Drive	0.617	B	0.586	A
142	Wildcat Boulevard & Whitney Ranch Pkwy	0.717	C	0.671	B
143	Wildcat Boulevard & South High School Entrance	0.509	A	0.485	A
144	Wildcat Boulevard & North High School Entrance	0.431	A	0.411	A
145	Wildcat Boulevard & Ranch View Drive	0.827	D	0.786	C
Existing Intersections to Be Signalized in the Future					
152	Stanford Ranch Road & Crest Drive	1.003	F	0.920	E
153	Whitney Boulevard & Crest Drive	0.821	D	0.742	C
154	Park Drive & Crest Drive	0.261	A	0.253	A
161	Granite Drive & Dominguez Drive	0.802	D*	0.769	C
Future Intersections to Be Signalized					
162	Sierra College Boulevard & Dominguez Drive	0.864	D*	0.808	D
163	Park Drive & Valley View Parkway	0.596	A	0.570	A
164	Nature Trail Way & Valley View Parkway	0.746	C	0.717	C

Intersection[1]		Cumulative Conditions with Buildout of Current General Plan		Cumulative Conditions with Buildout of Proposed General Plan	
		V/C	LOS	V/C	LOS
165	Sierra College Boulevard & Valley View Parkway	0.646	B	0.611	B
166	University Avenue & Whitney Ranch Parkway	0.667	B*	0.644	B
167	West Oaks Boulevard & Whitney Ranch Pkwy	0.675	B	0.641	B
168	West Oaks Boulevard & Painted Pony Lane	0.307	A	0.291	A
169	Laredo Drive & Whitney Ranch Parkway	0.487	A	0.462	A
170	Rocklin Road & Civic Center Drive	0.701	C*	0.676	B
171	Pacific Street & Civic Center Drive	0.658	B	0.615	B

Source: DKS Associates 2011

Notes: Shaded intersections do not meet LOS standard.

** Intersections within ½ mile of freeway ramps, currently LOS D is acceptable.*

Cumulative with Current General Plan uses standard Circular 212 capacities.

Cumulative with proposed General Plan uses modified Circular 212 capacities.

[1] See Figure 4.4-1 for locations of intersections by number.

The levels of service and definition of deficient LOS for the current General Plan (left columns) are based on the City's current LOS methodology and policy. The methodology uses Circular 212 with standard published capacities. The LOS policy is LOS C or better, except for intersections located within one-half mile of an interstate or state highway ramp, where LOS D is considered acceptable. Exceptions may also be made for peak hour traffic where not all movements exceed the acceptable level of service.

The levels of service and definition of deficient LOS for the proposed General Plan (right columns) are based on the City's proposed LOS methodology and policy. The methodology uses Circular 212 with modified (approximately 5 percent higher) capacities. This methodology represents a closer approximation to the "future real-time analysis" that will actually determine when a traffic signal is constructed or signal timing is modified. The proposed LOS policy is LOS C or better, with specific exceptions that require improvements to be programmed for implementation within a certain time frame or City Council adoption of findings regarding the infeasibility of improvements.

Table 4.4-28 identifies the 15 intersections that are projected to operate at LOS D, E, or F under cumulative (2030) conditions with buildout of the proposed General Plan Update. The table shows that a number of intersections in the vicinity of the Downtown Rocklin Plan Area are projected to operate at LOS D or worse. It also shows that a number of intersections along Sunset Boulevard are projected to operate at LOS D or worse.

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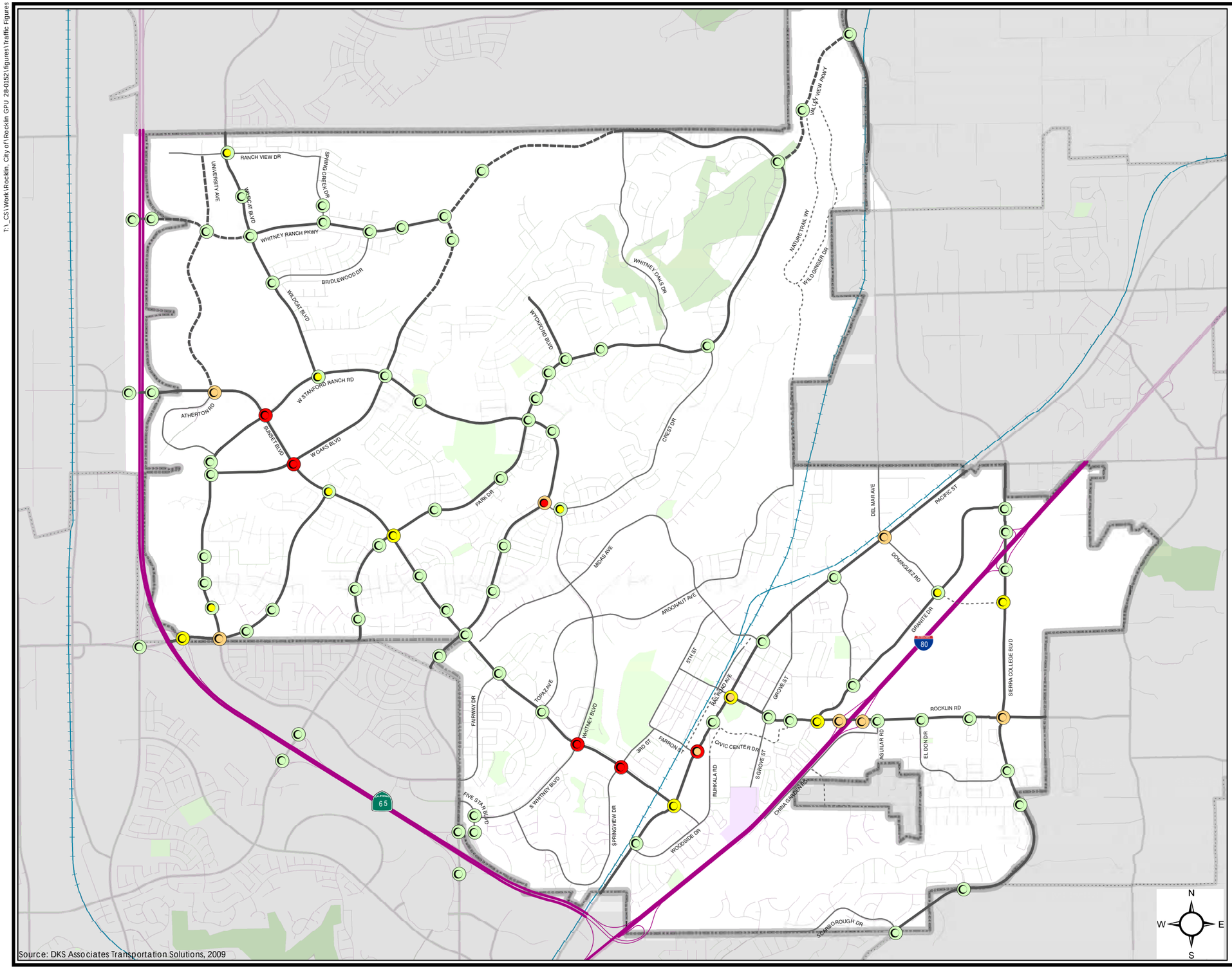


Source: DKS Associates Transportation Solutions, 2009

Cumulative No Project LOS

NP30

- A; B; C
- D
- E
- F

Cumulative Plus Project LOS

GP30

- A; B; C
- D
- E
- F

Roadways

Facility Type

- ARTERIAL
- FUTURE ARTERIAL
- COLLECTOR
- FUTURE COLLECTOR
- FREEWAY
- FREEWAY RAMP

NO SCALE

N

Figure 4.4-14

Cumulative Level of Service at Signalized Rocklin Intersections

TABLE 4.4-28
INTERSECTIONS OPERATING AT LOS D, E, OR F
CUMULATIVE CONDITIONS WITH BUILDOUT OF PROPOSED GENERAL PLAN

Intersection[1]		Operation	
		V/C	LOS
Existing Signalized Intersections			
1	Granite Drive & Rocklin Road	0.859	D
4	Pacific Street & Delmar/Dominguez	0.957	E
5	Pacific Street & Farron Street	1.120	F
7	Pacific Street & Rocklin Road	0.832	D
14	Rocklin Road & Sierra College Boulevard	0.935	E
20	Sunset Boulevard & Pacific Street	0.848	D
21	Sunset Boulevard & Springview Drive	1.138	F
23	Sunset Boulevard & Whitney Boulevard	1.156	F
101	Blue Oaks Boulevard & Lonetree	0.914	E
128	Sunset Boulevard & Atherton	0.910	E
132	Sunset Boulevard & Park Drive	0.821	D
135	Sunset Boulevard & West Oaks Boulevard	1.051	F
136	West Stanford Ranch Road & Sunset Boulevard	1.164	F
Existing Intersections to Be Signalized in the Future			
152	Stanford Ranch Road & Crest Drive	0.920	E
Future Intersections to Be Signalized			
162	Sierra College Boulevard & Dominguez Drive	0.808	D

Source: DKS Associates 2011

Note: [1] See Figure 4.4-1 for locations of intersections by number.

City staff has analyzed the feasibility of the suggested mitigation measures that are designed to improve level of service (LOS) at the impacted intersections identified in Table 4.4-28. Factors taken into account included existing right-of-way limitations, the potential for impacts to existing development (particularly off-street parking or structures), and physical constraints such as topography. Several of the improvements will require one or more of the following: some right-of-way acquisition, removal of existing landscaping, elimination of some on-street parking, and alterations to existing driveways. However, mitigation to only one of the identified intersections (i.e., #101 – Blue Oaks Boulevard and Lonetree Boulevard) is considered infeasible. Mitigation to a second intersection (i.e., #21 – Sunset Boulevard and Springview Drive) is considered feasible, but even when implemented, the mitigation will not improve the level of service at that intersection to better than LOS E.

The improvements, discussions regarding feasibility, and resulting LOS impact findings for these two intersections are discussed below. The mitigation measures necessary to improve all other intersections shown in Table 4.4-28 are incorporated into mitigation measure MM 4.4.1.

Sunset Boulevard and Springview Drive

Possible mitigation to improve LOS at intersection of Sunset Boulevard and Springview Drive would include adding two left turn lanes on eastbound Sunset Boulevard to northbound 3rd Street. This mitigation measure would improve this intersection to LOS E (v/c = 0.910) but would still not meet the City's LOS C standard. City staff has recommended that this mitigation is feasible but would not result in an acceptable LOS. This intersection is identified under Policy C-10.B as an exception to the City's LOS C standard. Therefore, this impact is considered to be less than significant.

Blue Oaks Boulevard and Lonetree Boulevard

In order to improve LOS at the intersection of Blue Oaks Boulevard and Lonetree Boulevard to LOS C (v/c = 0.777), the intersection would have to be modified to include three through lanes in all directions. However, City staff has recommended that this mitigation be found infeasible due to a number of constraints at this intersection. Specifically: (1) There is a substantial grade differential between the existing road elevation and the adjacent developed commercial property (i.e., at the Blue Oaks Town Center) on the northwest corner of the intersection. Implementation of the proposed mitigation measure would disrupt existing commercial structures on that corner. (2) Street segments leading to a portion of the intersection are within the City of Roseville's jurisdiction and they do not have enough receiving lanes to accommodate the improvements. (3) There is a Kinder Morgan gas line easement along the south side of Blue Oaks Boulevard that could impact implementation of the improvements. Because this mitigation measure is not feasible, this intersection is identified under Policy C-10.B as an exception to the City's LOS C standard. Therefore, this impact is considered to be less than significant.

Proposed General Plan Update Policies That Provide Mitigation

The following proposed General Plan policies would assist in avoiding or minimizing impacts associated with intersection operations:

Policy C-7 *Monitor traffic on City streets to determine improvements needed to maintain an acceptable Level of Service.*

Policy C-8 *Update the Capital Improvement Program (CIP) and traffic impact fees at least every five years, or as determined necessary with the approval of major new developments or major general plan amendments not considered in the adopted Capital Improvement Program.*

Policy C-9 *Provide for an annual inflationary adjustment to the City's traffic impact fee to ensure that the fee is adequate for the future construction of roads.*

Policy C-10

A. Maintain a minimum traffic Level of Service "C" for all signalized intersections during the p.m. peak hour on an average weekday, except in the circumstances described in C-10.B and C. below

B. Recognizing that some signalized intersections within the City serve and are impacted by development located in adjacent jurisdictions, and that these impacts are outside the control of the City, a development project which is determined to result in a Level of Service worse than "C" may be approved, if the approving body finds

(1) the diminished level of service is an interim situation which will be alleviated by the implementation of planned improvements or (2) based on the specific circumstances described in Section C. below there are no feasible street improvements that will improve the Level of Service to "C" or better as set forward in the Action Plan for the Circulation Element.

C. All development in another jurisdiction outside of Rocklin's control which creates traffic impacts in Rocklin should be required to construct all mitigation necessary in order to maintain a LOS "C" in Rocklin unless the mitigation is determined to be infeasible by the Rocklin City Council. The standard for determining the feasibility of the mitigation would be whether or not the improvements create unusual economic, legal, social, technological, physical or other similar burdens and considerations.

Policy C-20 Maintain street design standards for arterials, collectors and local streets.

Policy C-22 Interconnect traffic signals and/or consider the use of roundabouts where financially feasible and warranted to provide flexibility in controlling traffic movements at intersections.

Implementation of the proposed General Plan policies listed above and their associated action steps would require that the City monitor traffic and get updates through preparation of traffic studies for individual projects, update the CIP, and design roadway facilities to meet traffic demands to maintain adequate LOS. Policy C-10 provides exceptions/standards where traffic improvements required to improve LOS to C are not considered feasible by the City. These exceptions could potentially avoid significant physical effects to the environment as well as conflicts with existing businesses and land use activities. The following improvements have been identified that would provide acceptable LOS to 13 of the 15 intersections identified as impacted.

Mitigation Measures

MM 4.4.1 The following intersections shall be added to the City's CIP as part of implementation of proposed General Plan Update Policy C-8:

- Granite Drive and Rocklin Road – Modify the intersection to include two through lanes plus a combined through/right turn lane in both directions on Rocklin Road, in addition to providing dual eastbound lanes on Rocklin Road to improve intersection operations to LOS C (v/c = 0.762).

- Pacific Street and Del Mar Avenue/Dominguez Road – Modify the intersection to include a free right turn lane from Del Mar Avenue onto Pacific Street to improve intersection operations to LOS C (v/c = 0.711).

- Pacific Street and Farron Street – Modify the intersection to include two left turn lanes from northbound Pacific Street to westbound Farron Street and a combined through/left and separate right turn lane on eastbound Farron Street to improve intersection operations to LOS C (v/c = 0.724). This improvement will require that Farron Street be modified to include two

receiving lanes on the north side of Farron Street between Pacific Street and the UP railroad tracks.

- Pacific Street and Rocklin Road – Modify the intersection to include two left turn lanes and a single through lane on westbound Rocklin Road and a free right turn lane from northbound Pacific Street to eastbound Rocklin Road to improve intersection operations to LOS C (v/c = 0.724).

- Rocklin Road and Sierra College Boulevard – Modify the intersection to include a free eastbound right turn lane from Rocklin Road onto Sierra College Boulevard to improve intersection operations to LOS B (v/c = 0.698).

- Sunset Boulevard and Pacific Street – Modify the intersection to include two left turn lanes, a shared left-through lane, and a right turn lane on eastbound Sunset Boulevard to improve intersection operations to LOS C (v/c = 0.751).

- Sunset Boulevard and Whitney Boulevard – Modify the intersection to include two left turn lanes from westbound Sunset Boulevard to Whitney Boulevard and a shared left/through and free right turn lane on northbound Whitney Boulevard to improve intersection operations to LOS C (v/c = 0.712).

- Sunset Boulevard and Atherton Drive – Modify the intersection to include two eastbound left turn lanes from Sunset Boulevard onto northbound University Avenue, two southbound through lanes on University Avenue, and from northbound Atherton Drive, two left turn lanes onto westbound Sunset Boulevard, a separate northbound through lane on Atherton Drive, and a free right turn lane onto eastbound Sunset Boulevard to improve intersection operations to LOS C (v/c = 0.768).

- Sunset Boulevard and Park Drive – Modify the intersection to include three northbound left turn lanes from Park Drive onto Sunset Boulevard to improve intersection operations to LOS C (v/c = 0.736).

- Sunset Boulevard and West Oaks Boulevard – Modify the intersection to include two left turn lanes from West Oaks Boulevard to Sunset Boulevard to improve intersection operations to LOS C (v/c = 0.709).

- West Stanford Ranch Road and Sunset Boulevard – Modify the intersection to include two eastbound left turn lanes from West Stanford Ranch Road to Sunset Boulevard and three westbound through lanes on West Stanford Ranch Road to improve intersection operations to LOS C (v/c = 0.796).

- Stanford Ranch Road and Crest Drive – Modify the intersection to include a free westbound right turn lane from Crest Drive onto Stanford Ranch Road to improve intersection operations to LOS C (v/c = 0.776).

- Sierra College Boulevard and Dominguez Road – Modify the intersection to include a single eastbound through lane on Dominguez Road and a free eastbound right turn lane from Dominguez Road onto southbound

Sierra College Boulevard to improve intersection operations to LOS B (v/c = 0.617).

Implementation of mitigation measure MM 4.4.1 would reduce impacts to 13 of the 15 intersections to less than significant levels. Through the improvements identified, operations at one or more of the 13 intersections would not deteriorate to levels below the LOS C standard. Likewise intersections already operating below the LOS C standard would not deteriorate below the LOS standard. Lastly, the improvements would avoid having the increased traffic cause intersection operations to deteriorate by volume-to-capacity ratio increases of at least 0.05. The proposed improvements can be constructed within the existing right-of-way or within existing previously developed areas where pavement or other physical improvements already exist. It is anticipated that all potential environmental effects to natural or cultural resources would have already been experienced and mitigated with the construction of the existing intersection and adjacent development, and no new significant impacts would result from the identified improvements. Therefore, impacts to intersection level of service would be reduced to less than significant.

As part of the proposed project, the City plans to amend the Redevelopment Plan to increase tax increment limitations, increase the limit on the principal amount of bonded indebtedness secured by tax increment revenue, and extend the time limit for the commencement of eminent domain proceedings to acquire non-residential property. These amendments are intended to provide the City's Redevelopment Agency with the financial and administrative resources necessary to continue assisting projects that implement its program of blight elimination within the Redevelopment Project Area. While the extended time and financial limits authorized by the Sixth Amendment may foster and encourage new development that might not occur without the Sixth Amendment, or may occur faster than had the Sixth Amendment not been adopted, all development would be consistent with the City's General Plan and with the development assumptions analyzed throughout this DEIR. Any future development resulting from amending the Redevelopment Plan would occur in areas designated for such development by the General Plan, as the land uses permitted by the Redevelopment Plan are the allowable uses under the City's General Plan. Therefore, the proposed Sixth Amendment to the Redevelopment Plan would not result in impacts to intersection level of service beyond what is analyzed for the General Plan Update above. Impacts would be less than significant.

In addition to the activities identified above, the project includes a Climate Action Plan (CAP) to address climate change and identify greenhouse gas (GHG) emission reduction measures. The City of Rocklin CAP augments the objectives, goals, policies, and actions of the City of Rocklin General Plan Update related to the reduction of GHG emissions; however, the CAP is intended to be updated on a more frequent basis than the General Plan, ensuring that implementation of City efforts to reduce GHG emissions is in compliance with current regulation. The CAP determines whether implementation of the proposed General Plan Update would be consistent with the state's ability to attain the goals identified in Assembly Bill (AB) 32, identifies GHG emission reduction measures, and provides monitoring of the effectiveness of GHG emission reduction measures. The CAP would not result in impacts to intersection level of service beyond what is analyzed for the General Plan Update above. The CAP would provide emission reduction measures that would also assist in reducing vehicle miles traveled generated in the city. Impacts would be less than significant.

Impacts to State/Interstate Highway Segments

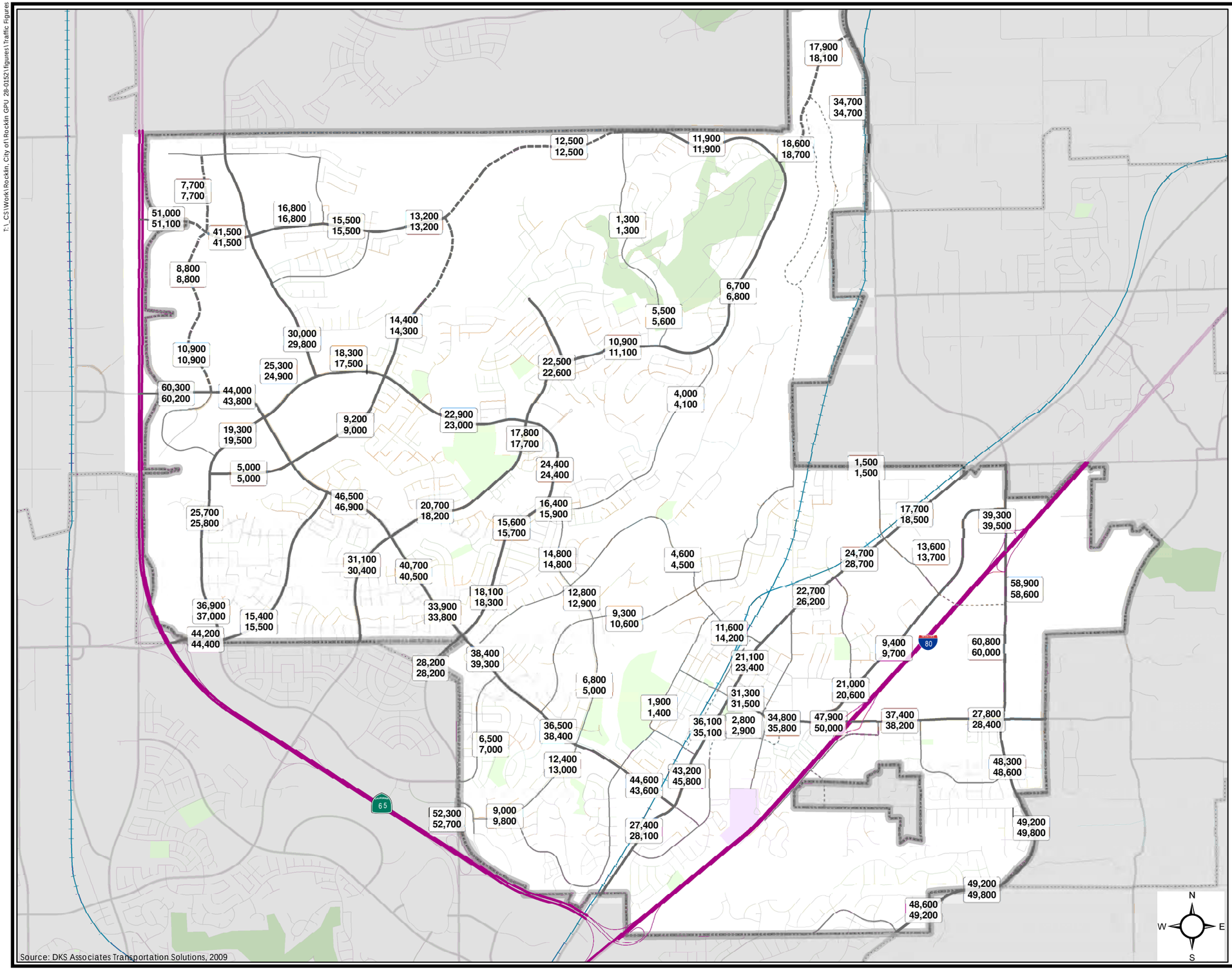
Impact 4.4.2 Implementation of buildout of the proposed project would contribute to increased traffic volumes on state/interstate highway facilities, which could

cause operations on state/interstate highway segments to deteriorate to levels below those identified in the Caltrans Transportation Concept Report (TCR). This impact is considered significant.

Figure 4.4-15 shows projected cumulative daily traffic volumes on roadways in Rocklin under the current General Plan and with the proposed General Plan Update. Figure 4.4-16 shows projected cumulative daily traffic volumes on roadways outside Rocklin under the current General Plan and with the proposed General Plan Update.

Caltrans has a series of Transportation Concept Reports (TCRs) for the state/interstate highway system. A report exists for each numbered highway, and each numbered highway is divided into various segments, depending on the environment. The two highways analyzed in this discussion include I-80 and SR 65. In the vicinity of the City of Rocklin, Caltrans has determined that these two facilities are in a high growth urban environment and has thus specified LOS E as the desired level of service for both facilities. Table 4.4-29 shows projected daily volumes on local highway segments under cumulative conditions with buildout of the current General Plan and proposed General Plan Update, respectively. There are currently no plans for funding to widen I-80 east of SR 65, so the number of lanes listed is consistent with existing conditions. The assumptions for SR 65 include additional mainline lanes and auxiliary lanes in both directions between I-80 and Sunset Boulevard.

T:_CS\Work\Rocklin_City of\Rocklin GPU_28-0152\figures\Traffic Figures



Source: DKS Associates Transportation Solutions, 2009

Projected Daily Traffic Volumes on Rocklin Roadways

18,200 Cumulative No Project
18,700 Cumulative Plus Project

Roadways

- ARTERIAL
- FUTURE ARTERIAL
- COLLECTOR
- FUTURE COLLECTOR
- FREEWAY
- FREEWAY RAMP

NO SCALE

N

Figure 4.4-15
Cumulative Daily Traffic Volumes on Rocklin Roadways

2. Result in the need for new systems or a substantial expansion or alteration to the local or regional water treatment or distribution facilities that would result in a physical impact to the environment.

METHODOLOGY

Evaluation of potential water service impacts was based on the following documents as well as consultation with PCWA staff:

- Placer County Water Agency 2005 Urban Water Management Plan
- Placer County Water Agency Integrated Water Resources Plan (2006)
- Placer County Water Agency Water Systems Infrastructure Plan
- Water Forum Agreement (2000)

IMPACTS AND MITIGATION MEASURES

Increased Water Supply Demand

Impact 4.14.1 Implementation of the proposed project would increase demand for water supply, which could result in the need for new entitlements of a substantial expansion or alteration to local or regional water supplies, especially increased use of surface water supplies and increased groundwater production, that could result in a physical impact to the environment. However, the proposed Rocklin General Plan Update's mitigating policies and their associated action steps as well as PCWA's efforts to provide adequate and reliable water supply for buildout of its planning area, ensure the impact will be less than significant. Therefore, this is considered a less than significant impact.

Buildout of the Planning Area consistent with land uses identified in the General Plan Update would result in an increase in water demand over current conditions. At buildout, water would be supplied to the Planning Area by the Placer County Water Agency. Table 4.14-7 provides an estimate of water supply demands for the Planning Area at buildout of the proposed General Plan Update, based on water supply demand factors identified in the PCWA 2006 Integrated Water Resource Plan (IWRP). As shown, water demand at buildout of the General Plan Update would be 31,018.01 acre-feet per year.

TABLE 4.14-7
PROJECTED WATER DEMAND BUILDOUT OF ROCKLIN GPU

Land Use	Units or Acreage	Net Acreage[1]	Demand Factor (gpd per unit or acre)[2]	Water Demand (gpd)
Rural Residential (Min 1 Acre Lots)	21.00		998.00	20,958.00
Low Density Residential (1-3.4 DU/AC)	5,060.00		857.00	4,336,420.00
Medium Density Residential (3.5–8.4 DU/AC)	14,945.00		703.00	10,506,335.00
Medium High Density Residential (8.5–15.4 DU/AC)	2,341.00		539.00	1,261,799.00
High Density Residential	4,909.00		371.00	1,821,239.00

This section describes the utilities and service systems that serve the City of Rocklin. Specifically, this section includes an examination of wastewater service, solid waste service, electrical, natural gas, cable, and telephone services. Each subsection includes a description of existing providers and facilities, as well as potential environmental impacts resulting from implementation of the proposed project. Key issues include increased generation of wastewater flow, provision of adequate wastewater treatment, increased demand for solid waste disposal, and increased demand for energy (natural gas and electricity) and communication services (telephone, wireless telephone, cable television, and broadband). General Plan policies and mitigation measures that would serve to reduce impacts are identified. Relevant federal, state, and local regulations and plans are also identified. This section is based on consultation with the service providers, review of applicable reports and plans, and information obtained from various websites such as CalRecycle (formerly the California Integrated Waste Management Board). Abbreviated citations for each information source are provided in the text, with full references provided at the end of this section.

Public services such as fire protection, law enforcement, and public schools are discussed in Section 4.12, Public Services. Water supply and water infrastructure are discussed in Section 4.14, Water Resources.

4.13.1 WASTEWATER SERVICE

4.13.1.1 EXISTING SETTING

WASTEWATER SERVICE PROVIDERS

South Placer Municipal Utility District

South Placer Municipal Utility District (SPMUD) provides sewer collection and maintenance service to an approximately 29-square-mile service area that consists of the entire City of Rocklin, the Town of Loomis, and certain unincorporated areas in southern Placer County that include the communities of Penryn and Rodgersdale. Currently, the SPMUD has 19,000 sewer connections, representing 28,300 equivalent dwelling units (Stein 2009).

The SPMUD owns, operates, and maintains a sewage collection system that includes over 245 miles of pipe with over 5,000 manholes and 9 pump stations. Rocklin's existing sewage collection infrastructure is shown in Figure 4.13-1. The sewage is transported via two major pipelines to the City of Roseville's two regional wastewater treatment plants — Pleasant Grove Wastewater Treatment Plant (WWTP) and Dry Creek WWTP — for treatment and disposal. Capacity in these regional facilities is available to SPMUD on a first come, first served basis. Several years ago, the SPMUD prepared a master plan to identify the main infrastructure needs to serve the areas in the SPMUD as they developed. SPMUD has completed a new master plan, and information in Rocklin's proposed General Plan Update has been used to determine the trunk sewer sizes needed to serve the area (Stein 2009).

In 2007, the average dry weather flow from the entire SPMUD service area was 4.9 million gallons per day (mgd). Of that, 4.4 mgd was generated from the City of Rocklin, with 2.0 mgd from the "north" area of Rocklin draining to the Pleasant Grove WWTP and 2.4 from the "south" part of Rocklin draining to the Dry Creek WWTP (Stein 2008).

TABLE 4.13.1-1
SPWA WASTEWATER TREATMENT PLANT FLOW AND CAPACITY

Plant	Average Dry Weather Flow (in millions of gallons per day)	Average Dry Weather Capacity (in millions of gallons per day)	Average Dry Weather Flow at Buildout of 2005 SAB* (in millions of gallons per day)
Dry Creek WWTP	10.5 mgd	18 mgd	21.06 mgd
Pleasant Grove WWTP	7 mgd	12 mgd	24.63 mgd

Source: RMC 2007
**Includes intensification, rezones, and the addition of the Brookfield Urban Growth Area.*

Wastewater flow rate is used to size various components of the wastewater treatment plant. The estimated wastewater flow rate is used to design treatment components such as screens, primary clarifiers, and filters. Each of these components must be designed for a specific hydraulic detention time or overflow rate that is determined by the wastewater flow rate. Organic and solids loadings are used to determine design of other processes, such as the secondary treatment system and solids handling. Two of the key indicators of the plant loading are the biochemical oxygen demand (BOD) and the total suspended solids (TSS). The Dry Creek WWTP was designed in 1990 for an influent BOD concentration of 160 mg/L (ppm) and TSS concentration of 240 mg/L (ppm). The Pleasant Grove WWTP, designed in 2000, was designed for an influent BOD concentration of 160 mg/L and TSS concentration of 220 mg/L (RMC 2007, pg. 5-5). As a result of the "suburbanization" of the service area and water conservation, which decreases the volume per capita of wastewater conveyed by the sewers without decreasing the pounds of organics being introduced to the sewer, concentration of influent BOD and TSS has increased in the last five years as shown in Table 4.13.1-2. Due to these increases in TSS and BOD concentrations, the loadings at both plants are at design organic capacity. As discussed below, the first priority at the Dry Creek WWTP is to add organic treatment capacity in response to the increased BOD concentrations in the influent, and the first priority at Pleasant Grove WWTP is to add organic treatment capacity.

TABLE 4.13.1-2
SS AND BOD CONCENTRATIONS SPWA WASTEWATER TREATMENT PLANTS

	Dry Creek WWTP		Pleasant Grove WWTP	
	July 2000	August 2005	July 2004	August 2005
Average TSS Concentration	217 mg/l	278 mg/l	276 mg/l	335 mg/l
Average BOD Concentration	148 mg/l	241 mg/l	224 mg/l	287 mg/l

Source: RMC 2007

The previously referenced Systems Evaluation describes the expansion necessary at each WWTP to accommodate buildout of the SAB flows and loadings. Phasing of WWTP expansions will be performed based on realized rates of growth of flow and loadings, and the timing of projected capacity needs relative to how quickly capacity can be brought online.

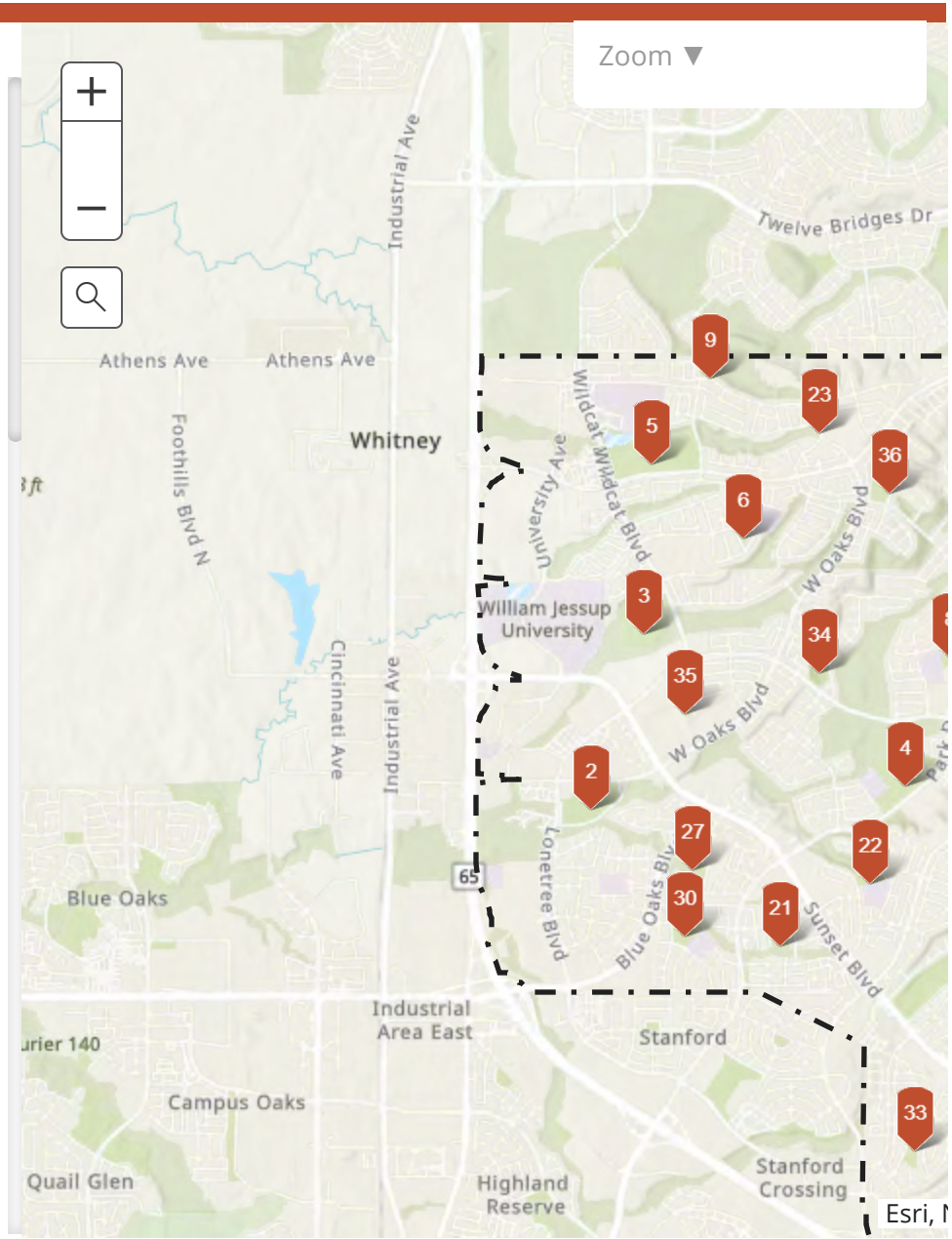
Phase 1 construction at the Dry Creek WWTP would increase the BOD capacity from 24,000 pounds per day (lbs/day) up to 34,500 lbs/day, which corresponds to an average dry weather flow (ADWF) influent flow of 15 mgd. Phase 1 would include a new influent pump station, fine screens, new aeration basins and clarifiers north of the June 2004 aeration basins, an additional digester, and new centrifuges for dewatering. The second phase of construction would increase

City of Rocklin Park Finder

GIS Division

All Parks | Sports Courts | Fields | Playgrounds | Picnic Area | Other | WiFi in the Parks

1 Johnson-Springview Park
2 Kathy Lund Park
3 Margaret Azevedo Park
4 Twin Oaks Park
5 Whitney Park
6 Bolton Park
7 Boulder Ridge Park
8 Breen Park
9 Brigham & Hawes Park



CONSTRUCTION NOISE GUIDELINES

The City of Rocklin has established a noise policy on all construction projects within or near residential areas:

- No noise on WEEKDAYS before 7 a.m. or after 7 p.m.
- No noise on WEEKENDS before 8 a.m. or after 7 p.m.

Failure to comply with these guidelines may result in an issuance of a Stop Work Order.

What are “noise generating activities?”

ROCKLIN
CALIFORNIA

Menu

- Dump Trucks
- Water trucks

Operation of Light Equipment

- Jackhammers
- Vibratory Compactors
- Generators
- Augers

Use of Hand Tools

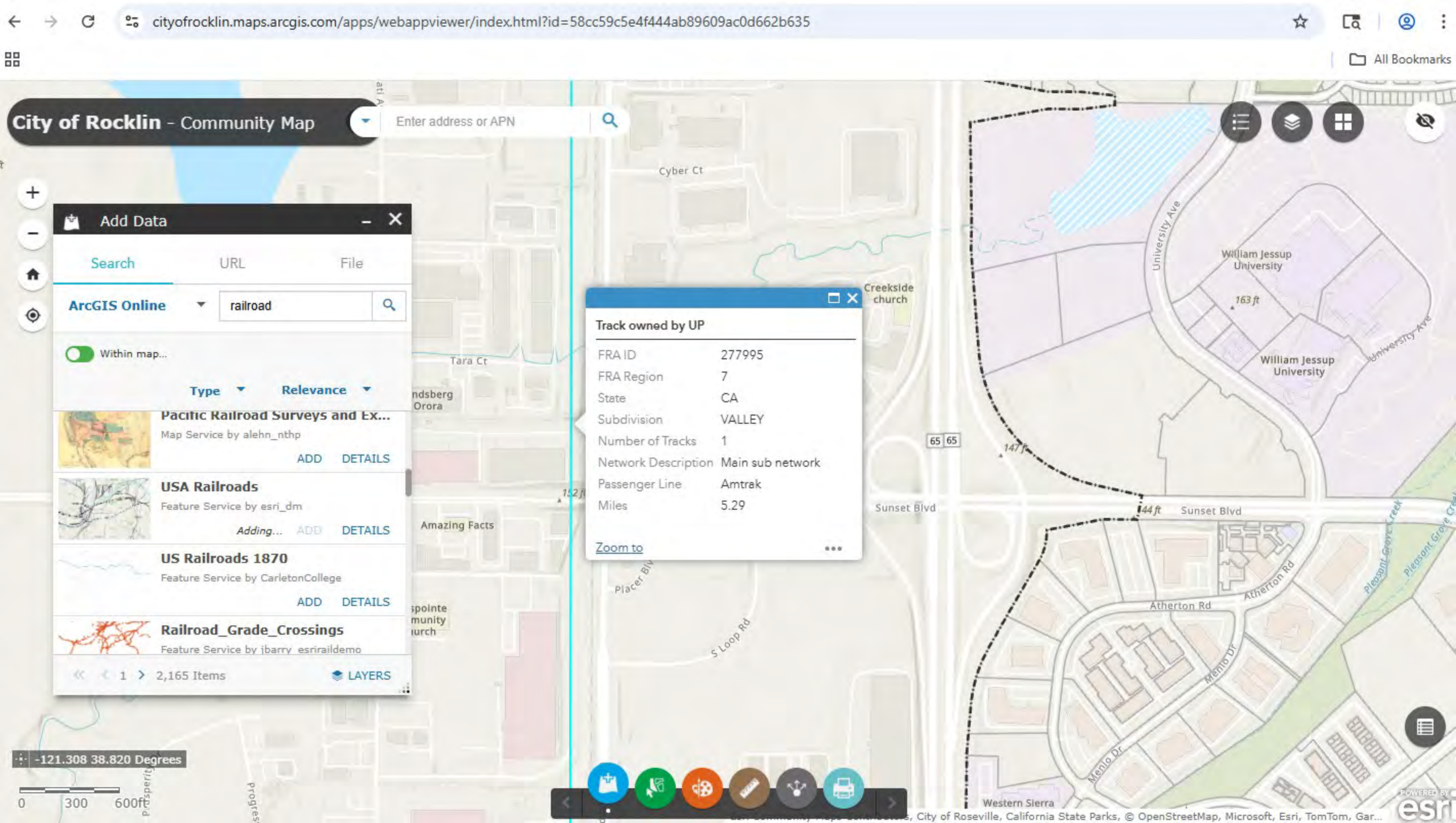
- Hammers
- Power Saws
- Drills
- Nail/Staple Guns

Other Activities

- Loud Radios
- Yelling
- Whistling

ROCKLIN
CALIFORNIA

Menu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railroad
Within map...
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Relevance
Pacific Railroad Surveys and Ex...
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FRA Region 7
State CA
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Number of Tracks 1
Network Description Main sub network
Passenger Line Amtrak
Miles 5.29
Zoom to
Cyber Ct
Tara Ct
Creekside church
Amazing Facts
Placer Blvd
S Loop Rd
University Ave
William Jessup University
163 ft
147 ft
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Sunset Blvd
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Atherton Rd
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Pleasant Grove Creek
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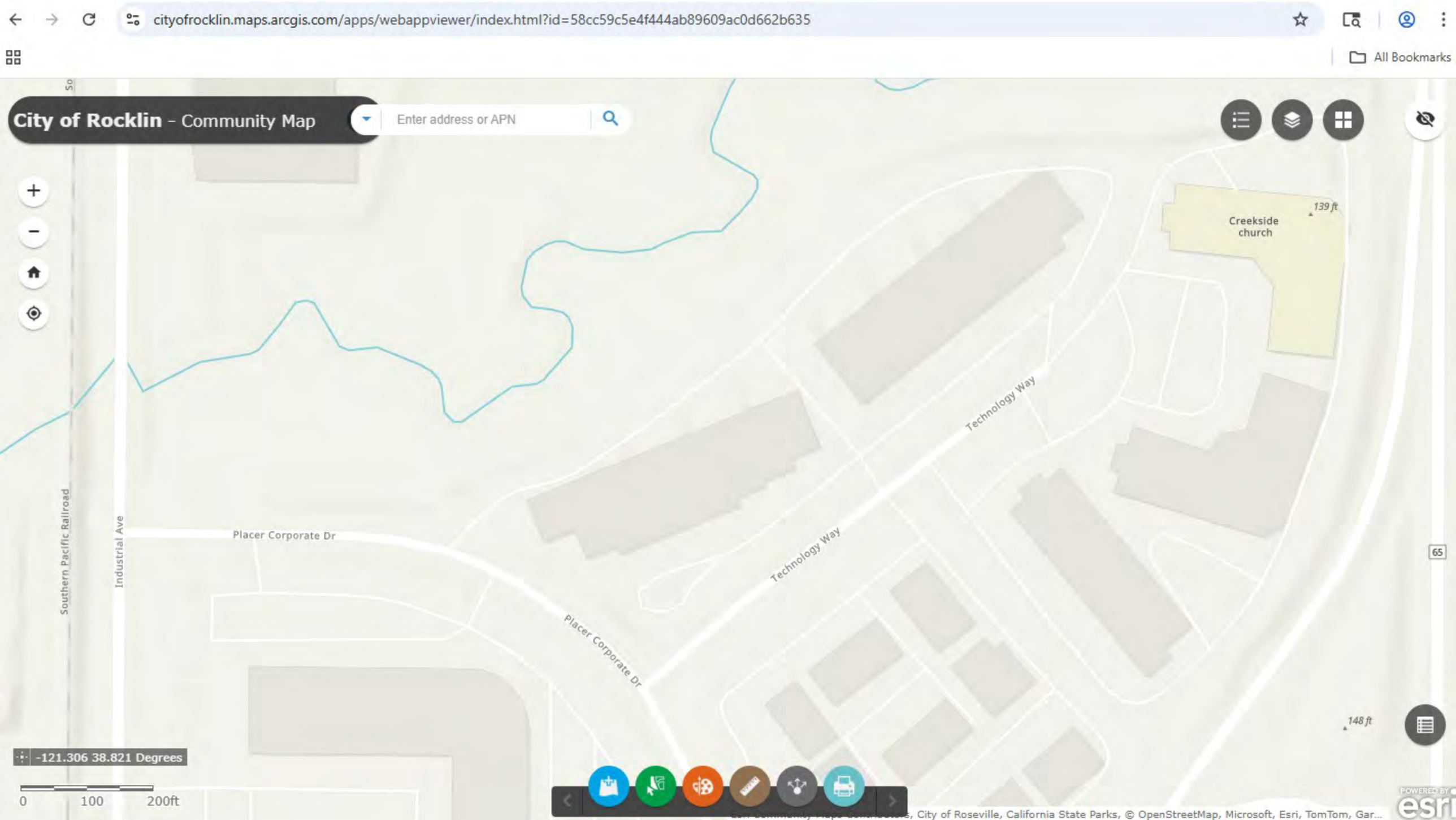
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City of Roseville, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Gar...

ROCKLIN
CALIFORNIA

ADOPTED – AUGUST 2021

CITY OF ROCKLIN

Housing Element 2021-2029

City of Rocklin – 2021–2029 Housing Element

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7-1 INTRODUCTION

The City of Rocklin (City) is nestled at the base of the Sierra Foothills just off Interstate 80 in Placer County. With all the charm of small-town living, Rocklin has much to offer its community in the way of amenities and opportunities. As of January 2020, Rocklin had a population of 70,350 residents, representing a growth of 23.4% since 2010.[1]

Rocklin offers a mix of housing types, including single-family homes, townhomes, apartments, condominium developments, and mobile homes. According to the California Department of Finance, of the 25,945 units in the City as of January 2020, 76% were single-family homes, 22% were multifamily units, and 2% were mobile homes.

Housing prices in Rocklin are relatively affordable in comparison to the San Francisco Bay Area. However, within Placer County, according to Zillow, the median sales price for homes in Rocklin in September 2020 was $525,000, which is at the higher end of Placer County jurisdictions. This was the second-highest median sales price in the county, second to Loomis ($689,000); in Colfax, for comparison, the median sale price was $379,000 over the same period.

According to a rental survey performed by the City in April 2020, market-rate studio apartments were renting for approximately $1,300 per month, one-bedroom apartments were renting for $950 to $1,990 per month, two-bedroom apartments were renting for $1,200 to $2,275 per month, and three-bedroom apartments were renting for $1,650 to $2,500 per month. The housing stock in Rocklin is generally in good condition, with 68% of the housing being less than 30 years old and 40% being less than 20 years old.

PURPOSE AND CONTENT OF THE HOUSING ELEMENT

The City must re-evaluate its goals and policies regarding housing existing and future residents, while striving to maintain Rocklin as a desirable community in which to work and live. The Housing Element describes and analyzes the housing needs of Rocklin residents and issues confronted by the City. This Housing Element also outlines the official City response to addressing the community's housing needs in relation to availability, adequacy, and affordability.

The Housing Element of the General Plan is designed to provide the City with a coordinated and comprehensive strategy for promoting the production of safe, decent, and affordable housing within the community. California Government Code Section 65580(a) states the intent of creating housing elements:

> *The availability of housing is of vital statewide importance, and the early attainment of decent housing and a suitable living environment for every Californian, including farmworkers, is a priority of the highest order.*

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1 *California Department of Finance, Population and Housing Estimates, May 1, 2019.*

According to California law, the Housing Element has two main purposes:

- To provide an assessment of both current and future housing needs and constraints in meeting these needs; and
- To provide a strategy that establishes housing goals, policies, and programs.

The Housing Element is an eight-year plan for the 2021–2029 period, which differs from other General Plan elements that are intended to govern development of the City through 2030 or beyond. The Housing Element serves as an integrated part of the General Plan but is updated more frequently to ensure its relevancy and accuracy. The Housing Element identifies strategies and programs that focus on:

- Conserving the existing housing supply;
- Assisting in the provision of housing that matches supply with need and maximizes housing choice throughout the community;
- Ensuring the availability of adequate housing sites for all income groups;
- Removing governmental and other constraints to housing investment;
- Promoting regional coordination; and
- Promoting fair and equal housing opportunities.

The Housing Element consists of the following major components:

- A profile and analysis of the City's demographics, housing characteristics, and existing and future housing needs;
- A review of the constraints to housing production and preservation. Constraints include potential market, governmental, and environmental limitations to meeting the City's identified housing needs;
- An assessment of resources available to meet the City's objectives regarding housing production and preservation. Resources include land available for new construction and redevelopment, as well as financial and administrative resources available;
- A summary of program accomplishments under the 2013–2021 Housing Element; and
- A statement of the Housing Plan to address the City's identified housing needs, including housing goals, policies, and programs.

STATE REQUIREMENTS

State law requires housing elements to be updated at least every eight years to reflect a community's changing housing needs. A critical measure of compliance with the State Housing Element Law is the ability of a jurisdiction to accommodate its "fair share" of the regional housing needs, as established in the Regional Housing Needs Plan (RHNP) adopted by the Sacramento Area Council of Governments (SACOG) on March 19, 2020. The term "fair share" refers to the fair and equitable distribution of growth between cities and unincorporated areas as well as the fair and equitable diversity of different income

groups within a community. Growth projected by the state for the Sacramento region was for the period between June 2021 and August 2029. Therefore, while the Housing Element is an eight-year document covering May 15, 2021, to May 15, 2029, the City has just over eight years (June 30, 2021, to August 30, 2029) to fulfill its RHNP housing allocation. Resources available to meet the City's RHNP allocation are discussed in Section 7.4, Housing Resources and funding sources to implement programs to accommodate the RHNP are discussed Section 7.6, Housing Plan. The City applied for SB 2 and LEAP/REAP grant funding, in addition to relying on other funding sources, to implement zoning ordinance amendments and establish a streamlining process to remove barriers to development.

DATA SOURCES AND METHODOLOGY

In preparing the Housing Element, various sources of information were consulted. The SACOG Housing Element data set, as approved by the Department of Housing and Community Development (November 2019 and March 2020), were used as a primary data source for the preparation of the Housing Element. These include the 2014–2018 and 2013–2017 American Community Surveys (ACS), United States (U.S.) Census 2010 data, the California Department of Finance, housing market data from Zillow and various websites, employment data from the Employment Development Department, lending data from financial institutions provided under the Home Mortgage Disclosure Act (HMDA), and the most recent data available from service agencies and other governmental agencies.

The foundation of the RHNP allocation is the Metropolitan Transportation Plan and Sustainable Communities Strategy (MTP/SCS) projections that SACOG developed in collaboration with each jurisdiction, including the City of Rocklin. The SACOG allocation methodology multiplied each jurisdiction's draft percentage share of the growth forecasted in the MTP/SCS for the period from 2021–2029 by the region's overall allocation provided by the California Department of Housing and Community Development (HCD). Each jurisdiction's allocation was then broken down into income categories assuming a trend that each jurisdiction would achieve a long-term (50-year) regional average in each income category.

PUBLIC PARTICIPATION

Opportunities for community input on the development of the Housing Element included community stakeholder interviews, public meetings, and opportunity for public review of the draft Housing Element, as described herein.

COMMUNITY STAKEHOLDER INTERVIEWS

Community stakeholders, including non-profit service providers, were contacted to solicit input in development of the 2021–2029 Housing Element. The City consulted with Acres of Hope, St. Vincent DePaul, Placer People of Faith Together, Lighthouse Counseling and Family Resource Center, Placer County Veterans Services, and Sierra College as a part of this process. Based on input received during the interviews, the greatest overall housing need identified by these community stakeholders is a lack of truly affordable rental and for-sale housing in Rocklin. Other opportunities identified by these stakeholders include creative affordability strategies, such as co-housing, workforce housing, and housing sited in non-traditional locations, such as on parcels along rail lines. It should be noted that some sites the City

identified in its 2013-2021 Housing Element as potential locations for Housing were in areas owned by Union Pacific Railroad (UP) as housing and other facilities have been allowed in those locations in the past. However, in more recent years UP has changed their policies and will no longer allow structures other than parking areas in those locations.

A more detailed summary of the City's discussions with service agencies and community leaders can be found in Appendix A. The Housing Element responded by including a program to address housing options for the homeless and extremely low-income households (Program 6) and a program to facilitate the construction of multifamily housing (Program 18).

Public Meetings

A City Council workshop was held September 22, 2020, to provide an overview of the Housing Element update and to solicit community input.

Eleven members of the public commented during the meeting and expressed a variety of perspectives on the future of housing in the City. Several residents of Old Town Rocklin expressed a concern about the potential for affordable housing to be concentrated in their neighborhood. They felt that there was already a significant amount of affordable housing, particularly along Pacific Street, and instead wanted to see it better distributed throughout the community. Some specific reasons for this concern related to the potential increase in traffic that this housing could create. Several participants expressed support for inclusionary housing as a fair alternative to geographically concentrated housing. However, a representative from North State Building Industry Association opposed any future inclusionary housing ordinance. A representative of the proposed College Park development supported the idea of expedited permit approval timelines, objective design standards, pre-approved plans, and fee deferrals. A member of Placer County People of Faith Together also provided comment and discussed the potential for developing housing on church-owned lands. Several members of House Sacramento provided comment to support policies that would allow fourplexes across the City, pre-approved accessory dwelling unit (ADU) plans, objective design standards, and ministerial approvals of infill housing. The City has included Program 6 which includes several actions to assist with the development of ADUs.

In the Council's response to the policy alternatives presented, the structure and timing of fees for development were a major point of discussion. The lack of money from redevelopment is a challenge, so charging fees can be necessary, but can also make development more expensive. Some impact fees affecting the affordability of housing are also not charged by the City, but instead by utility service providers such as the Placer County Water Agency (PCWA) and the South Placer Municipal Utility District (SPMUD). There was support for making pre-approved ADU plans available to the community. There was some discussion about whether there was any interest in pursuing purchase of hotels to convert them to single-room occupancy (SRO) units, and about coordination with Gathering Inn to address housing homeless residents. The purchase and conversion of hotels was not viewed as something with high potential, especially given the limited staff available to pursue such an undertaking.

A notice of the September 22, 2020 workshop was posted on the City's website on September 11, 2020. The notice was also e-mailed directly to Non-Profit List-serv Groups the Placer Collaborative Network

(PCN), the Placer Consortium on Homelessness (PCOH), and direct e-mail notice to interested parties who had requested to be apprised of all activities related to the City's Housing Element Update

A joint Planning Commission/City Council workshop and public hearing was held on December 8, 2020 where the draft 2021-2029 Housing Element was presented prior to submitting to HCD for the 60-day review period. A combined Notice of Document Availability and hearing notice for the December 8, 2020 public meeting was published in the Placer Herald Newspaper and on the City's Website on November 20, 2020.

Direct Notification was also sent to the following agencies on November 20, 2020:

- Rocklin City Council
- Rocklin Planning commission
- City of Roseville Housing Authority
- Mercy Housing
- Placer Independent Resources Services
- Habitat for Humanity
- Volunteers of America
- Legal Services of Northern California
- Saint Anton
- Rocklin Unified School District
- Placer Consortium on Homelessness (PCOH) members via a listserv
- Placer Collaborative Network (PCN) members via a listserv
- House Sacramento
- Placer People of Faith Together
- Placer County Water Agency
- South Placer Municipal Utility District
- Building Industry Association (BIA)
- Local residents who requested notice

DRAFT HOUSING ELEMENT FOR REVIEW

The Draft Housing Element was released for an initial 30-day public review period on November 20, 2020 and was made available for public review at the following locations. The draft Housing Element was submitted to HCD on December 23, 2021.

- City Hall/ City Administration Building
- City of Rocklin Website
- Rocklin Public Library

During the period when the draft housing element was available, one comment was received from a member of the public. The comment discussed an interest in seeing the City develop a zoning overlay that would permit churches or non-profit organizations to use their land to build or rehabilitate affordable or supportive/transitional housing, including trailers, and to designate their site as a "safe sleep" site. Additionally, the commenter requested that the City encourage the development and funding of a home-sharing program that would match potential hosts with guest lodgers as a way to address a lack of affordable housing sized for single workers and students.

GENERAL PLAN CONSISTENCY

The City of Rocklin General Plan was adopted in October 2012 with subsequent amendments and consists of the following seven elements: Land Use; Open Space, Conservation and Recreation; Circulation; Community Safety; Noise; Public Services and Facilities; and Housing. The Housing Element is being updated at this time, in conformance with the 2021–2029 update cycle for jurisdictions in the SACOG region and has been reviewed with the rest of the General Plan to ensure internal consistency. As portions of the General Plan are amended in the future, the Plan (including the Housing Element) will be reviewed and updated as needed to ensure that internal consistency is maintained.

Per Assembly Bill (AB) 162 (Government Code Section 65302), concurrent with this Housing Element update, the City is evaluating and amending the Community Safety Element of the General Plan to include analysis and policies regarding flood hazard and management information, consistent with State Law.

7-2 NEEDS ASSESSMENT

BRIEF HISTORY OF ROCKLIN

At the time of the Gold Rush, the areas around the Yuba, Bear, American, and Sacramento Rivers were primarily populated by the Nisenan Indians. Early European settlers of the area were of primarily Finnish and Irish decent. The Gold Rush facilitated settlement of Rocklin area, but no major gold discoveries occurred in the vicinity. Between 1864 and 1865, Central Pacific Railroad laid track from Sacramento into Placer County, reaching the communities of Rocklin, Roseville, Auburn, and Colfax. The City incorporated in 1893 and became a prominent center of the granite mining industry. By 1910, 22 granite quarries were operating in Rocklin. At peak, as many as 60 quarries were operating in the area. Much of the granite used to construct the California state capitol and many contemporary San Francisco buildings were hewn in Rocklin.

Approximately 1,050 residents lived in Rocklin at the time of incorporation. However, by 1930 the City's population had declined to 724 residents. The population decline can be attributed to two major events of the early twentieth century. A decision by the Southern Pacific Railroad in 1906 to establish a new roundhouse in neighboring Roseville as opposed to Rocklin prompted the relocation of many households employed by the company. The Great Depression struck Rocklin another blow. Sales of granite slowed to almost zero and the Southern Pacific Railroad closed the Rocklin station. The City's population did not reach 1890 levels again until 1950 as Rocklin benefited from overall growth in the Sacramento metropolitan area. Rocklin's population grew steadily from the 1950s until the 1990s when the City experienced substantial housing and population growth.

POPULATION CHARACTERISTICS

The type and amount of housing needed in a community are largely determined by population growth and various demographic variables. Factors such as age, occupation, and income level of the residents combine to influence the type of housing needed in a community and the affordability of housing provided.

POPULATION TRENDS

Since 2010, Rocklin's population has grown from 56,974 residents to 70,350 in 2020 (Table 7-1). Rocklin experienced the largest overall percent change in population of any Placer County jurisdiction between 2010 and 2020, with a population increase of approximately 23% over this period, as compared to the 16% population growth for Placer County as a whole. Much of this growth occurred between 2015 and 2020 and can be attributed in part to development of single-family homes in Whitney Ranch, Spring Valley, and Whitney Oaks.

After decades of limited or negative growth between 1900 and 1950, the City population began to increase in the 1960s. The number of residents increased 103% in the 1960s and another 142% in the 1970s. The City's annexation of the formerly unincorporated Sunset-Whitney area propelled the City's population growth yet another 159% in the 1980s. Rocklin's population reached 36,330 by 2000; the 91% increase from 1990 was the largest proportional increase of all Placer County jurisdictions in the 1990s. By January 2008, the City's population had grown another 48% to 53,843. Most of Rocklin's population

growth since 2000 can be attributed to annexation and subsequent development of the Northwest Rocklin Annexation Area and ongoing development in the Whitney Oaks, Stanford Ranch, Sunset West, and Southeast Rocklin, areas.

TABLE 7-1: POPULATION GROWTH TRENDS

Jurisdiction	1990	2000	2010	2015	2020	2010–2015 % Change	2015–2020 % Change
Auburn	10,592	12,462	13,330	13,979	14,594	5%	4%
Colfax	1,306	1,496	1,963	2,026	2,152	3%	6%
Lincoln	7,248	11,205	42,819	46,159	49,317	8%	7%
Loomis	5,705	6,260	6,430	6,648	6,888	3%	4%
Rocklin	**19,033**	**36,330**	**56,974**	**60,502**	**70,350**	**6%**	16%
Roseville	44,685	79,921	118,788	129,120	145,163	9%	12%
Unincorporated Placer County*	84,227	100,725	108,128	112,892	115,247	4%	2%
Placer County Total	172,796	248,399	348,432	371,326	403,711	7%	9%

Sources: Bureau of the Census, 1990 and 2000 Census, State of California, Department of Finance, E-5 Population Estimates for Cities, Counties, and the State, 2010–2020, Sacramento, California, May 2020.

Age Characteristics

Housing needs in the community are determined in part by the age characteristics of its current and future residents. Each age group tends to have distinct lifestyle, family type and size, income levels, and housing preferences. As people move through each stage, their housing needs and preferences also change. As a result, evaluating the age characteristics of a community is important in determining and addressing housing needs.

Table 7-2 summarizes the age characteristics of Rocklin residents in 2010 and 2018. During the period between 2010 and 2018, the number of older adults (age 45 to 64) increased by 16% and the number of seniors (65+) increased by 17%, contributing to a slight increase in the median age from 36.7 to 36.9 years. As of 2018, adults between 45 and 64 years made up the largest percentage. Older adults are typically at the peak of their earning power and are more likely to be homeowners. The college age (20 to 24) population also grew substantially, by 25%.

Between 2000 and 2010, the number of senior (age 65+) residents increased by 99%. Many seniors are homeowners and typically reside in single-family homes. Yet, as they grow older, seniors may prefer to trade down their larger homes for smaller dwellings and alternative housing types, such as assisted living facilities. To remain in their homes, some seniors may decide to participate in home-sharing programs, while others may require assistance in maintaining their homes. If the older adult population continues as long-term community residents, the need to expand housing opportunities for the elderly will continue.

While the young adult (25 to 44) group increased between 2010 and 2018, it grew at a slower rate than the City average and made up a smaller proportion of Rocklin's population in 2018 (25%) than in 2010

(27%). Possibly related, the number of preschool-age children in the City decreased by 8% over the 2010–2018 period, and the number of school-age children as a share of the City population stayed at 24% between 2010 and 2018. The growth of the school-age population group approximately matched the overall population growth of the City. This may signal a market for smaller homes, if family sizes in the area are decreasing.

TABLE 7-2: AGE CHARACTERISTICS AND TRENDS

Age Groups	2010		2018		% Change 2010–2018
	Persons	Percent	Persons	Percent	
Preschool (Ages <5)	3,598	6%	3,311	5%	-8%
School Age (5–19)	13,840	24%	15,257	24%	10%
College Age (20–24)	3,481	6%	4,349	7%	25%
Young Adults (25–44)	15,159	27%	15,940	25%	5%
Older Adults (45–64)	14,668	26%	16,972	27%	16%
Seniors (65+)	6,228	11%	7,298	12%	17%
Total	56,974	100%	63,127	100%	11%
Median Age (years)	36.7		36.9		1%

Source: 2010 Census, 2014–2018 American Community Survey (SACOG Housing Element Data Package).

RACE AND ETHNICITY

Different racial and ethnic groups often have different household characteristics, income levels, and cultural backgrounds, which may affect their housing needs and preferences. Studies have also suggested that different racial and ethnic groups differ in their attitudes toward and/or tolerance for "housing problems," as defined by the federal Department of Housing and Urban Development (HUD), including overcrowding and housing cost burden.[2] According to these studies, perceptions regarding housing density and overcrowding tend to vary among different racial and ethnic groups. Especially within cultures that prefer to live with extended family members, household size and overcrowding also tend to increase. In general, Hispanic and Asian households exhibit a greater propensity than White households for living with extended families.

Rocklin's racial and ethnic composition is very similar to the overall racial and ethnic composition of Placer County (Table 7-3). A large majority of Rocklin residents reported their race or ethnicity as Non-Hispanic White (70%) according to the 2014–2018 ACS. Another 13% classified themselves as Hispanic, 9% as Non-Hispanic Asian, 5% as Non-Hispanic Two or More Races, 2% as Non-Hispanic African American, and less

2 *Studies include the following: "The Determinants of Household Overcrowding and the Role of Immigration in Southern California" by S.Y. Choi (1993); "The Changing Problem of Overcrowding" by D. Myers, William Baer, and S.Y. Choi (1996); and "Immigration Cohorts and Residential Overcrowding in Southern California" by D. Myers and S.W. Lee (1996).*

than 1% each as Non-Hispanic American Indian/Alaska Native, Non-Hispanic Native Hawaiian/Pacific Islander, or Non-Hispanic "Other."

TABLE 7-3: RACIAL AND ETHNIC COMPOSITION, 2018								
		Auburn	**Colfax**	**Lincoln**	**Loomis**	**Rocklin**	**Roseville**	**Placer County**
Total Population		**13,946**	**2,029**	**46,939**	**6,753**	**63,127**	**133,049**	**380,077**
White	Number	11,680	1,647	31,995	5,738	**44,453**	91,180	278,380
	Percent	84%	81%	68%	85%	**70%**	69%	73%
African American	Number	28	66	829	26	**1,250**	2,303	5,868
	Percent	0%	3%	2%	0%	**2%**	2%	2%
American Indian/Alaska Native	Number	20	32	47	0	**268**	284	1,244
	Percent	0%	2%	0%	0%	**0%**	0%	0%
Asian	Number	273	0	2,878	121	**5,936**	13,363	27,196
	Percent	2%	0%	6%	2%	**9%**	10%	7%
Native Hawaiian/Pacific Islander	Number	0	0	182	0	**41**	280	576
	Percent	0%	0%	0%	0%	**0%**	0%	0%
Other	Number	35	40	116	0	**55**	55	403
	Percent	0%	2%	0%	0%	**0%**	0%	0%
Two or More Races	Number	475	54	1,268	405	**2,853**	5,409	13,912
	Percent	3%	3%	3%	6%	**5%**	4%	4%
Hispanic	Number	1,435	190	9,624	463	**8,271**	20,175	52,498
	Percent	10%	9%	21%	7%	**13%**	15%	14%

Source: 2014–2018 American Community Survey (SACOG Housing Element Data Package).

EMPLOYMENT MARKET

Employment has an important impact on housing needs to the extent that different occupations and the associated income levels determine the type and size of housing different households can afford. In addition, employment growth is a major factor affecting the demand for housing in a community.

Table 7-4 provides an employment profile of Rocklin residents. As of 2018, educational/health/social services occupations employed the largest share of City residents (24%); followed by retail trade (13%); and professional, scientific, management, administrative, and waste management services (12%). Typically, except for certain sales positions, relatively higher-paying jobs are in these categories, translating into higher incomes for Rocklin residents engaged in these occupations. These patterns are similar in Placer County as a whole.

TABLE 7-4: EMPLOYMENT PROFILE, 2018				
	Rocklin		Placer County	
Occupation of Residents	Persons	Percent	Persons	Percent
Agriculture, forestry, fishing and hunting, and mining	301	1%	1,323	1%
Construction	1,589	5%	12,269	7%
Manufacturing	1,763	6%	10,649	6%
Wholesale trade	943	3%	4,333	2%
Retail trade	4,183	13%	20,225	12%
Transportation and warehousing, and utilities	1,319	4%	7,302	4%
Information	702	2%	3,883	2%
Finance, insurance, real estate, and rental and leasing	2,757	9%	14,804	9%
Professional, scientific, management, administrative, and waste management services	3,640	12%	21,699	13%
Educational, health, and social services	7,581	24%	39,859	23%
Arts, entertainment, recreation, accommodation, and food services	2,689	9%	16,001	9%
Other services (except public administration)	1,448	5%	8,554	5%
Public administration	2,211	7%	12,592	7%
Employed civilian population 16 years and over	31,126	100%	173,493	100%

Source: 2014–2018 American Community Survey (SACOG Housing Element Data Package).

Table 7-5 provides an annual wage profile for the Sacramento-Arden Arcade-Roseville Metropolitan Statistical Area (MSA), of which, the City of Rocklin is a part. As shown in Table 7-5, the highest-annual wage earners in the region are within the categories of management, legal, healthcare practitioners and technical, architecture and engineering, and computer and mathematical.

TABLE 7-5: ANNUAL WAGE PROFILE, 2020	
Occupational Title	Mean Annual Wage
Management	$121,473
Legal	$119,663
Healthcare Practitioners and Technical	$111,757
Architecture and Engineering	$102,227
Computer and Mathematical	$98,253
Life, Physical and Social Science	$80,337
Business and Financial Operations	$78,885
Education, Training and Library	$65,373
Protective Service	$62,731

TABLE 7-5: ANNUAL WAGE PROFILE, 2020	
Occupational Title	**Mean Annual Wage**
Arts, Design, Entertainment, Sports and Media	$61,910
Community and Social Services	$60,460
Construction and Extraction	$59,779
Installation, Maintenance and Repair	$55,794
Sales and Related	$46,183
Office and Administrative Support	$45,344
Production	$43,710
Transportation and Material Moving	$39,072
Building and Grounds Cleaning and Maintenance	$36,907
Healthcare Support	$34,373
Personal Care and Service	$33,724
Farming, Fishing, and Forestry	$31,059
Food Preparation and Serving-Related	$29,635

Source: California Employment Development Department, Occupational Employment & Wage Data (2020 – 1st quarter).

Table 7-6 identifies major employers in the City of Rocklin. Major employers in Rocklin are concentrated in education, technology services, commercial, and retail. As is typical in a number of communities in the Sacramento area, larger employers in Rocklin include education and high technology firms, such as the Rocklin Unified School District and Oracle, respectively. With approximately 1,200 employees, Sierra Joint Community College District is the largest employer in Rocklin, followed by Rocklin Unified School District (1,056 employees) and Oracle (500 employees).

TABLE 7-6: MAJOR ROCKLIN EMPLOYERS, 2019	
Employers	**Number of Employees**
Sierra Joint Community College District	1,200
Rocklin Unified School District	1,056
Oracle	500
American Healthcare Administrative Services Inc.	490
S.E. Scher Corporation	459
Wal-Mart Stores, Inc. (2 locations)	420
Chevron Corporation	391
United Natural Foods West, Inc.	385
Ace Hardware Corporation	360
Mullin & Worrall LLC	350
Riebe's Auto Parts LLC	350

TABLE 7-6: MAJOR ROCKLIN EMPLOYERS, 2019	
Employers	**Number of Employees**
UPS	325
Educational Media Foundation	325
City of Rocklin	321
Pacific Secured Equities	300
The Rocklin Academy	270
Csdvrs LLC	250
Source: City of Rocklin, 2019.	

According to the California Employment Development Department, Rocklin's unemployment rate in March 2019 (3.0%) was lower than the unemployment rates reported for most surrounding jurisdictions, Placer County, and the State of California (Table 7-7).

TABLE 7-7: UNEMPLOYMENT RATES, 2019	
Jurisdiction	**Rate**
Auburn	3.4%
Colfax	4.8%
Lincoln	3.4%
Loomis	3.7%
Rocklin	**3.0%**
Roseville	3.0%
Placer County	3.1%
California	4.0%
Source: California Employment Development Department, 2019.	

HOUSEHOLD CHARACTERISTICS

A household is all persons occupying a housing unit. A household can be a family, a person living alone, or unrelated persons living together. Household type and size, income level, the presence of special needs populations, and other household characteristics determine the type of housing needed by residents. The discussions below detail the various household characteristics affecting housing needs.

HOUSEHOLD TYPE

According to the 2014–2018 ACS and as shown in Table 7-8 Rocklin was home to 21,206 households in 2018, of which 71% were families. Families were comprised of married couple families with or without children, as well as other family types such as female-headed families with or without children. Within the family household category, 38% of all households had children under 18 years of age. Non-families, including singles and other households, made up the remaining 29% of households in Rocklin.

TABLE 7-8: HOUSEHOLD CHARACTERISTICS, 2018		
HOUSEHOLD TYPE	**NUMBER**	**PERCENTAGE**
Total Households	21,206	100%
Family Households	15,026	71%
Families with Children Under 18	8,150	38%
Non-Family Households	6,180	29%
Source: 2014–2018 American Community Survey, S1101.		

HOUSEHOLD SIZE

As compared to the population of Placer County, household sizes in Rocklin tend to be slightly larger. Around 52% of households in Rocklin were either one or two-person households, as compared to 61% of households in Placer County. The difference between the County and City was more pronounced among households with five or more people; 18% of households in Rocklin have five or more people, compared to 8% of households in Placer County.

STATE INCOME LIMITS

The State and Federal governments classify household income into several groupings based upon the relationship to the County Area Median Income (AMI), adjusted for household size. The State of California utilizes the following income groups:

- Extremely Low 0–30% AMI
- Very Low 31–50% AMI
- Low 51–80% AMI
- Moderate 81–120% AMI
- Above Moderate 120%+ AMI

For purposes of evaluating housing affordability, housing need, and eligibility for housing assistance, income levels are defined by guidelines adopted each year by the California Department of Housing and Community Development (HCD). For Placer County, the area median income (AMI) for a family of four in 2020 is $86,300, as shown in Table 7-9.

TABLE 7-9: PLACER COUNTY INCOME LIMITS, 2020								
Income Category	**Household Size**							
	1 Person	**2 Persons**	**3 Persons**	**4 Persons**	**5 Persons**	**6 Persons**	**7 Persons**	**8 Persons**
Extremely Low	$18,150	$20,750	$23,350	$26,200	$30,680	$35,160	$39,640	$44,120
Very Low	$30,250	$34,550	$38,850	$43,150	$46,650	$50,100	$53,550	$57,000
Low	$48,350	$55,250	$62,150	$69,050	$74,600	$80,100	$85,650	$91,150
Median	$60,400	$69,050	$77,650	**$86,300**	$93,200	$100,100	$107,000	$113,900
Moderate	$72,500	$82,850	$93,200	$103,550	$111,850	$120,100	$128,400	$136,700
Source: California Department of Housing and Community Development, 2020.								

HOUSEHOLD INCOME

Household income is the most important factor affecting housing opportunity, determining a household's ability to purchase or rent housing and balance housing costs with other basic necessities. Income levels can vary considerably among households, affecting preferences for tenure, location, and housing type. According to the 2014–2018 ACS, Rocklin's overall median household income ($97,508)[3] was the highest among Placer County jurisdictions (Table 7-10).

TABLE 7-10: MEDIAN INCOME, 2014–2018

Jurisdiction	Median Income
Auburn	$62,168
Colfax	$49,571
Lincoln	$81,417
Loomis	$70,671
Rocklin	$97,508
Roseville	$84,105
Unincorporated Placer County	$83,922
Placer County, Total	$84,357

Source: 2014–2018 American Communities Survey (SACOG Housing Element Data Package).

Approximately 25% of Rocklin households earned less than $50,000, while 63% earned more than $75,000 according to the 2014–2018 ACS. The City's occupation profile explains much of Rocklin's high median income relative to nearby cities and the County. A significant proportion of Rocklin residents were employed in higher paying educational, health, and social services, as well as professional, scientific, management, administrative, and waste management services occupations.

According to the 2011–2015 CHAS data (Table 7-20), approximately 67% of the Rocklin households earned incomes above 80% of the median, while approximately 33% of households fell into the lower income category).[4]

SPECIAL NEEDS GROUPS

Certain groups have greater difficulty in finding decent, affordable housing due to their unique needs and/or circumstances. Special circumstances may be related to one's household characteristics, disability,

3 *Median household income in the Census represents the overall median for all households in the City, regardless of household size.*

4 *Data is obtained from the Comprehensive Housing Affordability Strategy (CHAS) prepared for HUD by the Census Bureau using 2011–2015 American Communities Survey Census data.*

employment, and income, among others. As a result, certain segments of the Rocklin residents are more likely to be lower income and face housing cost burden, overcrowding, and/or other housing problems.

The State Housing Element law identifies the following "special needs" groups: senior households, disabled persons, large households, female-headed households, families and persons in need of emergency shelter, and farmworkers (Table 7-11). The following discussions detail the housing and supportive services needs of each particular group, as well as the major programs and services available to address their needs.

TABLE 7-11: ROCKLIN SPECIAL NEEDS GROUPS

Special Needs Group	Number	Percent
Owner-Occupied Senior-Headed Households (65+)	3,446	24%
Renter-Occupied Senior-Headed Households (65+)	1,171	16%
Single-Parent Households	2,988	14%
Large Households	626	3%
Persons with Disabilities	5,339	9%
Homeless	67	<1%
Farmworkers*	311	1%

Source: American Community Survey 2013–2017, Placer County Continuum of Care Point-in-Time Survey 2019.

** Category includes agriculture, forestry, fishing and hunting and mining occupations. Note that labor data are residence-based and do not reflect the businesses within a jurisdiction.*

The City routinely notifies public service agencies directly via email to local non-profit collaborations (Placer Collaborative Network and Placer Consortium on Homelessness) regarding all local funding opportunities. These groups were also contacted throughout preparation of the Regional Analysis of Impediments for input. These organizations primarily serve minorities, non-English speaking persons and persons with disabilities. Staff encourages the agencies to share Draft documents and notices of public hearing opportunities with their clients and other organizations who may be interested in both funding and Housing related activities and topics. The City participated in local public workshops and outreach conducted during the Regional AI process as well.

The City has also recently prepared outreach material to groups specializing in services to the developmentally disabled highlighting housing and services available in Placer County and Rocklin.

The City encourages housing developers to include more than the minimum number of accessible units required by Building Codes when proposing residential development projects.

The City also participates annually in the Placer County Transportation and Planning Agency's (PCTPA's) Unmet Transit Needs process and considers modifications to address transportation needs that are found reasonable to meet. In 2018 a request was made from individuals residing in Lincoln who were in need of ADA compliant transportation from that City to Sierra College located on Rocklin Road in Rocklin. Prior to this request, Dial-A-Ride/Paratransit services in Lincoln and Rocklin operated only within the jurisdiction

of each City. As a result of the Unmet Transit Needs process the Cities of Rocklin and Lincoln as well as Transit Operator (Placer County Transit) created a program that would allow ADA clients book the necessary inter-jurisdictional services.

Senior Households

Senior households typically have special housing needs due to three primary concerns: fixed income, high health care costs, and disabilities. According to the 2013–2017 American Community Survey, 24% (3,446) of owner-occupied households and 16% (1,171) of renter-occupied households in Rocklin were headed by persons aged 65 and older.

Three-quarters (75%) of the elderly households in Rocklin were homeowners and one quarter (25%) were renters. Because of physical and/or other limitations, senior homeowners may have difficulty performing regular home maintenance or repair activities. In addition, because many seniors have fixed or limited income, they may have difficulty in making monthly mortgage or rent payments.

Various programs can assist senior needs, including but not limited to congregate care, supportive services, rental subsidies, shared housing, and housing rehabilitation assistance. For the frail elderly, or those with disabilities, housing with architectural design features that accommodate disabilities and senior housing with supportive services can help ensure continued or extended independent living. Assisted living facilities represent another housing option for seniors in Rocklin. These facilities are typically for the frailer elderly and offer daily assistance with personal and household tasks.

54.8% percent of assisted living residents in the California in 2016 were aged 85 years and over and 71.2% were women. According to the National Center for Assisted Living (NCAL), approximately 57% of assisted living residents in the state need help bathing, approximately 48% need help dressing, approximately 44% need help with toileting, approximately 31% need help with bed transfer, and approximately 20% need help eating. The cost of assisted living varies widely, depending on the location of the facility, style of room or apartment, services provided, and other factors. According to a Genworth Financial Cost of Care Survey, the median annual cost of a private bedroom in an assisted living facility in California in 2019 was $54,000. High cost and limited public subsidies often make assisted living facilities unaffordable for persons with low or moderate incomes.

According to the California Community Care Licensing Division (2020), 32 licensed assisted living facilities for the elderly provide a total of 744 beds in Rocklin. With an estimated 7,298 residents over the age of 65 in 2018, the need for additional supportive housing options for seniors in Rocklin remains high and is anticipated to grow. The Roseville Housing Authority and Placer County Housing Authority administer the Section 8 Housing Choice Voucher Program for extremely low- and very low-income households in Rocklin, including seniors.

Single-Parent Households

Single-parent households require special consideration and assistance because of their greater need for day care, health care, and other facilities. Approximately 14% of the Rocklin households were headed by single parents in 2013–2017; the large majority of which were headed by females (77%). Female-headed

households with children often require special consideration and assistance as a result of their greater need for affordable housing, accessible day care, health care, and other supportive services. Because of their relatively lower incomes and higher living expenses, such households usually have more limited opportunities for finding affordable and decent housing.

Rocklin was home to 2,314 female-headed households in 2017, representing 15% of households in the City. Of these households, 63% had children under 18 years old. Single mothers with children are a particularly vulnerable group because they must balance the needs of the children with work responsibilities. In 2017, 24% of female-headed families with children under 18 lived in poverty, compared to 5% of all families. Battered women with children typically comprise a sub-group of female-headed households that are especially in need.

Large Households

Large households are defined as households with five or more members residing in a housing unit. These households constitute a special need group because the supply of adequately sized, affordable housing units in a community is often limited. In order to save for other basic necessities such as food, clothing and medical care, it is common for lower income large households to reside in smaller units, which frequently results in overcrowding[5]. A total of 2,316 large households lived in Rocklin in 2017, 27% of which were renter-households. Large households represented approximately 11% of households in the City.

Housing needs of large households are typically met through larger units which could reasonably accommodate large families without overcrowding. In 2013–2017, 55% of all ownership units and 12% of all rental units in Rocklin contained four or more bedrooms.

To address overcrowding, communities can provide incentives to facilitate the development of larger apartments and condominiums with three or more bedrooms for large households. A shortage of large rental units may also be alleviated through the provision of affordable ownership housing opportunities, such as first-time homebuyer programs and self-help housing (e.g., Habitat for Humanity), to move renters into homeownership. Financial assistance for room additions may also help to relieve overcrowding.

Persons with Disabilities

Persons with disabilities have special housing needs because of their generally fixed income, the lack of accessible and affordable housing, and the higher health costs associated with their disabilities. Disabilities are defined as mental, physical or health conditions that last over six months.

An estimated 9% of Rocklin's population had one or more disabilities in 2013–2017. Among those with disabilities, approximately 44% were seniors (65+), 48% were between 18 and 64 years of age, and 9% were under 18. Cognitive difficulties were the most common among persons under 18, whereas

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5 Overcrowding is defined and discussed in depth in the Housing Problems section.

ambulatory difficulties were the most common for persons aged 18 to 64. Around 54% of residents over age 65 reported ambulatory difficulties, and 50% reported hearing difficulties (Table 7-12).

TABLE 7-12: DISABILITIES TALLIED, 2013–2017

Age Group and Type of Disability	Number	Percent
Total Disabilities: Persons Under 18 years	454	9%
Hearing Difficulty	76	17%
Vision Difficulty	85	19%
Cognitive Difficulty	368	81%
Ambulatory Difficulty	0	0%
Self-Care Difficulty	41	9%
Total Disabilities: Persons 18 to 64 years	2537	48%
Hearing Difficulty	816	32%
Vision Difficulty	413	16%
Cognitive Difficulty	1055	42%
Ambulatory Difficulty	934	37%
Self-Care Difficulty	353	14%
Independent Living Difficulty	725	29%
Total Disabilities: Persons 65 years and over	2,348	44%
Hearing Difficulty	1,173	50%
Vision Difficulty	476	20%
Cognitive Difficulty	555	24%
Ambulatory Difficulty	1,270	54%
Self-Care Difficulty	536	23%
Independent Living Difficulty	1097	47%

Source: 2013–2017 American Communities Survey, S1810.

Several factors limit the supply of housing for persons with disabilities, including affordability, accessibility, location, and discrimination. The most obvious housing need for persons with disabilities is housing that is adapted to their needs. Most single-family homes are inaccessible to people with mobility and sensory limitations. Housing may not be adaptable to widened doorways and hallways, access ramps, larger bathrooms, lowered countertops and other features necessary for accessibility. The cost of retrofitting a home often prohibits homeownership, even for individuals or families who could otherwise afford a home. Location of housing is also an important factor for many persons with disabilities, as they often rely upon public transportation.

Various residential facilities in Rocklin serve those with disabilities. A total of two licensed adult residential care facilities with a total capacity of 12 beds and six adult day care facilities with a total capacity of 210

persons are located in the City. The City in partnership with service providers also offers housing rehabilitation programs that can be used to make accessibility improvements.

Persons with Developmental Disabilities

Senate Bill 812 (SB 812, Ashburn, 2010) requires the City to include in its analysis of "Special Needs Groups" the needs of those with a developmental disability within the community. According to Section 4512 of the Welfare and Institutions Code, "developmental disability" means a disability that originates before an individual attains 18 years of age, continues, or can be expected to continue, indefinitely, and constitutes a substantial disability for that individual. It includes intellectual disabilities, cerebral palsy, epilepsy, and autism. This term also includes disabling conditions found to be closely related to intellectual disability or to require treatment similar to that required for individuals with intellectual disabilities, but does not include other conditions that are solely physical in nature.

Many developmentally disabled persons can live and work independently within a conventional housing environment. More severely disabled persons require a group living environment where supervision is provided. The most severely affected persons may require an institutional environment where medical aid and physical therapy are provided. Because developmental disabilities exist before adulthood, the first issue in supportive housing for the developmentally disabled is the transition from the person's living situation as a child to an appropriate level of independence as an adult.

The California Department of Developmental Services (CDDS) currently provides community-based services to approximately 341,661 persons with developmental disabilities and their families through a statewide system of twenty-one regional centers, four developmental centers, and two community-based facilities. The Alta California Regional Center provides point of entry services for people with developmental disabilities within the counties of Alpine, Colusa, El Dorado, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo and Yuba. The center is a private, non-profit community agency that contracts with local businesses to offer a wide range of services to individuals with developmental disabilities and their families.

Table 7-13 provides information from the Alta California Regional Center, charged by the State of California with the care of people with developmental disabilities, defined as those with severe, life-long disabilities attributable to mental and/or physical impairments, and provides a closer look at the disabled population in the City of Rocklin.

Table 7-13: Developmentally Disabled Persons, by Age, for Rocklin Area Zip Codes

Rocklin Zip Codes*	0-17 Years	18+ Years	Total
95677	122	126	248
95765	208	116	324

Source: California Department of Developmental Services, June 2019.

There are a number of housing types appropriate for people living with a development disability: rent subsidized homes, licensed and unlicensed single-family homes, inclusionary housing, Section 8 vouchers, special programs for home purchase, HUD housing, and SB 962 homes. The design of housing-accessibility

modifications, the proximity to services and transit, and the availability of group living opportunities represent some of the types of considerations that are important in serving this group's need. Incorporating "barrier free" design in all new multifamily housing (as required by California and Federal Fair Housing laws) is especially important to provide the widest range of choices for disabled residents. Special consideration should also be given to the affordability of housing, as people with disabilities may be living on a fixed income.

In order to assist in the housing needs for persons with development disabilities, the City will implement programs to coordinate housing activities and outreach with the Alta California Regional Center, encourage housing providers to designate a portion of new affordable housing developments for persons with disabilities, especially persons with developmental disabilities, and pursue funding sources designated for persons with special needs and disabilities. This outreach and coordination will inform future programming to encourage the development of housing for persons with developmental disabilities.

Extremely Low-Income Households

Extremely low-income households are those that earn 30 percent or less of the median household income and are usually on the verge of homelessness. According to 2011–2015 ACS-based Comprehensive Housing Affordability Strategy (CHAS) data (Table 7-20), approximately 9 percent of households in Rocklin (1,930 households) fell into the extremely low-income category. Among these households, approximately 3% (635 households) were homeowners and 6% (1,295 households) were renters.

Lower-income (including extremely low income) households generally have a higher incidence of housing problems and tend to overpay for housing (paying 30 percent or more of their monthly income toward housing costs). Severely overpaying for housing is paying 50 percent or more of their monthly income toward housing costs. When looking at overpayment 7% of extremely low-income households (1,485 households) were overpaying and 6.3% were severely overpaying.

The City has included the following to assist extremely low-income households.

- Program 5: The Housing Choice Voucher Program extends rental subsidies to extremely low- and very low- income households, including families, seniors, and the disabled.

- Program 6: Promote the construction of affordable housing including ADU's in high resource areas and in areas that have a shortage of affordable housing to enhance mobility for low-income residents (including extremely low income) to access these neighborhoods.

- Program 13: Coordinate with the City of Roseville, the Roseville Housing Authority, County of Placer, and the Placer County Housing Authority to expand affordable housing opportunities and to meet the housing and supportive service needs of the homeless as strategies to reduce displacement risk for extremely low-, very low-, and low-income persons.

HOMELESS

The City of Rocklin has joined with Placer County and other Placer County cities, service agencies, and faith-based organizations to support and work as part of a collaborative effort through the Homeless Resource Council of the Sierras (HRCS) to address homeless needs and provide comprehensive services on a regional basis.

The HRCS conducts point-in-time counts every odd numbered year to identify the number of sheltered and unsheltered homeless in Placer County and utilizes the information in the preparation of the Placer County Continuum of Care. The count is only a snapshot, reflecting those persons identified as homeless on the day of the point-in-time count. Both shelter providers and HRCS members emphasized the fact that the homeless are nomadic, making it difficult to tie them with a specific jurisdiction.

The HRCS conducted a count of the regional homeless population in January 2020. The survey identified 67 homeless persons in the City of Rocklin, which represents 9% of all homeless community members in Placer County. This number was confirmed with the City's police department. A total of 48 persons (72%) of the City's homeless population were sheltered at the time of the survey and another 19 individuals (28%) were unsheltered. Children made up just under one third (32%) of homeless persons included in the count.

Many individuals and families move in and out of homelessness and shelters over the course of a year. Generally, three types of facilities provide shelter for homeless individuals and families: emergency shelters, transitional housing, and permanent supportive housing:

- **Emergency Shelter:** A facility that provides overnight shelter and fulfills a client's basic needs (such as food, clothing, and medical care) either on-site or through off-site services. The permitted length of stay can vary from one day to six months, depending upon whether the shelter is short-term or long-term.
- **Transitional Housing:** A residence that provides housing for up to two years. Residents of transitional housing are usually connected to rehabilitative services, including substance abuse and mental health care interventions, employment services, individual and group counseling, and life skills training.
- **Permanent Supportive Housing:** Permanent housing that is affordable in the community or service-enriched housing that is linked with on-going supportive services (on-site or off-site) and is designed to allow formerly homeless clients to live at the facility on an indefinite basis.

Although no transitional housing facility or emergency shelter is located in Rocklin, the Placer County Department of Health and Human Services Adult System of Care operates a transitional housing facility for homeless persons with mental health disabilities just outside of the City limits. Additionally, as described below, three organizations provide transitional housing and two other organizations operate emergency shelters for homeless persons in nearby Roseville.

- Home Start offers a transitional housing program for Placer County homeless children and their families. The program is one year in length. At the end of the year, families receive assistance in

finding suitable, affordable housing. The second year, families live independently but remain under supervision. Approximately 90% of the families that complete the program remain in permanent housing for at least two years. Home Start can accommodate 30 families (including 60-70 children) in their 27-unit, 99-bed facility located in Roseville.

- The Lazarus Project provides food, housing, clothing, guidance, counseling, education, job training, budgeting classes, parenting classes and access to health care for persons recovering from homelessness, unemployment, abuse, addictions, and physical and/or mental impairment. The agency operates four transitional housing units in Placer County with a maximum capacity of seventeen men and six women.

- Placer County's HEARTS (Housing, Employment, Assistance, Recovery, Treatment, and Success) program provides services for mentally ill persons who are homeless.

- The Gathering Inn is an ecumenical non-profit organization, assisted by more than 40 churches, serving the homeless in south Placer County. The organization collaborates with Rocklin, the County, and other jurisdictions to offer services to address the causes of homelessness. The Gathering Inn operates two intake centers, one in Roseville and one in Auburn, where homeless individuals have access to showers, clean clothes, healthcare, housing and employment opportunities. They board a bus or van and travel to one of the many hosting churches located in Rocklin and other locations throughout south Placer County. Host churches commit the use of their facilities on designated evenings to provide a safe and secure place for more than 185 homeless individuals and families across all facilities to receive dinner, sleep inside, and enjoy hospitality. Additionally, The Gathering Inn has recently used County grant funds to purchase homes in Rocklin and other neighboring jurisdictions to provide permanent supportive housing.

- Stand Up Placer serves Placer County and provides shelter for battered women and children and victims of domestic violence/sexual assault. Supportive services offered include crisis intervention, counseling, and food and clothing assistance.

A limited number of motel vouchers are also available to homeless individuals and families through the Placer County Department of Health and Human Services and the Salvation Army. Emergency food is available for the homeless or near homeless at First United Methodist and St. Mark's Anglican Episcopal churches in Loomis.

Farmworkers

Farmworkers are traditionally defined as persons whose primary incomes are earned through permanent or seasonal agricultural labor. Permanent farm laborers work in the fields, processing plants, or support activities on a generally year-round basis. When workloads increase during harvest periods, the labor

force is supplemented by seasonal labor, often supplied by a labor contractor. For some crops, farms may hire migrant workers.*6*

According to the 2013–2017 ACS, 311 Rocklin residents were employed in agriculture, forestry, fishing and hunting, and mining occupations – approximately 1% of the City's employed population. According to the 2017 USDA Agricultural Census, there were 277 farms in Placer County. However, according to the California Department of Conservation, Rocklin does not presently contain any important farmland. As such, the farmworker population in Rocklin is not expected to constitute a significant component of the City population.

The City has three rental housing projects developed specifically under Farmers Home Administration (FmHA) funding when farming was a more significant economic sector – Shannon Bay Apartments (50 units); Sunset Street Apartments (104 units); and Placer West Apartments (44 units). Up to 198 farmworker households and other low-income households may be accommodated in these projects.

HOUSING STOCK CHARACTERISTICS

This section addresses various housing characteristics and conditions that affect the well-being of Rocklin residents. Housing factors evaluated include: housing stock and growth, tenure and vacancy rates, age and condition, housing costs, and affordability, among others.

HOUSING GROWTH

Following the economic downturn of 2008, Rocklin's housing growth has picked up significantly. The total number of housing units in Rocklin increased 20% between 2010 and 2020. During that time, Rocklin's housing growth consistently outpaced countywide growth as well as growth experienced in most surrounding communities (Table 7-14). Much of the area's housing growth can be attributed in part to development of single-family homes in the Whitney Ranch, Spring Valley, and Whitney Oaks areas.

TABLE 7-14: HOUSING GROWTH, 2010-2020

Jurisdiction	2010	2020	2010–2020 % Change
Auburn	6,139	6,373	4%
Colfax	929	933	0%
Lincoln	17,457	19,275	10%
Loomis	2,465	2,557	4%
Rocklin	22,010	26,342	20%
Roseville	47,757	55,720	17%
Unincorporated	55,891	58,326	4%
Placer County	152,648	169,526	11%

Source: State of California, Department of Finance, E-5 Population Estimates for Cities, Counties, and the State, 2010–2020, Sacramento, California, May 2020.

6 Migrant farmworkers are defined as those whose commute for work prevents them from returning to their primary residence every evening.

Housing Type, Tenure, and Vacancy

Single-family detached homes comprised approximately 73% of Rocklin's housing stock in 2020, while multifamily structures with five or more dwelling units comprised another 18% (Table 7-15). Multifamily structures with two to four units, single-family attached units, and mobile homes represented a smaller, but important share of the City's overall housing stock. Most of the City's mobile homes are located in three parks: Rocklin Estates, Royal Oaks (55 and up), and Sierra Lakes Mobile Home Park.

Table 7-15: Housing Stock Characteristics, 2020

HOUSING TYPE					
Single-Family Detached	**Single-Family Attached**	**2-4 Units**	**5+ Units**	**Mobile Homes**	**Total Housing Units**
19,280	790	1,108	4,662	502	26,342
73%	3%	4%	18%	2%	100%

Source: State of California, Department of Finance, E-5 Population Estimates for Cities, Counties, and the State, 2010–2020, Sacramento, California, May 2020.

In terms of tenure, most householders in Rocklin are homeowners. In 2018, 66% of the City's households owned their homes, while 34% rented. The incidence of homeownership has stayed relatively stable since 2010, when 66% of Rocklin households owned their home.

Vacancy rate is a measure of the availability of and demand for housing in a housing market. The City's average vacancy rate for market-rate apartments was 4.3% in 2020, which is relatively low. Vacancy rates reported by the Census Bureau differed significantly by tenure. In 2018, the total number of vacant households in Rocklin was 835, of which 379 (45%) were rental units and 456 (55%) were for sale units.

A survey conducted by the City in 2020 found that the vacancy rate for market rate apartments (as opposed to all rental units which also include single-family homes, condominiums and townhomes, subsidized apartments, and other dwellings available for rent) was approximately 4.3% among the 26 market rate apartment complexes surveyed. In addition, nearly all of the publicly-assisted developments surveyed were fully occupied and had waiting lists, reflecting the significant need for affordable rental housing.

Housing Age and Condition

Housing age is an important indicator of housing condition and quality within a community. If not properly and regularly maintained, housing can deteriorate over time, discouraging reinvestment, depressing neighboring property values and eventually impacting the quality of life in a neighborhood. Thus, maintaining and improving housing quality is an important goal for the City.

Table 7-16 provides a breakdown of the housing stock by the year built. A general rule in the housing industry is that structures older than 30 years begin to show signs of deterioration and require reinvestment to maintain the quality. Unless properly maintained, homes older than 50 years require major renovations to remain in good working order. As of 2017, approximately 33% of housing units in Rocklin were over 30 years old and only 17% were over 50 years old. Just over two out of three Rocklin homes (67%) have been built

since 1990, reflecting a period of rapid growth of Rocklin between 1990 and 2009. Given that a majority of housing in the City has been constructed recently, the housing stock is generally in good condition.

TABLE 7-16: YEAR UNITS BUILT

Period Built	Number of Units	Percent
2014 or later	258	1%
Built 2010 to 2013	826	4%
Built 2000 to 2009	7,773	35%
Built 1990 to 1999	6,326	28%
Built 1980 to 1989	3,535	16%
Built 1970 to 1979	2,524	11%
Built 1960 to 1969	766	3%
Built 1950 to 1959	253	1%
Built 1940 to 1949	61	0%
Built 1939 or earlier	174	1%
Total	**22,496**	**100%**
30 years or older (approximately)	7,313	33%
50 years or older (approximately)	3,778	17%

Source: US Census, 2013–2017American Communities Survey (SACOG Housing Element Data Package).

Information provided through consultation with the City's lead Building Inspector and Code Compliance Officer has confirmed that the homes and multifamily residential units constructed since the 1990's have not had any significant structural issues and for the most part have been well maintained. Older housing stock in Rocklin has also been generally well-maintained in terms of structural integrity. There have not been any significant complaints or observations of severely dilapidated or substandard housing units. The City currently only has 3 open cases involving substandard housing units (two of which resulted from fire). This figure is representative of the limited number of cases typically experienced in the City on an annual basis.

The City issued 113 Building Permits for residential re-roof projects in calendar year 2020. Given Department of Finance estimates that there were 26,342 housing units in Rocklin, the number of re-roof permits issued indicates that only 0.04% of housing units in the City underwent this level of repair. In addition, the City's Housing Division did not receive any inquiries or requests regarding housing rehabilitation needs is 2020. This collective data, observations and experience supports the conclusion that the age and condition of housing stock in the City is not a significant issue.

In the 2013–2021 planning period, the City assisted one lower-income household with a low-interest home repair loan, which suggests that the City's housing stock is generally in good condition. The City currently partners with local agencies to provide rehabilitation activities through its Handyperson program.

Program 1 – the Handyperson program, which helps with eligible home repair activities including bathroom/kitchen repairs, bedroom additions to alleviate overcrowding, weatherization, electrical

upgrades, foundation and flooring repair, accessibility retrofitting, heating/air conditioning, plumbing repairs, and siding and roofing repairs.

Program 2 – Code Enforcement and Abatement, which is to preserve and maintain the livability and quality of neighborhoods.

Program 3 – Zoning Flexibility for Housing Rehabilitation, allows non-conforming dwellings to be rehabilitated so long as the non-conformity is not increased and no threat to public health and safety is identified.

HOUSING COSTS AND AFFORDABILITY

The cost of housing potentially causes housing problems in a community. If housing costs are relatively high in comparison to household income, there will be a correspondingly higher prevalence of cost burden and overcrowding. This section summarizes the cost and affordability of the Rocklin housing stock to residents.

SALES AND RENTAL SURVEY

Table 7-17 provides a summary of asking prices for condominiums and rental rates for apartments in Rocklin. Condominiums provide a somewhat more affordable homeownership alternative in Rocklin. However, only a limited number of market-rate condominium or townhome units (7) were listed for sale in September 2020, all three-bedroom homes.

Apartment rents vary by location as well as the quality and level of amenities available. According to an apartment survey conducted by City staff in 2020, the average asking rents for market-rate apartment units in Rocklin are as follows: $1,300 for a studio apartment, $1,453 for a one-bedroom unit, $1,692 for a two-bedroom unit, and $2,005 for a three-bedroom unit (Table 7-17). Based on these rents, rental housing on the market are affordable to moderate income households, as compared to the affordable housing costs later shown in Table 7-19.

According to the 2014–2018 American Community Survey, Rocklin's median home value ($452,000) was the highest of any jurisdiction in Placer County (Table 7-17). The countywide median home value over the same time period was $443,700. Among recent home sales, the median sale price in Rocklin was $525,000. This was the second-highest median sale price in the county, second to Loomis ($689,000). Current listing prices of new homes in Rocklin range from $422,990 to $1,249,000 and are affordable to moderate and above moderate-income households (Table 7-18).

TABLE 7-17: HOME SALES AND APARTMENT RENTS

Housing Type	Jurisdiction	Median Sales Price
Homes[1]	Auburn	$453,000
	Colfax	$379,000
	Lincoln	$481,000
	Loomis	$689,000

TABLE 7-17: HOME SALES AND APARTMENT RENTS					
Housing Type	**Jurisdiction**		**Median Sales Price**		
	Rocklin		**$525,000**		
	Roseville		$471,000		
	Placer County		$494,000		
	Bedrooms	**Units Listed**	**Range**	**Median**	**Average**
Condos[2]	3	7	$225,000 - $415,000	$269,000	$298,286
Apartment Rentals[3]	Studio	1	$1,300	$1,300	$1,300
	1	22	$950 - $1,990	$1,463	$1,453
	2	26	$1,200 - $2,275	$1,677	$1,692
	3	12	$1,650 - $2,500	$1,944	$2,005

Sources:

1. Zillow.com, Accessed September 2020.

2. Zillow.com, accessed 9/3/20.

3. Apartment Survey, Community Development Department, City of Rocklin, 2020.

Notes:

1. These calculations do not include utilities.

2. Some apartments are not included in this summary table because they are subsidized apartments and therefore their rents do not reflect prevailing market rents. Buildings with senior assisted living and memory care apartments are also not included.

The apartments included in this table are: Broadstone Apartments, Creekside Village Apartments, The Brightons, Emerald Pointe, Granite Creek, Granite Oaks, Hidden Grove, The Meridian at Stanford Ranch, Montessa at Whitney Ranch, The Oaks at Sunset, Edgewood, Rocklin Gold, Rocklin Manor, Rocklin Ranch, Shalico, Silver Oaks, Springview Oaks, Springview Rocklin, The Vue at Rocklin Ridge, Stanford Heights Apartments, Sunset Summit, Sutter Ridge, The Winsted, Woodstream, Garnet Creek, The James.

TABLE 7-18: SALES PRICES, 2020		
Home	**Price**	**Home Size/Type**
Wildcat Subdivision (AKA Durango)		
The Livingston	$422,990 (starting)	1,444 square-feet, 3-bed/2-bath
The Anderson	$444,990 (starting)	1,833 square-feet, 3-bed/2.5-bath
The Wyatt	$460,990 (starting)	2,008 square-feet, 4-bed/2.5-bath
The Walker	$464,990 (starting)	2,153 square-feet, 4-bed/3-bath
Whitney Oaks – Phase II-B Par 34 Unit 23A		
4370 Pebble Beach	$1,249,000	4,168 square-feet, 4-bed/4-bath
3808 Heather Court	$759,800	3,083 square-feet, 5-bed/3-bath
3011 Western Way	$674,500	2,899 square-feet, 5-bed/3-bath
Creekside at Whitney Ranch		

TABLE 7-18: SALES PRICES, 2020		
Home	**Price**	**Home Size/Type**
Whitney Ranch Unit 22	Upper $400Ks (starting)	2,310-3,430 square-feet, 3-7-bed
Westview at Whitney Ranch		
Residence 1	$699,990 (starting)	3,050 square-feet, 5-bed/4.5-bath
Residence 2	$634,990 (starting)	2,540 square-feet, 4-bed/3-bath
Residence 3	$604,990 (starting)	2,142 square-feet,3-bed/3-bath
Residence 4	$574,990 (starting)	1,913 square-feet,3-bed/2-bath
Canyon View (AKA Whitney Ranch Phase)		
Plan 1	High $600,000s	2,527 square-feet, 4-bed/3.5-bath
Plan 2	Low $700,00s	2,910 square-feet, 4-bed/3.5-bath
Plan 3	Mid $700,000s	3,493 square-feet, 6-bed/5-bath
Plan 4	Low $700,000s	3,381 square-feet, 6-bed/4-bath
Plan 5	Low $700,000s	2,790 square-feet, 4-bed/3.5-bath
Wild Oak at Whitney Ranch		
Residence 3	$789,990 (starting)	4,003 square-feet, 5-bed/4.5-bath
Residence 4	$924,990 (starting)	3,764 square-feet, 5-bed/4.5-bath
Residence 5	$729,990 (starting)	3,503 square-feet, 5-bed/4.5-bath
Residence 6	$799,990 (starting)	3,857 square-feet, 5-bed/4.5-bath
The Villas at Spring Valley (AKA Spring Valley Subdivision)		
Plan 1	$497,490 (starting)	2,205 square-feet
Plan 2	$516,490 (starting)	2,490 square-feet
Plan 3	$526,490 (starting)	2,657 square-feet
The Cottages at Spring Valley (AKA Spring Valley Subdivision)		
Plan 1	$444,990	1,794 square-feet
Plan 2	$455,990	1,966 square-feet
Plan 3	$478,990	2,111 square-feet
Plan 4	$486,990	2n249 square-feet
Granite Ridge (AKA Brighton Subdivision)		
Plan 1	$435,351	1,676 square-feet
Plan 4	$455,000	2,591 square-feet
The Overlook at Whitney Ranch		
Residence 1	$549,990 (starting)	2,492 square-feet, 5-bed/4-bath
The Ridget (AKA Whitney Ridge Phase II-D)		
Residence 1	$495,990	1,432 square-feet

TABLE 7-18: SALES PRICES, 2020		
Home	**Price**	**Home Size/Type**
Residence 2	$519,990	1,676 square-feet
Residence 3	$535,990	1,819 square-feet
Residence 4	$579,990	2,021 square-feet
Ironwood (AKA Whitney Ranch Units 41BC)		
Residence 1X	$535,000	2,433 square-feet
Residence 3	$555,000	2,704 square-feet
Park View		
Plan 1	$464,250	1,681 square-feet
Plan 2	$482,635	1,863 square-feet
Plan 3	$515,000	2,202 square-feet
Sources: Meritage Homes, 2020; Richmond America,2020; JMC Homes, 2020; New Home Company, 2020; Woodside Homes, 2020; KB Homes, 2020; CalAtlantic, 2020; Toll Brothers, 2020.		

HOUSING AFFORDABILITY

Housing affordability is dependent upon income and housing costs. Using set income guidelines, current housing affordability can be estimated. Housing affordability can be estimated by comparing the affordable housing cost of owning or renting a home in the City with the maximum affordable housing cost for households at different income levels. Together, this information can show who can afford what size and type of housing and which households are most likely to experience overpayment and overcrowding.

According to the HCD income guidelines for 2020, the Area Median Income (AMI) in Placer County was $86,300 for a four-person household. Assuming that the potential homebuyer has sufficient credit and down payment (3%) and spends no greater than 30% to 35% of their income on housing expenses (i.e., mortgage, taxes and insurance), the maximum affordable home price and rental price can be determined. The maximum affordable home and rental prices for residents of Placer County are shown in Table 7-19. Households in the lower end of each category can afford less by comparison than those at the upper end. The income-affordability of the housing stock for each income group is discussed below. These cost estimates are intended for general comparison purposes for the Housing Element. Actual cost calculations for participation in specific housing programs may use slightly different cost factors.

Affordability by Household Income: Table 7-19 shows the maximum amount that a household can pay for housing each month without exceeding the 30% income-housing threshold for cost burden. This amount can be compared to current housing asking prices (Table 7-17) to determine what types of housing opportunities a household can afford.

- **Extremely Low-Income Households:** Extremely low-income households earn 30% or less of the County area median income. Extremely low-income households cannot afford market rate rental or ownership housing in Rocklin.

- **Very Low-Income Households:** Very low-income households earn 31% to 50% of the County area median income. Given the costs of single-family homes and condominiums in Rocklin, very low-income households are limited to rental housing.

  Average apartment rents in Rocklin are as follows: $1,300 for a studio apartment, $1,453 for a one-bedroom unit, $1,692 for a two-bedroom unit, and $2,005 for a three-bedroom unit (Table 7-17). After deductions for utilities, a very low-income, one-person household at the maximum income limit can afford to pay up to $683 in rent per month, which would increase for larger household sizes. In practical terms, this means that a one-person household cannot afford an average priced one-bedroom apartment without assuming a cost burden. A large family (five or more persons) would have to use more than 30% of household income to afford an adequately sized rental unit. Thus, to live in Rocklin, very low-income households are most likely in need of government housing assistance, including Housing Choice Voucher program and other subsidized housing options.

- **Low-Income Households:** Low-income households earn 51% to 80% of the County's area median income. The affordable home price for a low-income household at the maximum income limit in 2020 ranges from $205,200 to $304,100. Based on the asking prices of homes and condominiums advertised for sale in September 2020 (Table 7-17), only a limited number of two-, three-, and four-bedroom units would be affordable to low-income households.

  After deductions for utilities, a low-income, four-person household can afford to pay up to $1,442 in rent per month. Single person households and small households could afford some one-bedroom and two-bedroom apartments identified in the City's 2020 Apartment Survey. Similarly, large low-income families could afford some three-bedroom units surveyed; however, these units are limited in supply and such families are likely to experience cost burden or double up to afford housing in the community.

- **Moderate Income Households:** Moderate income households earn 81% to 120% of the County's median family income. The maximum affordable home price for a moderate-income household in 2020 is $371,600 for a one-person household, $473,600 for a small (three-person) family, and $560,600 for a five-person family. One-person households and small families may be able to afford the two-bedroom and three-bedroom condominiums and some single-family homes on the market. Large families should be able to afford some three-, four-, and five-bedroom homes. However, the down payment and closing costs may prevent many households from achieving homeownership. With a maximum affordable rent payment of between $1,740 and $2,628 per month, moderate income households can afford the vast majority of apartment units listed for rent.

TABLE 7-19: HOUSING AFFORDABILITY MATRIX – PLACER COUNTY 2020							
Household	Annual Income[1]	Affordable Cost		Estimated Average Utility Allowance[2] Taxes & Insurance		Affordable Payment	
		Rental	Ownership	Renters	Owners	Rental	Ownership (Home Sale Price)
Extremely Low Income (0-30% AMI)							
1-Person	$18,150	$454	$454	$73	$164	$381	$66,600
2-Person	$20,750	$519	$519	$86	$190	$433	$75,500
3-Person	$23,350	$584	$584	$112	$229	$472	$81,500
4-Person	$26,200	$655	$655	$139	$270	$516	$88,400
5-Person	$30,680	$767	$767	$168	$321	$599	$102,300
Very Low Income (31-50% AMI)							
1-Person	$30,250	$756	$756	$73	$224	$683	$122,100
2-Person	$34,450	$861	$861	$86	$258	$775	$138,400
3-Person	$38,850	$971	$971	$112	$306	$859	$152,700
4-Person	$43,150	$1,079	$1,079	$139	$355	$940	$166,200
5-Person	$46,650	$1,166	$1,166	$168	$401	$998	$175,600
Low Income (51-80% AMI)							
1-Person	$48,350	$1,209	$1,209	$73	$315	$1,136	$205,200
2-Person	$55,250	$1,381	$1,381	$86	$362	$1,295	$233,900
3-Person	$62,150	$1,554	$1,554	$112	$423	$1,442	$259,700
4-Person	$69,050	$1,726	$1,726	$139	$484	$1,587	$285,100
5-Person	$47,600	$1,190	$1,190	$168	$406	$1,022	$304,000
Moderate Income (81-120% AMI)							
1-Person	$72,500	$1,813	$2,115	$73	$496	$1,740	$371,600
2-Person	$82,850	$2,071	$2,416	$86	$569	$1,985	$424,100
3-Person	$93,200	$2,330	$2,718	$112	$656	$2,218	$473,600
4-Person	$103,550	$2,589	$3,020	$139	$743	$2,450	$522,800
5-Person	$111,850	$2,796	$3,262	$168	$820	$2,628	$560,600
Assumptions: 2020 HCD income limits; Health and Safety code definitions of affordable housing costs between 30% (extremely low-, very low-, low-income, and moderate-income rental) and 35% (moderate-income ownership) of household income depending on tenure and income level; utility allowances from the Placer County Housing Authority (includes electric heating and cooking, other electric, air conditioning, electric water heating and refrigerator); approximately 20% of affordable cost for taxes and insurance; 3% down payment; and 3.5% interest rate for a 30-year fixed-rate mortgage loan. Taxes and insurance apply to owner costs only; renters do not usually pay taxes or insurance.							
Sources:							

TABLE 7-19: HOUSING AFFORDABILITY MATRIX – PLACER COUNTY 2020							
Household	Annual Income[1]	Affordable Cost		Estimated Average Utility Allowance[2] Taxes & Insurance		Affordable Payment	
		Rental	Ownership	Renters	Owners	Rental	Ownership (Home Sale Price)
1. State Department of Housing and Community Development 2020 Income Limits.							
2. Placer County, Utility Allowances for Rocklin – June 1, 2020.							

HOUSING PROBLEMS

When housing becomes unaffordable to residents in a community, two major issues emerge – overcrowding and overpayment. Overcrowding can lead to accelerated deterioration of the housing stock and infrastructure. Overpayment leaves households with limited income for other necessities from health care to home maintenance.

OVERCROWDING

For purposes of the Housing Element, a housing unit is overcrowded when occupied by more than one person per room, counting bedrooms, living and dining rooms but excluding bathrooms and kitchens. However, some State and Federal housing funding programs use a different definition of overcrowding – in these programs, a housing unit is considered overcrowded if it is occupied by more than two persons per bedroom plus one extra person.[7] In the analysis below, the definition of overcrowding is based on a threshold of more than one person per room is used.

Overcrowding occurs when housing costs are so high relative to income that families need to double up in a housing unit to afford rent and pay for other basic needs, such as food and medical care. Overcrowding tends to result in accelerated deterioration of homes, a shortage of parking, and additional traffic. Thus, maintaining a reasonable level of occupancy and alleviating overcrowding are critical to enhancing the quality of life in a community.

According to the 2012–2016 Department of Housing and Urban Development (HUD) Comprehensive Housing Affordability Strategy (CHAS) data, overcrowding was not a significant issue in Rocklin. The overall level of overcrowding in Rocklin was just over 1% (304 households) in 2012–2016. Overcrowding rates vary significantly by household income, type, and size. Generally, lower income households and large families exhibit higher levels of overcrowding.

7 For example, a two-bedroom unit is considered overcrowded if it has more than five occupants.

OVERPAYMENT

A household is considered "overpaying" for housing if it spends more than 30% of its income on housing costs (rent, mortgage, utilities, taxes, insurance). Overpayment (also known as cost burden) occurs when housing costs increase faster than income. Generally, housing costs in the greater Sacramento area have been relatively affordable in comparison to price levels in the San Francisco Bay Area. Nevertheless, home prices and rents are rising in Sacramento and surrounding counties, with overpayment likely to become an increasingly important issue, especially for lower and moderate-income households.

According to the 2011–2015 Department of Housing and Urban Development (HUD) Comprehensive Housing Affordability Strategy (CHAS) data, and shown in Table 7-20, 3,210 lower-income renter-households (15.1%) and 2,075 lower-income owner-households (9.8%) overpaid for housing in Rocklin. Among low-income households 1,735 renter-households (8.2%) and 1,390 owner-households (6.6%) severely overpaid (>50% of income towards housing costs).

In total, 8,155 households were overpaying in Rocklin, of which 20.6% were owner households, and 17.9% were renter households. Overpayment data indicate the situation is far worse for lower-income households. These numbers emphasize the affordability gap between market rents and affordable housing costs for lower-income households.

TABLE 7-20: OVERPAYMENT BY INCOME CATEGORY

Total Households Characteristics	Number	Percent of Total Households
Total occupied units (households)	21,210	100.0%
Total Renter households	7,310	34.5%
Total Owner households	13,900	65.5%
Total lower income (0-80% of HAMFI) households	6,740	31.8%
Lower income renters (0-80%)	3,820	18.0%
Lower income owners (0-80%)	2,920	13.8%
Extremely low-income renters (0-30%)	1,295	6.1%
Extremely low-income owners (0-30%)	635	3.0%
Lower income households paying more than 50%	3,125	14.7%
Lower income renter HH severely overpaying	1,735	8.2%
Lower income owner HH severely overpaying	1,390	6.6%
Extremely Low Income (0-30%)	1,335	6.3%
ELI Renter HH severely overpaying	885	4.2%
ELI Owner HH severely overpaying	450	2.1%
Income between 30%-50%	1,335	6.3%
Income between 50% -80%	455	2.1%
Lower income households paying more than 30%	5,285	24.9%
Lower income renter HH overpaying	3,210	15.1%
Lower income owner HH overpaying	2,075	9.8%
Extremely Low Income (0-30%)	1,485	7.0%

TABLE 7-20: OVERPAYMENT BY INCOME CATEGORY		
Total Households Characteristics	**Number**	**Percent of Total Households**
Income between 30%-50%	1,880	8.9%
Income between 50% -80%	1,920	9.1%
Total Households Overpaying	**8,155**	**38.4%**
Total Renter Households Overpaying	**3,790**	**17.9%**
Total Owner Households Overpaying	**4,365**	**20.6%**

Source: 2006-2015 CHAS Data Sets: https://www.huduser.gov/portal/datasets/cp.html#2011-2015_data.

ASSISTED RENTAL HOUSING

Housing that receives governmental assistance is often a significant source of affordable housing in many communities. Because of its significance, this section identifies publicly assisted rental housing in Rocklin, evaluates the potential of such housing to convert to market rates during a 10-year planning period (2021–2031),[8] and analyzes the cost to preserve those units.

ASSISTED HOUSING INVENTORY

Table 7-21 is an inventory of publicly assisted rental housing projects in Rocklin. A total of 1,097 assisted rental units are provided within 13 developments, including units assisted through a variety of federal programs. These programs include HUD Section 8 (project-based),[9] Section 236 (mortgage subsidy), Section 202 (mortgage subsidy), Section 515 (rural rental housing and rural cooperative housing), tax credits, bonds, and redevelopment set-aside funds.

LOSS OF ASSISTED HOUSING

Covenants and deed restrictions are the typical mechanisms used to maintain the affordability of publicly assisted housing, ensuring that these units are available to lower and moderate-income households in the long term. Over time, the City may face the risk of losing some of its affordable units due to the expiration of covenants and deed restrictions. As the relatively tight housing market continues to put upward pressure on market rents, property owners are more inclined to discontinue public subsidies and convert the assisted units to market-rate housing. No projects are at risk for losing their affordability during the 10-year period.

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8 *While the Housing Element covers an eight-year planning period, the analysis of housing at risk of converting to market-rate housing is required by State law to cover a ten-year period.*

9 *This is project-based Section 8 rental assistance that is tied to the units. It is different from the tenant-based Section 8 Housing Choice Vouchers which is portable with the voucher recipients. For example, a household assisted by the project-based Section 8 program will lose the rental assistance if he/she moves out of the assisted unit. However, a Section 8 voucher recipient can take the voucher and use it to rent different housing units as long as the owners are willing to accept it.*

TABLE 7-21: INVENTORY OF PUBLICLY ASSISTED RENTAL HOUSING					
Project Name	**Total Units**	**Assisted Units**	**Household Type**	**Funding Source(s)**	**Earliest Expiration of Affordability**
Placer West Apartments	44	43	Family	Section 515	2039
6055 Placer West Drive				Tax Credits	2064
Shannon Bay Apartments	50	49	Family	Section 515	2040
5757 Shannon Bay Drive				Tax Credit	2064
Sunset Street Apartments	104	102	Family	Section 515	2063
3655 Sunset Blvd.				Tax Credits	2038
Lyn-Roc Apartments	67	66	Elderly/ Disabled	Section 8	9/30/2038
6105 Sunset Blvd.				Tax Credits	2068
The Oaks at Sunset	112	111	Family	Tax Credit	2040
201 Sammy Way					
Quarry Oaks	43	42	Elderly	Section 202	10/1/2035
3950 Evelyn Avenue				Redevelopment	8/14/2045
Rolling Oaks Apartments	79	78	Elderly	Section 202	3/1/2037
5725 Shannon Bay Drive				Redevelopment	02/29/2046
Villa Serena	236	235	Elderly	Tax Credit	9/15/2053
101 Villa Serena Circle				Redevelopment	
Stanford Court	120	119	Elderly	Tax Credit	2058
3220 Santa Fe Way				Redevelopment	
College Manor Apartments	32	31	Family	Section 236(j)(1)	5/31/2028
4203 Racetrack Road				Tax Credits	11/1/2062
Hidden Grove	124	25	Family	Bonds	2030
5415 Grove Street					
Whitney Ranch Apartments	156	155	Family	Tax Credits	2064
711 University Avenue					
Rocklin Gateway	204	41	Family	Tax Credits	2072
4750 Pacific Street					
Total	1,371	1,097			
Sources: Department of Housing and Urban Development (HUD), Multifamily Assistance and Section 8 Contracts Database, October 2019; City of Rocklin, 2020.					

Preservation and Replacement Options

To maintain the existing affordable housing stock, the City must either preserve the existing assisted units or facilitate the development of new units. Depending on the circumstances of at-risk projects, different options may be used to preserve or replace the units. Preservation options typically include: (1) transfer of project to non-profit ownership; (2) provision of rental assistance to tenants using non-federal funding sources; and (3) purchase of affordability covenants. In terms of replacement, the most direct option is the development of new assisted multifamily housing units. These preservation and replacement options are described below.

Transfer of Ownership: Transferring ownership of an at-risk project to a non-profit housing provider, a for-profit housing provider or government programs are ways to ensure that the at-risk units remain affordable for the long term. By transferring property ownership to a non-profit organization, low-income restrictions can be secured indefinitely, and the project would become potentially eligible for a greater range of governmental assistance. Transferring ownership of buildings to nonprofit ownership is a potential strategy for preserving only those projects that are currently owned by for-profit entities. To generally estimate the cost to transfer ownership of these units, rental properties for sale in Rocklin were reviewed. According to two transactions in 2020, the average price of a rental unit was $217,500 and $282,500.[10]

Qualified Entities: Qualified non-profit entities that serve Placer County include:

- Volunteers of America
- ROEM Development Corporation
- Rural California Housing Corp.
- ACLC, Inc.
- Eskaton Properties, Inc.
- Affordable Housing Foundation

Rental Assistance: Rental subsidies using non-federal (State, local or other) funding sources can be used to maintain affordability of any future at-risk affordable units. These rent subsidies can be structured to mirror the federal Section 8 rental assistance program. Under Section 8 rental assistance program, HUD pays the difference between what tenants can pay (defined as 30% of household income) and what HUD estimates as the fair market rent (FMR) on the unit. In the 95677 and 95765 zip codes, the fair market rent (2021) is determined to be between $1,420 and $1,540 for a one-bedroom unit and between $1,790 and $1,940 for a two-bedroom unit.

10 According to an October 2020 survey via Realtor.com.

The feasibility of this alternative is highly dependent upon the availability of non-federal funding sources necessary to make rent subsidies available and the willingness of property owners to accept rental vouchers. Table 7-22 shows the approximate amount of voucher subsidy that would be required for households at the upper end of the very low-income range in the 95765 zip code.

TABLE 7-22: RENTAL SUBSIDIES REQUIRED

Unit Size	Fair Market Rent[1]	Household Size	Very Low Income (50% AMI)[2]	Affordable Cost – Utilities[3]	Monthly per Unit Subsidy
1-br	$1,540	2	$34,450	$775	$765
2-br	$1,940	3	$38,850	$859	$1,081
Total					

Source: HUD Fair Market Rents, 2020.

Notes:

1. *2021 Fair Market Rent (FMR) as determined by HUD, zip code 95765.*
2. *Placer County 2020 Area Median Household Income (AMI) limits set by the California Department of Housing and Community Development (HCD).*
3. *Affordable cost = 30% of household income minus utility allowance.*

Purchase of Affordability Covenants: Another option to preserve the affordability of the at-risk project is to provide an incentive package to the owner to maintain the project as affordable housing. Incentives could include writing down the interest rate on the remaining loan balance, and/or supplementing the Section 8 rent subsidy received to market levels and/or providing other financial incentives. The feasibility of this option depends on whether the complex is too highly leveraged. By providing lump sum financial incentives or ongoing subsides in rents or reduced mortgage interest rates to the owner, the City can ensure that some or all of the units remain affordable.

Construction of Replacement Units: The construction of new low-income housing units is a means of replacing the at-risk units should they be converted to market-rate units. The cost of developing housing depends upon a variety of factors, including density, size of the units (i.e. square footage and number of bedrooms), location, land costs, and type of construction. The statewide average cost to construct new multifamily housing was $222 per square foot as of 2018[11]. Including land costs, the total cost to develop replacement units will be even higher.

Cost Comparisons: The above general analysis attempts to estimate the cost of preserving the at-risk units under various options for purposes of comparing the magnitude of subsidies required. The upfront cost to provide rental assistance is the lowest among the various preservation options. However, a sustainable

11 Terner Center, University of California Berkeley. "The Hard Costs of Construction: Recent Trends in Labor and Materials Costs for Apartment Buildings in California". March 2020. http://ternercenter.berkeley.edu/uploads/Hard_Construction_Costs_March_2020.pdf

funding source must be available to maintain the subsidies in the long term. Transferring the projects to nonprofit ownership is less costly than new construction and probably has less impact on existing tenants. However, this option is only applicable to projects that are currently owned by for-profit entities. Depending on the market conditions and circumstances of individual projects, a combination of strategies may be necessary.

ASSESSMENT OF FAIR HOUSING

AB 686 requires that all housing elements due on or after January 1, 2021, must contain an Assessment of Fair Housing (AFH) consistent with the core elements of the analysis required by the federal Affirmatively Furthering Fair Housing (AFFH) Final Rule of July 16, 2015.

Under state law, AFFH means "taking meaningful actions, in addition to combatting discrimination, that overcome patterns of segregation and foster inclusive communities free from barriers that restrict access to opportunity based on protected characteristics."

The City has completed the following:

1. Conducted an Assessment of Fair Housing, which includes summary of fair housing issues, an analysis of available federal, state, and local data and local knowledge to identify, and assess the contributing factors for the fair housing issues. Prepared the Housing Element Land Inventory and Identification of Sites through the Lens of Affirmatively Furthering Fair Housing.

2. Included a Program that Affirmatively Furthers Fair Housing and Promotes Housing Opportunities throughout the Community for Protected Classes (applies to housing elements beginning January 1, 2019). (Program 14)

OUTREACH

In 2019, the City of Rocklin participated in a joint effort with other jurisdictions in the Sacramento Valley region to develop the Sacramento Valley Analysis of Impediments to Fair Housing Choice (AI) to guide actions that will guide the participating communities to overcome historic patterns of segregation, foster inclusive communities, and promote fair housing. The AI resulted in several goals and actions that the City is committed to pursuing. This Assessment of Fair Housing furthers the AI through a consistent process put forth by HCD.

During the development of the AI, extensive community engagement was conducted with residents and stakeholders across the Sacramento region to gather their experiences with fair housing. Engagement techniques included focus groups and subsequent in-depth interviews, "pop ups" at local events, and a resident survey. Resident focus groups targeted protected classes and groups who experience discrimination in housing, including African American and Hispanic residents, low-income families, residents with disabilities, and transgender residents. Stakeholder focus groups included those who work in housing, real estate, supportive services, education, transportation, advocacy, and more. While this engagement process included residents and stakeholders from across the region, the findings are representative of Rocklin as well.

Additionally, as discussed in the Public Participation section of the Housing Element, the City held a City Council workshop in September 2020 at which community members were encouraged to provide feedback and ideas on housing and housing programs in Rocklin. The workshop was publicized through publication of a notice in the local newspaper, a post on the City's website and a notice emailed directly to the Placer Collaborative Network, Placer Consortium on Homelessness (PCOH), non-profit list-serve groups, and interested parties who had requested to be updated on the Housing Element process. Community members and organization representatives expressed a desire to promote distributing affordable housing equally across the City and supported alternatives to promote affordable housing such as pre-approved ADU plans and ministerial approval of infill housing. Prior to the joint Planning Commission/City Council public hearing for the Housing Element Update Public Review Draft, the City sent notices to 16 organizations and all residents who had requested notice. The City has included Program 14 to ensure that community members are involved in the future of housing in Rocklin.

In addition to the AI outreach process and public workshops, the City conducted one-on-one consultation meetings with service providers and community organizations who serve special needs groups and other typically hard to reach groups during the outreach process. The purpose of these consultations was to solicit direct feedback on housing needs, barriers to fair and affordable housing, and opportunities for development from all community groups, not just those who are able to attend the public hearings and town halls. The primary concern raised by stakeholders included availability of affordable rental and for-sale housing to meet the needs of lower-income households and housing for special needs groups near services and resources.

Assessment of Fair Housing Issues

State Government Code Section 65583 (10)(A)(ii) requires the City of Rocklin to analyze areas of segregation, racially or ethnically concentrated areas of poverty, disparities in access to opportunity, and disproportionate housing needs including displacement risk. According to the 2020 TCAC/HCD Opportunity Area map, the City of Rocklin does not include any areas of high segregation or poverty, or areas of low access to resources. However, as seen in Figure 7-1, areas immediately south of the City, south of State Route 65, are areas of low resource. While the City does not have jurisdiction in or plan for housing for these areas, it is likely that some of these residents rely on Rocklin for services and it is possible that people that work in Rocklin live in these areas. As such, the City has taken a broader view than just the City limits when assessing fair housing issues.

Some of the indicators identified by TCAC and HCD to determine the access to opportunity include high levels of employment and close proximity to jobs, access to effective educational opportunities for both children and adults, low concentration of poverty, and low levels of environmental pollutants, among others. These indicator scores decrease as the level of designation decreases until "Low Resource" areas, which typically have limited access to education and employment opportunities and may have poor environmental quality. The City also individually analyzed several factors, described below, to assess patterns that may further fair housing issues and identify actions to combat these. The results of the AI have also been incorporated in this Assessment of Fair housing.

The City of Rocklin got its start in the 1860s as a destination on the transcontinental railroad before being incorporated in 1893 and the beginning of granite mining in the City and surrounding areas. During this time, the City experienced its first population growth and its first developed property: Spring Valley Ranch. Founded in 1855 just north of the center of Rocklin, Spring Valley Ranch included housing for employees on 30,000 acres and was later subdivided in the mid-1900s and sold to interested developers at the start of subdivision expansion from the City of Sacramento. Most of Rocklin's growth has occurred in the last 50 years, at the start of which low land costs and lower costs of living than in Sacramento attracted commercial and residential development. With several master plan areas including Stanford Ranch, Whitney Oaks, and Whitney Ranch, the City of Rocklin now has housing across its area with few remaining opportunities for large-scale development. This recent, rapid period of suburban growth has resulted in newer housing that is often more unaffordable and may explain existing patterns of overpayment and poverty. The resulting patterns are analyzed in detail in this Assessment of Fair Housing.

The City has conducted the following analysis of available data to assess local access to opportunities and indicators of fair housing issues, in addition to the designations provided by the TCAC/HCD Opportunity Areas map. Data for disability, poverty, familial status, was available at the census tract level, and data for rates of opportunity areas, overpayment, jobs proximity, and diversity were available at the block group level. The City has used the most localized level of data available for the analysis.

PATTERNS OF INTEGRATION AND SEGREGATION

During the AI process and analysis conducted as part of this Housing Element, the City assessed patterns of segregation with a focus on segregation based on disability, race and ethnicity, income, and familial status. The Analysis of Impediments included extensive surveying of residents in Rocklin, and throughout the region, and ultimately found that Rocklin has low rates of segregation compared to the region. However, patterns still emerge. While the City of Rocklin reflects many patterns found throughout Placer County, this is not indicative of the rest of the region. While there are many social and economic ties between Placer County and the rest of the region, most Placer County jurisdictions, including Rocklin, differ in their relatively high median incomes and home values and the limited availability of affordable housing. This analysis identifies many of the patterns that differ between Rocklin and other areas of the region.

As shown in Figure 7-2, the highest rate of households living below the federal poverty line was along Pacific Street in 2018. There is a higher percentage of Housing Choice Voucher recipients in this area than most of the City, though the highest concentration of voucher holders is in the area between Park Drive, Sunset Boulevard, Midas Avenue, and Whitney Boulevard. Across the SACOG region (counties of El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba and the 22 cities within) the pattern of poverty rates is similar to Rocklin and surrounding communities. There tends to be a higher concentration of poverty in downtown areas of jurisdictions, where housing is older or more expensive to maintain. While the AI process found that the rate of poverty in Rocklin was the lowest in the region, tied only with the City of Roseville, the distribution between low- and higher-income households increased between 2010 and 2016, meaning there is a greater income gap. This confirms that the rate of poverty in Rocklin is increasing, albeit remaining lower than the regional rate. The City of Rocklin has included several programs in the Housing Element to incentivize development of affordable housing in a variety of types to provide for

currently unmet needs and encourage property owners in high resource areas to accept Section 8 vouchers.

Since 1990, Rocklin has experienced a decline in the percent of the population that identifies as non-Hispanic White from 89% of the population to 75%, demonstrating an increase in diversity in recent history. During this time, the share of foreign-born residents doubled. Despite these shifts, Rocklin still remains less diverse than its regional neighbors to the west and reflects similar trends as other suburbs in the region. Across the SACOG region, jurisdictions west of the foothills of the Sierra Nevada mountain range tend to have higher rates of diversity. In the City of Sacramento and Yolo and Sutter counties there are areas where the majority of residents identify as Hispanic, in contrast to most of the eastern portion of the region, including Rocklin, that is predominantly non-Hispanic White. Figure 7-3 shows the diversity index in Rocklin, which is higher than rural and semi-rural Placer County communities but significantly lower than the City of Sacramento and surrounding communities. Additionally, while there are no racially or ethnically concentrated areas of poverty in Rocklin, the areas with higher rates of poverty in the city are also those with a larger share of the minority population. The City will monitor fair housing complaints to ensure that there are not increased rates of discrimination based on race in these areas and will work with fair housing advocates to identify ways to promote integration (Program 14).

Rocklin has historically been highly family-oriented, a pattern that still exists today. As shown in Figure 7-4, Rocklin and the surrounding areas are dominated by families with children. Across the SACOG region, the majority of households in suburban communities and most incorporated areas are married couples with children, like Rocklin. The percent of households with children decreases in more rural and unincorporated areas; but the SACOG region is dominated by married-couple households, with the City of Sacramento being the only community not dominated by married-couple households. The dominance of single-family development and the presence of families does not inherently suggest segregation based on familial type, but the low rate of vacancy (3.73% overall, 5.1% for rental units, and 0.90% for ownership units in 2018) and dominance of single-family development may present a barrier to households and families seeking other housing options. The City will work with developers to promote and incentivize the development of a variety of housing types to meet the needs of all current and future residents (Programs 7, 9, and 21).

As discussed in the Household Characteristics section of the Housing Element, approximately 9% of Rocklin's population has at least one disability, and 44% of those individuals were seniors. In 2014, there was a higher percent of persons with a disability in the area south of Pacific Street between State Route 65 and Rocklin Road. This has since diminished, and the concentration of this population has been distributed more evenly across the City. In contrast, the percent of the population with a disability, and areas of higher concentration, has remained stable across the SACOG region over time. Overall, the City of Rocklin has a lower percent of the population with a disability compared to the region. In 2018, 8.2% of Rocklin residents had at least one disability, compared to 10.0% of the City of Roseville's population, 10.7% of Placer County residents, 11.8% of City of Lincoln, 12.1% of City of Sacramento, and 16.1% of Citrus Heights residents.

ACCESS TO OPPORTUNITY

Twenty-one Rocklin elementary, middle, and high schools were highly ranked in a statewide ranking of 2016 California Assessment of Student Performance and Progress (CAASPP) test scores listed on School-Ratings.com. Of the 21 Rocklin schools, 9 were ranked in the 90th percentile when compared to similar schools across the state, 7 were ranked in the 80th percentile, and the remaining 5 were ranked in the 70th percentile. The AI confirmed the quality of Rocklin schools finding that there were no disparities in school quality between low- and higher-income neighborhoods and that there were no differences in access to school by race or ethnicity. The AI determined that Rocklin residents were some of the most likely in the region to have access to proficient schools across the whole city. As shown in Figure 7-5, almost all areas of the city are located within 1-mile of a highly ranked school. The two areas showing a lack of close proximity to school are an area covered by the Sierra College campus and the undeveloped area around Clover Valley Creek.

In addition to close access to proficient schools, the AI found residents of the City of Rocklin to be some of the most likely in the region to have access to an economically strong neighborhood. As shown in Figure 7-6, most Rocklin neighborhoods are in close proximity to jobs. The 2014-2018 ACS reported that residents of Rocklin have a slightly shorter commute than the County average, 26.3 minutes for Rocklin compared to 27.4 for Placer County. Additionally, Rocklin residents have shorter commutes than most similarly sized and suburban communities including Granite Bay (29.8 minutes) and Lincoln (29.6 minutes), and a similar commute time to residents of Roseville (26.1 minutes). The areas of higher poverty in Rocklin still have close access to jobs, which suggests that either the cost of housing or the type of available jobs for these residents, or both, have resulted in increased poverty, rather than the overall jobs.

Rocklin residents are served by Placer County Transit Agency (PCT), which provides bus service to and from Sacramento in addition to connections to Sacramento Regional Transit (RT) stations. The Sierra College – Lincoln Route runs through Rocklin to provide connections to the Sierra College campus, Westfield Galleria Mall, Rocklin Commons, and Rocklin Crossings shopping centers. The route primarily follows Sunset Boulevard through the City, with a short detour onto Stanford Ranch Road to S. Whitney Boulevard before reconnecting with Sunrise Boulevard to Pacific Street. While this provides connection to residents on the main thoroughfares, the route provides little access within residential neighborhoods. Residents surveyed for the AI expressed concerns about the availability of public transit in the region, both in frequency of service and routes. The City will (Program 14) continue to work with PCT to expand marketing and awareness of Citywide Dial-A-Ride services which are available to the general public and assess demand and feasibility for expanded transportation routes. If feasible based on anticipated fare box recovery standards, etc., the City will seek funding to support expansion of existing services or the creation of new transportation options, to connect all residents of Rocklin to their desired jobs, schools, and other resources and opportunities.

To meet the needs of the population with disabilities in Rocklin, there are two licensed adult residential care facilities and six adult day care facilities in the city. Additionally, residents are served by Access in Motion, a medical transportation service for seniors and individuals with mobility limitations for non-emergency medical transportation, Dial-A-Ride, a transportation service provided by Placer County Transit, and Placer Rides a no cost transportation service for non-emergency medically related appointments. The City also requires new developments to comply with Title 24 of the California Building

Code to ensure that all new construction meets accessible design standards, thus ensuring that all new housing is accessible for all residents regardless of disability. Additionally, the City ensures that older housing that may not meet the same accessibility requirements can be adapted as needed through their reasonable accommodation process, discussed in the Governmental Constraints section of this Housing Element, and assistance with rehabilitations (Programs 1 and 3).

DISPROPORTIONATE HOUSING NEED AND DISPLACEMENT RISK

As discussed in the Needs Assessment section of the Housing Element, overcrowding is not a significant issue in Rocklin, with approximately 1.7% of households living in overcrowded situations in 2018. However, overcrowding is more common among renters (3.8%) than among homeowners (1%). The California Health and Human Services Agency (CHHS) does not report any areas of the city where overcrowding is more common, supporting the AI finding that overcrowding is lower than the regional average and there are no patterns of disproportionate need for larger housing units.

Unlike overcrowding, overpayment for housing is a significant issue in Rocklin, especially among renters. (Figure 7-7). Approximately 47% of all renters are overpaying for housing, impacting renters in nearly all neighborhoods. The area with the lowest rate of overpayment among renters is largely undeveloped and includes Rocklin High School. While homeowners across the City are also overpaying for housing, the issue is to a lesser degree and is more concentrated in the Whitney Oaks neighborhood. The rate of overpayment among homeowners has declined over the years, as shown between Figure 7-8 and 7-9, unlike among renters which has remained stable. The pattern of overpayment for both renters and homeowners in Rocklin is similar to surrounding suburban communities and reflects a lack of affordable housing across the region. Despite similar patterns to the region, Rocklin residents reported a higher than the regional average concern about rent increasing to an unaffordable amount, but a lower than regional average concern about being able to afford a down payment. This discrepancy highlights the difference between affordability between renters and homeowners in Rocklin. However, a survey of residents for the AI found that there is a 10-percentage point gap between Hispanic and non-Hispanic White homeowners, that mortgage loan denial rates are higher for minority groups, and that households that include a member with a disability are half as likely as a non-disability household to own a home in the region. Thus, there is a disproportionate need for affordable and accessible homeownership opportunities in the City for certain populations and a risk of displacement for renters who are overpaying for housing. In order to address affordability gaps, the City has included Programs 5, 6, and 9 to provide materials to property managers on the benefits of subsidized units, to meet with developers to identify opportunities for affordable rental housing, and to develop a targeted program to promote development of missing middle housing types to provide lower and moderate-income residents with affordable homeownership and rental options within the City.

In addition, issues presented by overpaying for housing and inequitable access to funding, housing condition can present a safety concern for residents living in substandard housing in need of repairs. Approximately two-thirds of housing units in the City of Rocklin were constructed since 1990; typically, housing that is less than 30 years old is less likely to be in need of repairs or rehabilitation. However, given the median home value of $452,000 and median income of $97,508 in Rocklin, it is assumed that most homeowners have the means to complete ongoing repairs to maintain the value of their homes. While this suggests that the overall condition of housing in Rocklin is good, the AI found that approximately one-

third of households in the Sacramento region that include a member with a disability live in a home that does not meet their needs. While the results of this survey for the AI are not isolated to Rocklin, it can be assumed that at least some low-income households in the City may be living in substandard conditions. However, as of January 2021 the City's Code Compliance Officer indicated that there are currently only 3 open cases regarding substandard residential units in the City and two of the three were the result of fire. This data suggests that substandard housing units is not a significant issue in the City at this time.

ENFORCEMENT AND OUTREACH CAPACITY

The City proactively addresses any potential fair housing issues that may arise as a result of development standards and city policies through ongoing review of land use policies, permitting practices, and building codes to ensure compliance with state and federal fair housing laws, including reviewing and amending specific definitions and zone districts as necessary, most recently in 2011, 2017, and 2020. In addition, the City will encourage development of housing for lower-income households and special needs groups (Policy 2.3).

Additionally, the City's Community Development Department has, and will continue to, refer fair housing questions and discrimination complaints to the California Department of Fair Employment and Housing, Legal Services of Northern California, and the Fair Housing Hotline Project (Program 14).

Legal Services of Northern California (LSNC), the only civil legal aid office for Placer County, assists low-income and senior residents in the City of Rocklin who face housing discrimination and other issues. On August 2020, the Auburn office provided information on fair housing issues in Placer County. LSNC staff expressed that the most common complaint they receive across Placer County is regarding a lack of affordable housing. Paired with a surge in suburban development, these factors result in segregated communities due to a lack of accessibility for many low-income residents. Other complaints they receive regarding fair housing include refusal to rent, discriminatory treatment, and termination of tenancies by landlords, predominantly due to the residents' income class and income source (i.e., Section 8 Vouchers). While income is often a driving factor in many fair housing cases, LSNC also reports that they receive a significant number of disability discrimination cases, often alleging a refusal to grant reasonable accommodation requests. LSNC confirmed that these issues are not isolated to Rocklin and are experienced by residents across their service area.

In their *2019 Annual Report*, the California Department of Fair Employment and Housing (DFEH) reported that they received eight housing complaints for residents of Placer County, less than 1% of the total number of cases in the state that year (934). As part of the Fair Housing Assistance Program (FHAP), DFEH dual-files fair housing cases with HUD's Region IX Office of Fair Housing and Equal Opportunity (FHEO); the FHEO reported 14 housing discrimination cases filed by residents of Rocklin between January 1, 2013 and September 1, 2020, roughly two per year. These cases included discriminatory refusal to rent, failure to make reasonable accommodations, discriminatory terms, and other discriminatory acts. The number of cases reported is extremely low overall but does provide a snapshot of discrimination cases that exist as many may go unreported or are referred to other agencies. Of the 14 cases filed, the most common alleged bases of discrimination were disability and familial status (Table 7-23).

TABLE 7-23: BASES FOR HOUSING DISCRIMINATION CASES IN ROCKLIN		
Basis	**Number**	**Percent**
Disability	5	35.7%
Familial Status	5	35.7%
Race	2	14.3%
National Origin	2	14.3%
Religion	0	0.0%
Retaliation	2	14.3%
Sex	0	0.0%
Color	0	0.0%
Total Cases	14*	100.0%
Source: HUD Region IX Office of Fair Housing and Equal Opportunity, 2020.		
**Some cases alleged multiple bases; therefore, the number of alleged bases exceeds the total number of cases.*		

None of these fair housing agencies, LSNC, DFEH, or FHEO, were able to provide specific location information for cases either because they do not track the geographic origin of complaints or due to confidentiality concerns. Therefore, the City was unable to conduct a spatial analysis of fair housing cases to identify any patterns or concentrations of fair housing issues in the city. Program 14 has been included to work with fair housing enforcement organizations and agencies to track issues and identify patterns in the city.

In addition to information from fair housing agencies, the City sought to gather public input on fair housing issues. In order to do this, the City assisted with extensive community engagement as part of the AI development process with residents and stakeholders across the Sacramento region. Residents of Rocklin reported higher ratings for healthy neighborhood indicators than the regional average and lower than average rates of concern about retribution by landlords for repair requests, neighborhood crime rates, concerns about their housing conditions, and fear of eviction. Overall, Rocklin residents reported fewer experiences with fair housing issues or limited access to resources than other jurisdictions in the region.

SITES INVENTORY

The City examined the opportunity area map prepared by the TCAC and HCD (Figure7-11). The opportunity area map identifies areas in every region of the state whose characteristics have been shown by research to support positive economic, educational, and health outcomes for low-income families—particularly long-term outcomes for children.

Using the statewide opportunity area map and indicators of segregation, displacement risk, and access to opportunity as overlays to the City's sites inventory, the City was able to identify if the sites identified in the inventory to accommodate the lower-income RHNA disproportionately concentrate these units or increase patterns of segregation. As shown in Figures 7-11, 7-12 and 7-13, the City has distributed the

sites for lower-income units across the city and has integrated them with the sites for moderate- and above moderate-income units along Pacific Street. Most sites for lower-income units are located with a half-mile of the public transit route and integrated into neighborhoods with high median incomes, increasing the potential for mixed-income communities and a variety of housing types to meet the needs of both family and non-family households.

As found in this assessment of fair housing issues, while disproportionate need for affordable and accessible housing exists in Rocklin, there are not any segregated areas of concentrated need. Therefore, the City's plan to integrate sites for lower-income units throughout multiple neighborhoods presents an opportunity to provide affordable housing to residents across the City and provide housing within a close proximity to resources. Based on the findings of this assessment, the City is confident that the sites identified will combat any emerging patterns of income segregation or disproportionate need. Additionally, the program actions identified throughout the assessment will result in proactive measures to ensure that all residents of Rocklin are provided equal access to safe, affordable housing near jobs, schools, and other resource needs.

Contributing Factors to Fair Housing Issues

The AI development process and assessment of fair housing identified several barriers to fair housing in Rocklin and throughout the Sacramento region, including the following:

Factors that Contribute to Fair Housing Issues		
AFH Identified Fair Housing Issues	**Contributing Factors**	**Meaningful Actions**
Displacement of residents due to economic pressures	Unaffordable rents and home prices Costs of rehabilitation or repair Shortage of affordable housing units	Collaborate with neighboring cities and organizations to promote affordable housing (Program 13) Analyze the feasibility of implementing an affordable housing impact fee (Program 19) Incentivize the development of affordable housing (Program 6) Offer assistance with repair and rehabilitation needs (Program 1) Encourage housing preservation, conservation, and

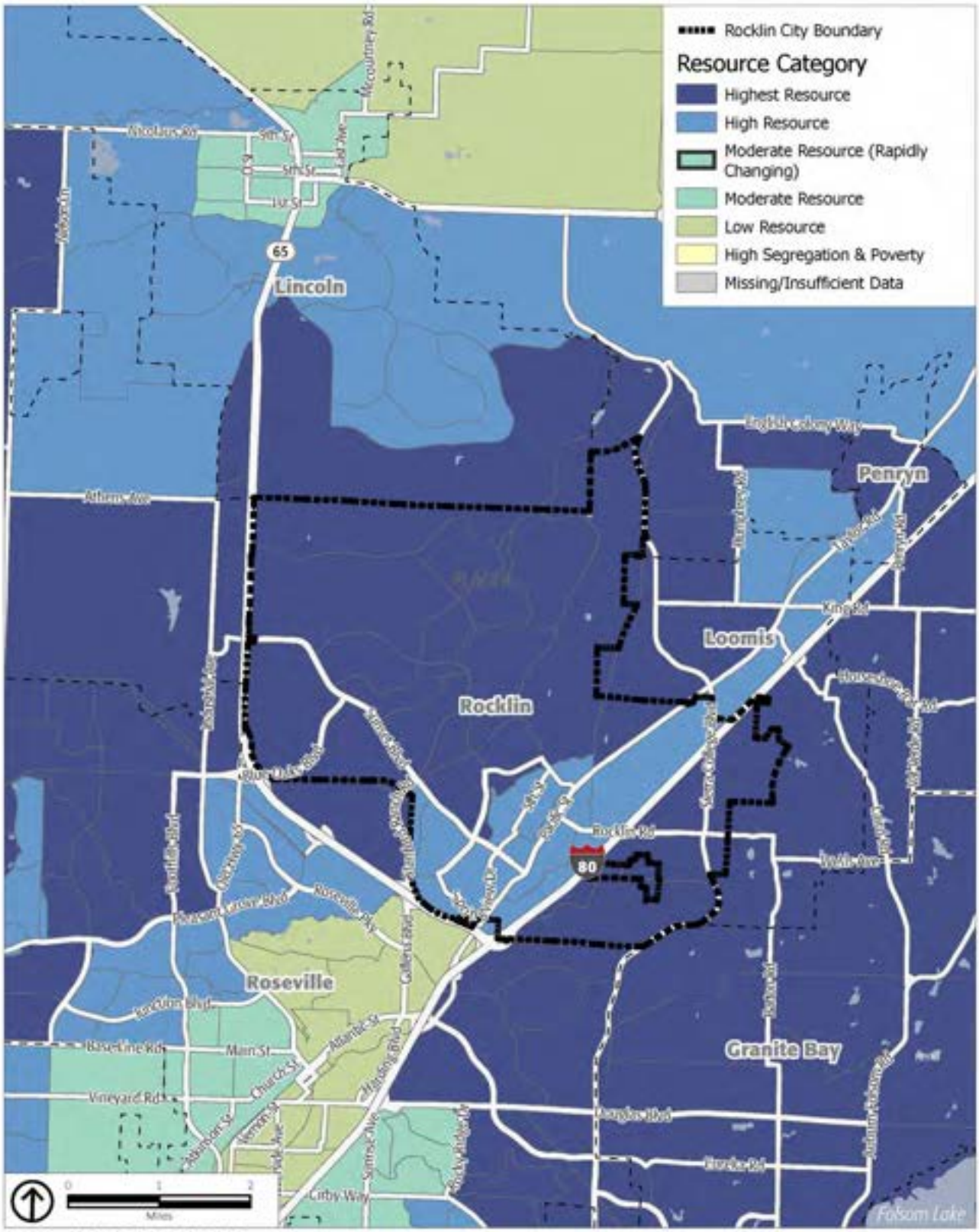
Factors that Contribute to Fair Housing Issues		
AFH Identified Fair Housing Issues	**Contributing Factors**	**Meaningful Actions**
		acquisition rehabilitation (Program 2)
Higher cost of housing than many areas in the region	Relatively new housing stock Dominance of low-density zoning and land uses Shortage of funding to support development of affordable housing Lack of regional coordination to address housing issues	Consider allowing higher density development in single-family zones (Program 9) Promote a variety of housing types, including ADUs (Programs 7 and 9) Market Housing Choice Vouchers to households in other areas of the region (Program 5) Provide additional incentives, beyond assistance identifying funding, for affordable housing (Program 6) Preserve existing affordable housing stock (Program 4) Work with neighboring jurisdictions and regional organizations to expand affordable housing (Program 13)
Limited variety of housing types to meet a range of needs	Historic market demand for single-family development	Promote the construction of "missing middle" housing types (Program 9) Encourage development of multifamily housing in high resource areas (Program 14) Encourage construction of ADUs (Program 7)

Factors that Contribute to Fair Housing Issues		
AFH Identified Fair Housing Issues	**Contributing Factors**	**Meaningful Actions**
Displacement of residents due to access to services	Shortage of housing for special needs group Limited transit availability within residential neighborhoods resulting in reduced mobility, especially for lower-income households	Encourage housing mobility by creating an affordable housing database (Program 4) Assist with pre- and post-moving counseling, housing search assistance and guidance about neighborhood features (Program 5). Work with service providers to identify opportunities for additional housing for special needs groups and require developers to prepare an affirmative marketing plan (Program 14). Work with transit agencies to market and promote awareness of the existing citywide Dial-A-Ride service that is available to the general public. Assess demand for and opportunities to invest in active transportation to revitalize disconnected neighborhoods and provide increased service between neighborhoods and job centers to improve residents' access to employment (Program 14) The City will annually track the demographics of the people benefiting from low- and moderate-income housing assets to ensure they are equitably distributed and focus funds in areas of high

Factors that Contribute to Fair Housing Issues		
AFH Identified Fair Housing Issues	**Contributing Factors**	**Meaningful Actions**
		opportunity or in areas at risk of displacement (Program 24).

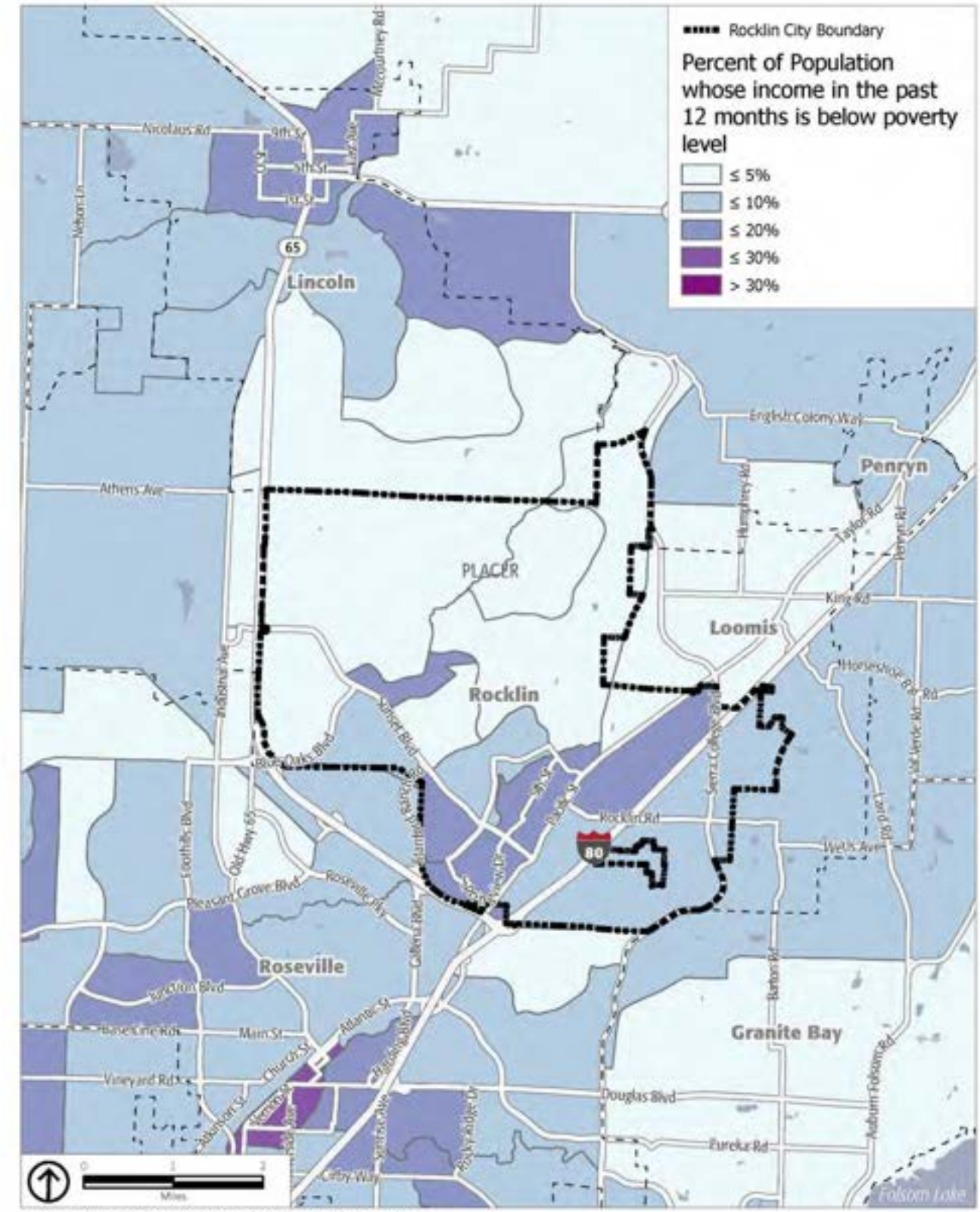
Through the analysis of impediments, the City found that there are no neighborhoods in Rocklin that are more burdened by environmental health issues, poor educational opportunities, or limited economic resources than others. Residents across the City have relatively equal access to the resources that provide fair housing and opportunity for success in life. However, the City has identified the lack of affordable housing options for both renters and owners and access to transportation as priorities to combat fair housing issues. The City has included actions to address these factors, and all issues identified in this assessment, throughout the Housing Element programs and policies. In addition to including actions in all programs, Program 14 has been included to affirmatively further fair housing, per AB 686, and take meaningful actions that, taken together, address significant disparities in housing needs and in access to opportunity for all groups protected by state and federal law. Regional coordination efforts outlined in Program 13 will ensure that the City of Rocklin furthers patterns of integration and development of affordable housing in such a way that it will have a positive impact on residents of the city and region.

FIGURE 7-1 – TCAC/ HCD OPPORTUNITY AREAS



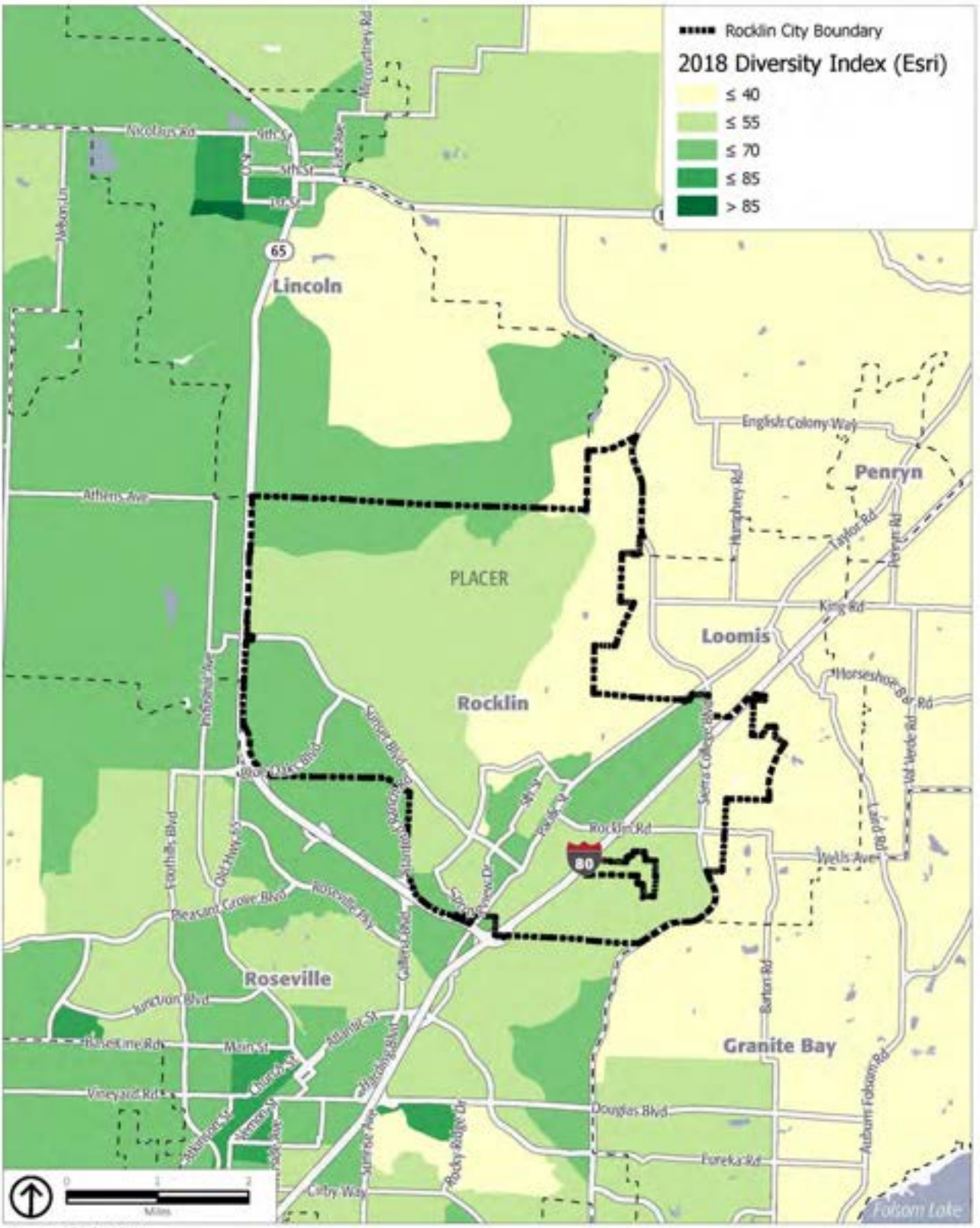
Source: HCD, 2018; Esri, 2018.

FIGURE 7-2 POVERTY STATUS



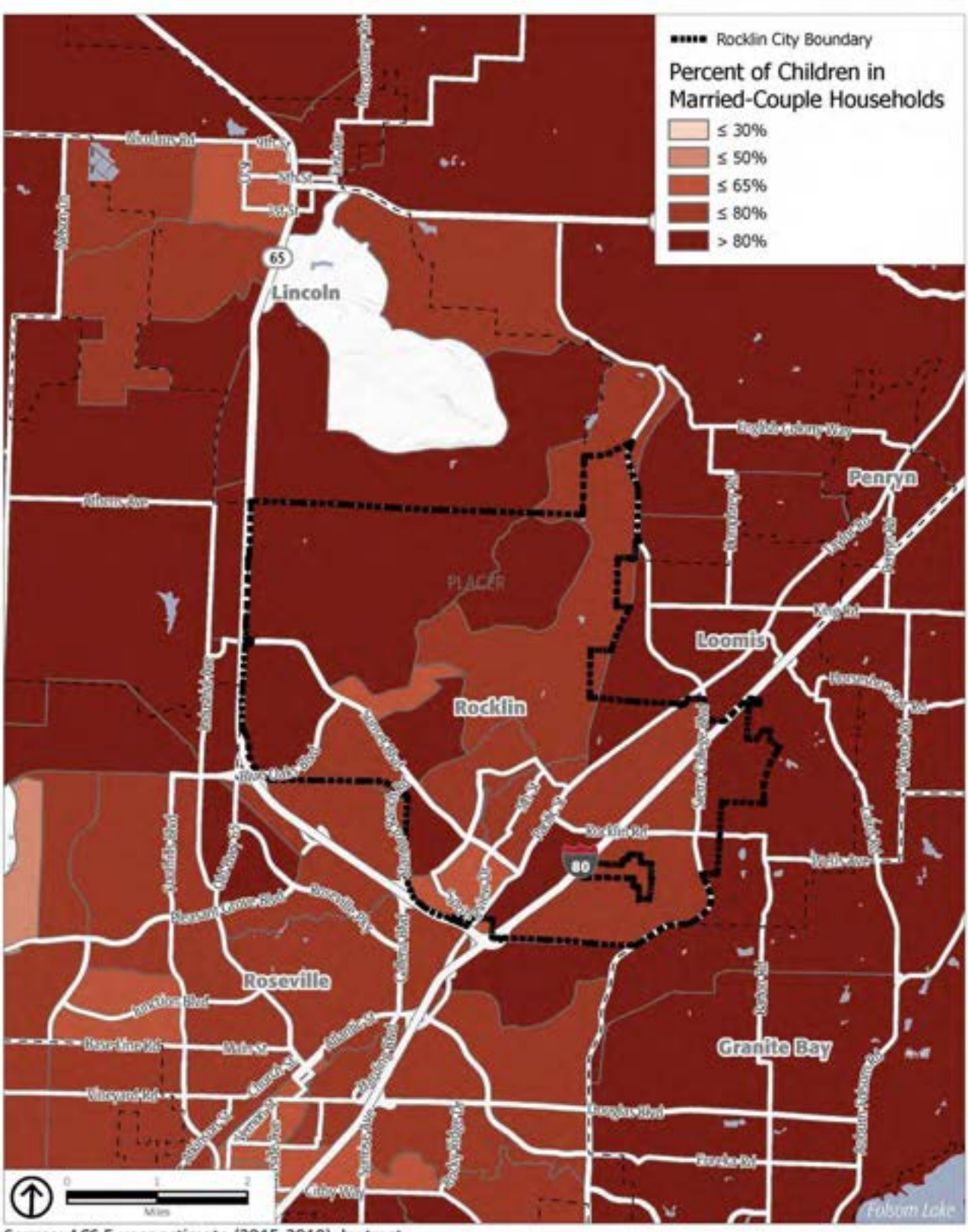
Source: ACS 5-year estimate (2015-2019), by tract

FIGURE 7-3 DIVERSITY INDEX



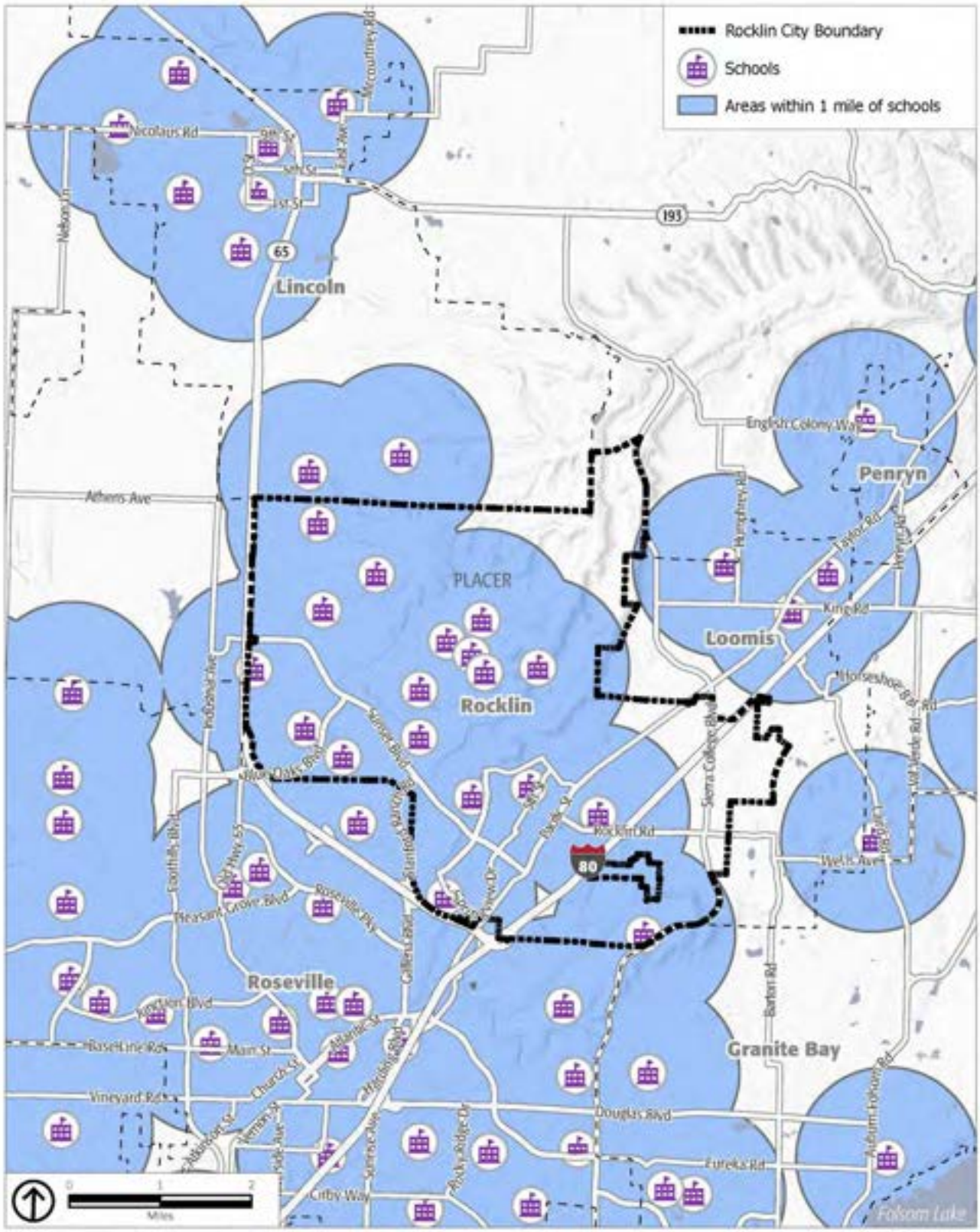
Source: Esri, 2018.

FIGURE 7-4 PERCENT OF CHILDREN IN MARRIED COUPLE FAMILIES



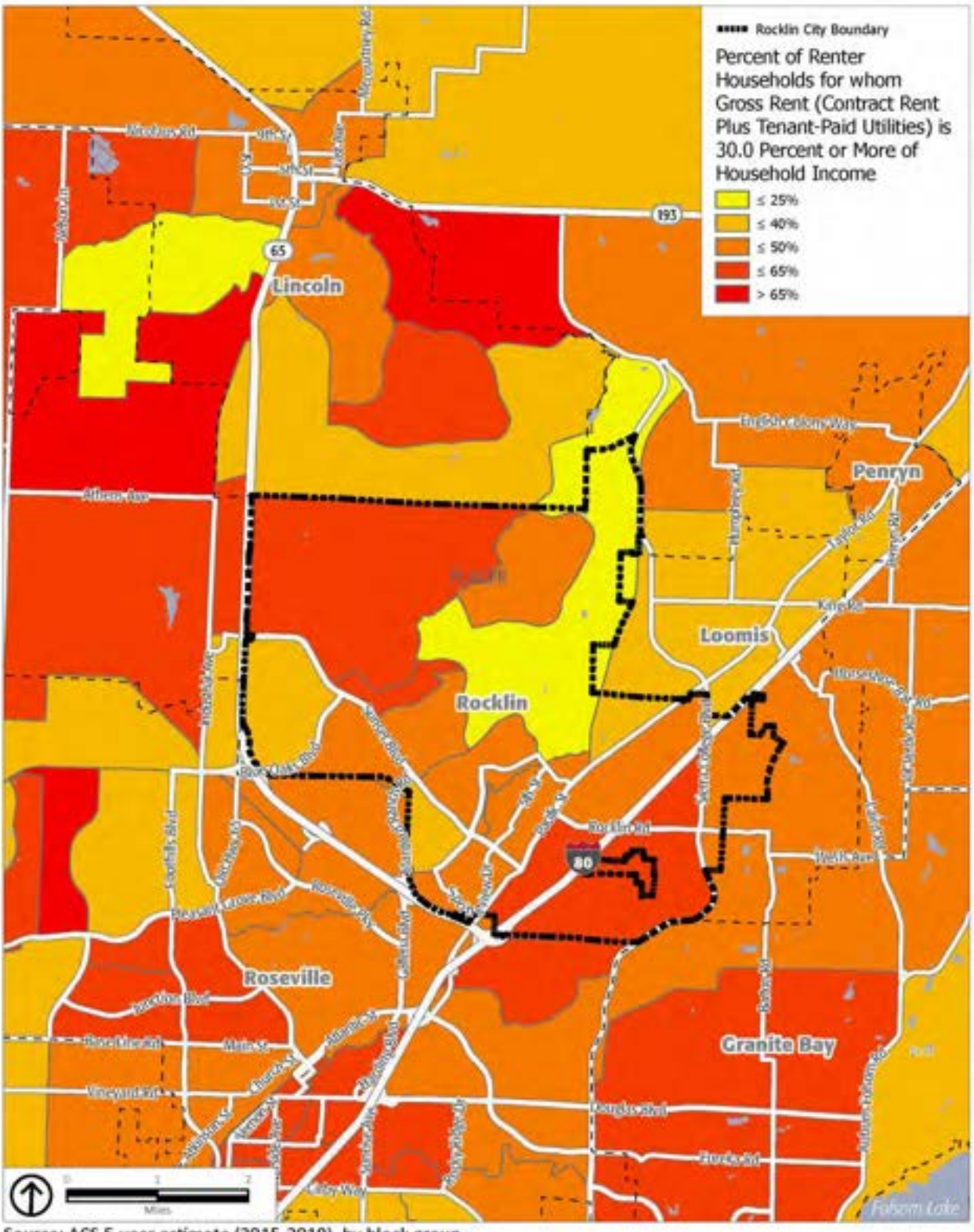
Source: ACS 5-year estimate (2015-2019), by tract

FIGURE 7-5 SCHOOLS WITH ONE MILE BUFFER



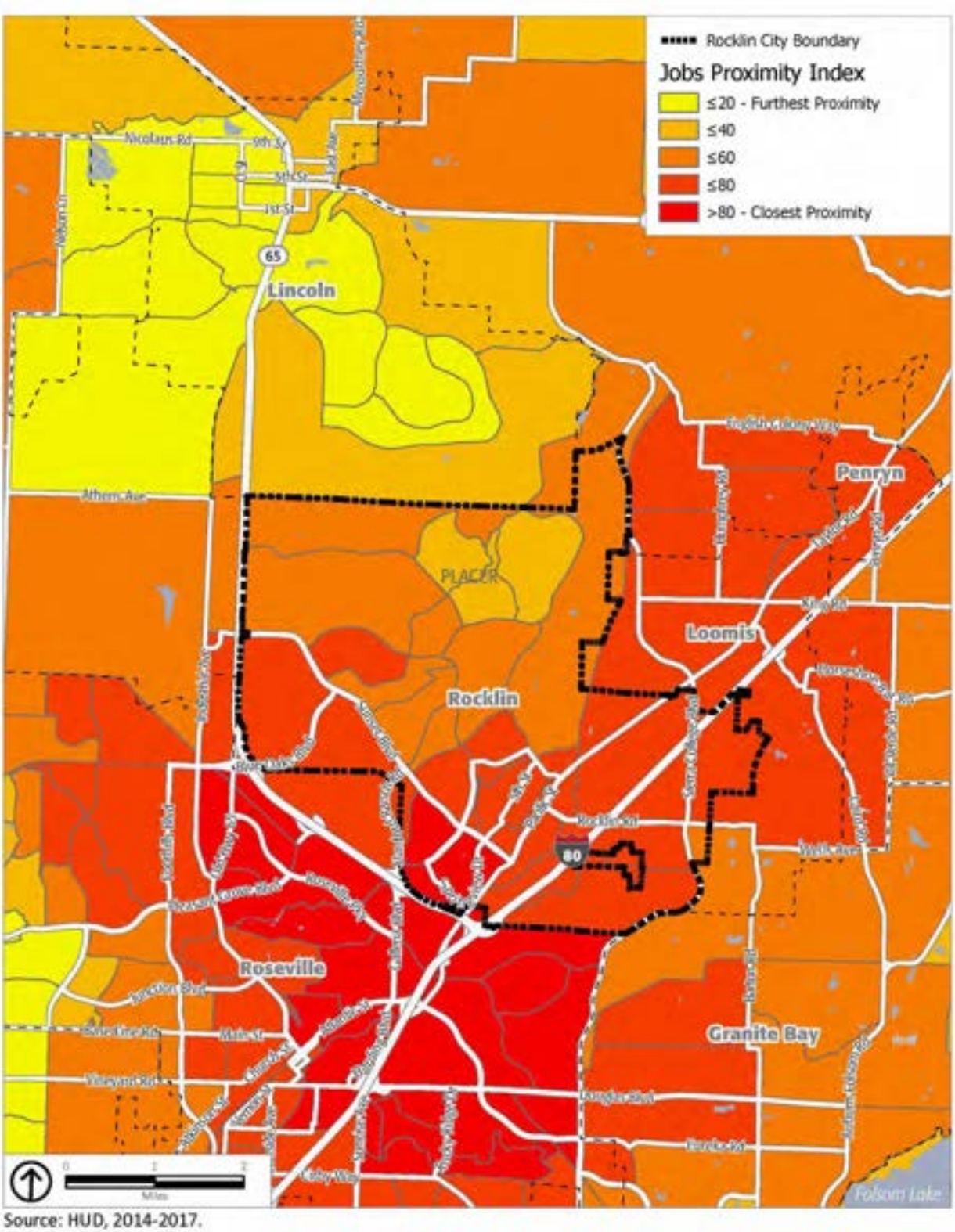
Source: California School Campus Database, 2016.

FIGURE 7-6 OVERPAYMENT BY RENTERS



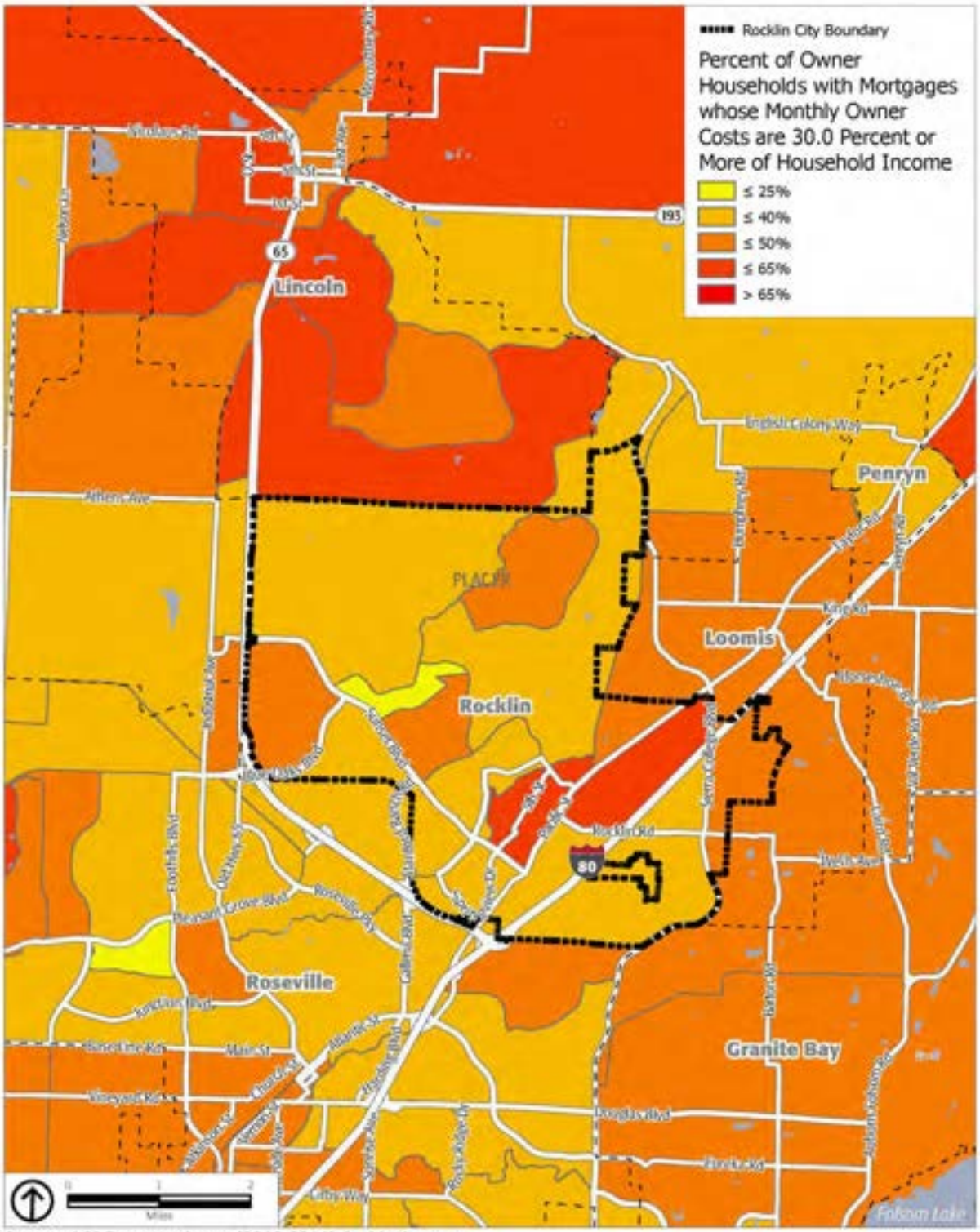
Source: ACS 5-year estimate (2015-2019), by block group

FIGURE 7-7 JOBS PROXIMITY



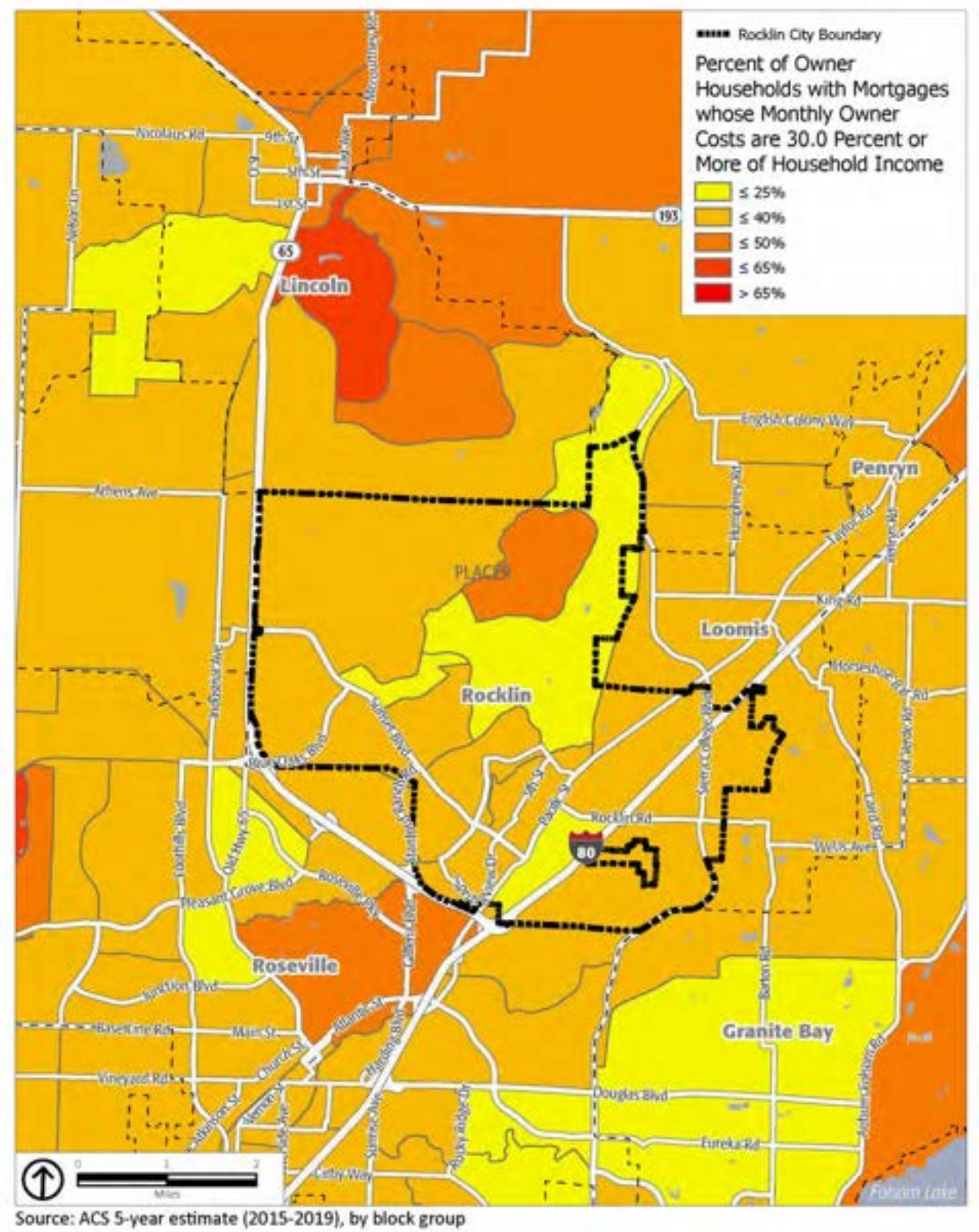
Source: HUD, 2014-2017.

FIGURE 7-8 OVERPAYMENT BY OWNERS (2010-2014)



Source: ACS 5-year estimate (2010-2014), by block group

FIGURE 7-9 OVERPAYMENT BY OWNERS (2015-2019)



Source: ACS 5-year estimate (2015-2019), by block group

REGIONAL HOUSING NEEDS

Rocklin has both existing and future housing needs. Existing needs are quantified in terms of the number of households with housing problems (as defined below). Future needs refer to the community's anticipated housing need between 2021 and 2029, as determined by the City's allocated share of future housing anticipated to be needed as determined by the State Department of Housing and Community Development (HCD) and methodology approved by the Sacramento Area Council of Governments (SACOG).

EXISTING HOUSING NEED

A continuing priority for the community is to enhance or maintain the quality of life. One measure of quality of life is the extent of "housing problems" that exist. The Comprehensive Housing Affordability Strategy (CHAS) developed by the Census for HUD provides detailed information on housing needs by income level for different types of households in Rocklin. Detailed CHAS data from 2012–2016 is displayed in Table 7-24. Housing problems considered by CHAS include:

- Units with physical defects (lacking complete kitchen or plumbing);
- Overcrowded conditions (housing units with more than one person per room);
- Housing cost burden (overpayment), including utilities, exceeding 30% of gross income.

Housing assistance needs are defined as having 1 or more of 4 housing unit problems (lacks kitchen, lacks plumbing, more than 1 person per room, or cost burden greater than 30%) The CHAS data concerns the housing assistance needs of all income category households (extremely low, very low, low, moderate and above moderate-income households). The types of problems vary according to household income, type, and tenure. Some highlights include:

- Of all households with housing problems, more were owner-occupied (54%) than renter-occupied (46%).
- Above moderate-income owner households had the highest incidence of housing problems (19%).
- Above moderate and low-income households had approximately the same rate of housing assistance needs (23%). Among above-moderate income households, these were primarily owners, and among low-income households renters represented a higher share.

TABLE 7-24: HOUSING ASSISTANCE NEEDS, 2012–2016						
Household by Type and Income	**Renters**		**Owners**		**Total Households**	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Extremely Low Income (0-30% AMI)	995	13%	590	8%	1585	21%
Very Low Income (31-50% AMI)	900	12%	775	10%	1675	22%
Low Income (51-80% AMI)	1,005	13%	755	10%	1760	23%
Moderate Income (81-100% AMI)	350	5%	500	7%	850	11%
Above Moderate Income (100% + AMI)	315	4%	1,485	19%	1800	23%
Total Households	3,565	46%	4,105	54%	7670	100%
Source: Department of Housing and Urban Development (HUD), Comprehensive Housing Affordability Strategy (CHAS), 2012–2016.						

FUTURE HOUSING NEEDS

Future housing need refers to the share of the regional housing need that has been allocated to the City. The State Department of Housing and Community Development (HCD) provides a regional housing goal number to SACOG, which is then distributed into four income categories. SACOG is then mandated to develop appropriate methodology and allocate the numbers to city and county jurisdictions in the region. In allocating the region's future housing needs to jurisdictions, SACOG is required to take the following factors into consideration pursuant to Section 65584 of the State Government Code:

- Market demand for housing;
- Employment opportunities;
- Availability of suitable sites and public facilities;
- Commuting patterns;
- Type and tenure of housing;
- Loss of units in assisted housing developments;
- Over-concentration of lower-income households; and
- Geological and topographical constraints.

SACOG completed its Regional Housing Needs Plan (RHNP) in March 2020. The RHNP addresses housing issues that are related to future growth in the region. The RHNP allocates to each city and county a "fair share" of the region's projected housing needs by household income group. The Plan covers an 8-year period.

The major goal of the RHNP is to assure a fair distribution of housing among cities and counties, so that every community provides an opportunity for a mix of housing affordable to all economic segments. This share of regional housing needs is known as Regional Housing Needs Assessment (RHNA). RHNA targets are not building requirements, but goals for each community to accommodate through appropriate planning policies and land use regulations. RHNA targets are intended to assure that adequate sites and zoning are made available to address anticipated housing demand during the planning period and that market forces are not inhibited in addressing the housing needs of all economic segments of a community.

The RHNA allocates future (construction) needs by each income category in a way that meets the State mandate to reduce the over-concentration of lower-income households in one community versus another community. According to the RHNP, Rocklin's RHNA is a total of 5,661 new units for the 2021 to 2029 period. This allocation is distributed into five income categories, as shown in Table 7-25.

TABLE 7-25: HOUSING NEEDS FOR 2021–2029

Income Category (% of County AMI)	Number of Units	Percent
Extremely Low (30% or less) *	955	17%
Very Low (31 to 50%)	956	17%
Low (51 to 80%)	1151	20%
Moderate (81% to 120%)	771	14%
Above Moderate (Over 120%)	1,828	32%
Total	**5,661**	**100%**

Source: Final Regional Housing Needs Plan, SACOG, 2020.

*Note: * The City has a RHNP allocation of 1,911 very low-income units (inclusive of extremely low-income units). Pursuant to State law (AB 2634), the City must project the number of extremely low-income housing needs based on Census income distribution or assume 50% of the very low-income units as extremely low. Using the 50% assumption method, the City's RHNP allocation of 1,911 very low-income units may be split into 955 extremely low and 956 very low-income units. However, for purposes of identifying adequate sites for the RHNP allocation, State law does not mandate the separate accounting for the extremely low-income category.*

7-3 CONSTRAINTS

Land costs, construction costs, and market financing can potentially hinder the production of new residential projects. Although many factors limiting housing production are market driven, jurisdictions have some control in instituting policies and programs to address the constraints or limiting factors.

MARKET CONSTRAINTS

DEVELOPMENT COSTS

Construction costs vary widely according to the type of development, with multifamily housing generally less expensive to construct than single-family homes. However, there is wide variation within each construction type, depending on the size of unit and the number and quality of amenities provided, such as fireplaces, swimming pools, and interior fixtures among others. Land costs are one of the major components of housing development costs. Data gathered from Zillow.com in October 2020 indicates that land in Rocklin rages from $195,000 for 0.16 acres to $2,500,000 for 13.9 acres (Table 7-26).

TABLE 7-26: LAND COSTS

Acres	Listing Price	Price per Acre
12	$850,000	$70,833
0.25	$216,000	$864,000
13.9	$2,500,000	$179,856
0.16	$195,000	$1,233,725
1.2	$299,000	$249,167

Source: Zillow.com, October 2020.

MORTGAGE AND REHABILITATION FINANCING

The availability of financing affects a person's ability to purchase or improve a home. Under the Home Mortgage Disclosure Act (HMDA), lending institutions are required to disclose information on the disposition of loan applications by the income, gender, and race of the applicants. This applies to all loan applications for home purchases, improvements and refinancing, whether financed at market rate or with government assistance.

Table 7-27 summarizes the disposition of loan applications submitted to financial institutions for home purchase, refinance, and home improvement loans within the Placer County in 2017[12]. Included is information on loan applications that were approved and originated, approved but not accepted by the applicant, denied, withdrawn by the applicant, or incomplete. An originated application is one that is approved by lender and accepted by the applicant.

12 The most current HMDA data available at the writing of this report was 2017.

TABLE 7-27: DISPOSITION OF HOME LOANS, PLACER COUNTY, 2017								
Disposition	Home Purchase				Refinances		Home Improvement	
	Government-Backed		Conventional					
	#	%	#	%	#	%	#	%
Approved, Originated	1828	74%	5764	73%	6,531	58%	944	62%
Approved, Not Accepted	81	3%	321	4%	351	3%	62	4%
Denied	208	8%	695	9%	1902	17%	311	20%
Withdrawn	306	12%	890	11%	1937	17%	166	11%
Incomplete	37	2%	177	2%	611	5%	41	3%
Total	**2460**	**100%**	**7847**	**100%**	**11332**	**100%**	**1524**	**100%**
Source: Home Mortgage Disclosure Act (HMDA) data, accessed October 2020.								

HOME PURCHASE LOANS

In 2017, a total of 7,847 households applied for conventional loans to purchase homes in Placer County. The overall loan origination rate was 74% and 9% of applications were denied. 2,460 applications were submitted for the purchase of homes in Rocklin through government-backed loans (e.g. FHA, VA) in 2017. To be eligible for such loans, residents must meet the established income standards and the home prices must not exceed a certain limit. This was during the time in which home prices and interest rates were low. Among applications for government-backed home purchase loans in 2017, 1828 were originated (74%), 81 (3%) were approved but not accepted by the applicant and therefore not originated, 208 were denied (8%), and 306 were withdrawn (12%). Conventional loans for home purchases were more common but had a similar origination rate, with 5,764 (73%) loans originated in Placer County and 695 (9%) denied.

REFINANCE LOANS

Relatively low interest rates and a high prevalence of interest only, adjustable rate, and balloon payment mortgages led Placer County residents to file 11,332 applications for home refinance loans in 2017. Over half (58%) of these applications were originated, while another 17% were denied.

HOME IMPROVEMENT LOANS

A larger proportion of Rocklin applicants were denied for home improvement loans than any other type of loan. Although 20% of applicants were denied, 62% were originated by lending institutions in 2017. The large proportion of home improvement loan denials may be explained by the nature of these loans. Whereas the common home equity line of credit is secured by equity in a home, most home improvement loans are unsecured loans and can be riskier for lenders.

FORECLOSURES

Under the false assumptions that refinancing to lower interest rates would always be an option and home prices would continue to rise at double-digit rates, many homeowners found the value of their homes drop below the balance of their mortgages after the US housing bubble burst in 2006. Homeowners found it difficult to take advantage of lower interest rates through refinancing. Suddenly faced with significantly inflated mortgage payments, and mortgage loans that are larger than the worth of the homes, many had to resort to foreclosing their homes.

In October 2020, 24 homes for sale in Rocklin were listed as foreclosures or pre-foreclosure properties.[13] These homes were listed at various stages of foreclosure (from loan defaults, auction properties and bank owned homes) and ranged in price from $273,730 to $772,650. The moderate to high prices of these homes facing foreclosure indicate that the impact of foreclosure extends not only to lower and moderate-income households, but also households with higher incomes.

GOVERNMENTAL CONSTRAINTS

Local policies and regulations can impact the price and availability of housing and in particular, the provision of affordable housing. Land use controls, site improvement requirements, fees and exactions, permit processing procedures, and various other issues may present constraints to the maintenance, development and improvement of housing. This section discusses potential governmental constraints in Rocklin.

LAND USE CONTROLS

The Land Use Element sets forth City policies for guiding local land use development. These policies, together with existing zoning regulations, establish the amount and distribution of land allocated for different uses. Tale 7-28 shows the land use categories in Rocklin that permit residential uses.

TABLE 7-28: LAND USE CATEGORIES PERMITTING RESIDENTIAL USE

General Plan Land Use Category	Zoning District(s)	Density (Units per Acre)	Character
Rural Residential	RE-1, RE-2, RA-3, RA-5, RA-10, PD	Maximum 1	Large lot rural residential area on parcels ranging from one to ten acres.
Low Density Residential	R1-12.5, R1-15, RE-20, RE-30, RE-30 NH, RE-1, PD	1 to 3.4	Residential estate areas on parcels ranging from 12,500 square feet to one acre.
Medium Density Residential	R1-5, R1-6, R1-7.5, R1-10, R1-12.5, PD	3.5 to 8.4	Areas where single-family residential structures do not exceed two stories in height or cover more than 40% of the site.

13 Foreclosure.com, accessed October 2, 2020

TABLE 7-28: LAND USE CATEGORIES PERMITTING RESIDENTIAL USE			
General Plan Land Use Category	**Zoning District(s)**	**Density (Units per Acre)**	**Character**
Medium High Density Residential	R-2, R-3, PD	8.5 to 15.4	Areas where multifamily residential structures generally do not exceed two stories (although special consideration can be given for 3 or more stories) and are in close proximity to commercial and public facilities.
High Density Residential	R-3, PD	15.5+	Areas of multiple family development in close proximity to commercial and public facilities, arterial and collector streets and other intensive uses.
Mixed Use	PD-MU, MU (HDR), RHDR, PD	10 to 40	Areas where non-residential (i.e., office, retail, service, civic, cultural, entertainment and other similar uses) are permitted to be mixed and typically include medium high density to high density residential land uses within the same building, lot, block or designated project.
Source: Land Use Element, City of Rocklin General Plan, 2012.			

RESIDENTIAL DEVELOPMENT STANDARDS

The City regulates the type, location, density, and scale of residential development primarily through the Zoning Ordinance. Zoning regulations are designed to protect and promote the health, safety, and general welfare of residents as well as implement the policies of the General Plan. The Zoning Ordinance also serves to preserve the character and integrity of existing neighborhoods. The Ordinance sets forth specific residential development standards, which are summarized in Table 7-29. The parking requirements are indicated in Table 7-30.

Generally, development standards can limit the number of units that may be constructed on a particular piece of property. These include density, minimum lot and unit sizes, height, and open space requirements. By limiting the number of units that could be constructed, the per unit land costs would necessarily be higher and, all other factors being equal, result in higher development costs that could impact housing affordability.

Overall, development standards in Rocklin are comparable to similar communities. However, parking requirements for apartments, condominiums, and townhomes may be higher than typically required. To facilitate affordable housing development, the City offers a variety of incentives, including reduction/waiver of garage parking requirements. Specifically, for apartment and triplex units that are affordable to lower income households, the requirement for one covered space per unit and visitor parking is waived at the request of the applicant. The City does not have a specific Density Bonus

ordinance but defers to Government Code Section 68915(d). Pursuant to State Density Bonus law projects meeting the requirements of the Density Incentive Program are eligible to receive density increases, use of State parking standards, and may also receive additional regulatory concessions.

TABLE 7-29: RESIDENTIAL DEVELOPMENT STANDARDS

Zoning District	Maximum Building Height (ft.)	Minimum Net Lot Area (sq.ft.)		Minimum Lot Width (ft.)		Setbacks (ft.): Front, Rear, Interior Side, Street Side	Maximum Lot Coverage
		Interior	Corner	Interior	Corner		
RE-1	30	1 ac	1 ac	150	150	50, 50, 20, 30	20-25[1]%
RE-2	30	2 ac	2 ac	200	200	50, 50, 20, 30	10-15[1]%
RA-3	30	3 ac	3 ac	3:1[2]	3:1[2]	50, 50, 50, 50	10,000-10,500[1] SF
RA-5	30	5 ac	5 ac	3:1[2]	3:1[2]	50, 50, 50, 50	10,000-10,500[1] SF
RA-10	30	10 ac	10 ac	4:1[2]	4:1[2]	50, 50, 50, 50	10,000-10,500[1] SF
RE-20	30	20,000	20,000	100	110	35, 30, 10, 20	25-30[1]%
RE-30	30	30,000	30,000	125	130	35, 30, 10, 20	20-25[1]%
RE-30 NH	30	30,000	30,000	125	130	35, 30, 10, 20	20-25[1]%
R1-3.5	35	3,500	3,500	50	50	10, 18, 10, 4	70%
R1-5	30	5,000	5,000	50	50	20, 20, 5, 10	35%
R1-6	30	6,000	6,500	60	65	25, 20, 5, 10	40%
R1-7.5	30	7,500	8,000	75	80	25, 25, 7.5, 10	35%
R1-10	30	10,000	10,000	80	85	30, 25, 10, 15	35%
R1-12.5	30	12,500	12,500	90	95	30, 30, 10, 10	35%
R1-15	30	15,000	15,000	95	100	30, 30, 10, 15	35%
R-2	30	7,000	7,000	60	65	25, 20, 5, 10	50%
R-3	50	6,000	6,500	60	65	20, 15, 10, 15	60%

Source: Zoning Ordinance, City of Rocklin, 2020.

Note: Use Permit Required, Depth-to-Width Ratio.

TABLE 7-30: PARKING REQUIREMENTS	
Type of Residential Development	**Required Parking Spaces**
Single-family dwellings, duplexes, and mobile homes	2 garage spaces per unit
Apartments, triplexes	1.5 spaces (1 covered) for 1-bedroom unit 2 spaces (1 covered) for units with 2+ bedrooms Plus 25% visitor spaces
Townhouses, condominiums	1.75 spaces (1 enclosed garage) for studio and 1-bedroom unit 2.5 spaces per unit with 2+ bedrooms
Source: Zoning Ordinance, City of Rocklin, 2020.	

FLEXIBILITY IN DEVELOPMENT STANDARDS

The City offers various mechanisms to provide relief from development standards that are typically required of all residential projects under the Zoning Ordinance. These mechanisms include the Density Increase Incentive Program and Planned Development (PD) Zone.

Density Increase Incentive Program: To facilitate the development of housing for lower and moderate-income households, the City offers the Density Increase Incentive Program. Under this program, the City may offer a density increase over the otherwise maximum allowable residential density of a location. Additional incentives may also be provided, including the use of federal and State funds when available, a reduction of minimum square footage and garage requirements and a 20% discount of all City fees due and payable at the time of the building permit issuance. (The discount excludes any fees levied by special districts, such as water, sewer, and school districts.). SB 1818 and SB 435 changed the State Density Bonus Law. In 2011, the City amended its Municipal Code to update density bonus provisions consistent with SB 1818 and SB 435 to allow a bonus of up to 35% and other incentives at the request of applicants who restrict a portion of proposed units for lower or moderate income households consistent with State law.

Planned Development or PD Zone: The PD zone is adopted for three major goals: (1) to encourage a creative and more flexible approach to the use of land; (2) to maximize the choices of living arrangements available to City residents; and (3) to encourage the efficient allocation and maintenance of privately controlled common open space through the redistribution of overall density where desirable and feasible. Various land uses may be combined in a planned development zone, including combinations of residential, commercial, industrial, utility, institutional, education, cultural, recreational, and other uses.

The underlying General Plan designations determine the permitted uses and densities that can be developed in the PD zones. For example, PD-15 correlates with the Medium High Density Residential designation where two-story multifamily housing is anticipated. PD-18 and PD-20 correlate with the High Density Residential designation. The PD zoning allows for flexible development standards and creative use of open space in order to maximize the use of land than would otherwise be provided in a non-PD-zoned parcel. To develop as a PD zone, a general development plan must be prepared. The plan specifies the uses, location of such uses, intensity of land use, and other development criteria. After review by the Planning Department, the proposed general development plan is forwarded to the Planning Commission and City Council as a proposed rezoning of the property.

The Croftwood Unit II development, which was approved in 2018, includes 55 single-family units on a 25.5-acre site, achieved a density of approximately 2.2 units per acre of residential use and 10.2 acres of open space within the PD-2.5 zone. The West Oaks subdivision, which was approved in 2013, was developed within the PD-6B zone at a maximum of 6 units per gross acre.

TYPICAL DENSITIES FOR DEVELOPMENT

The City of Rocklin has experienced significant housing development in the last 10 years. Typical single-family residential lots vary in size from approximately 3,000 square feet to 90,000 square feet and support 1 to 2 dwelling units each. Recent single-family subdivisions have resulted in densities ranging from 2 to 10 dwelling units per acre. Multifamily densities within Rocklin are typically 8.5 to 15 units per acre. However, more recent applications (Sierra Gateway, Rocklin Gateway and Quarry Place) have been approved for densities that are much higher (20 to 24 units per acre). Some applicants have requested General Plan Amendment and rezones to accommodate lower densities on a given site. Those have been reviewed and processed on a case-by-case basis. Zoning typically sets the upper limit of development potential and the General Plan sets the lowest density limit permitted. In some of the City's newer high density sites, zoning has been established that sets the minimum density permitted and the General Plan Land Use in those instances are either much higher (up to 40 dwelling units per acre) where the Mixed Use (MU) designation has been applied, or there is no upper limit on density since the City removed the cap on its High Density Residential (HDR) designated sites. The City did receive requests to develop sites identified in the sites inventory at lower than the assumed density. The developers were required to process a rezone and general plan amendment in order to complete this request. The City was able to maintain sufficient sites and was not in a no net loss situation due to this change in density.

PROVISIONS FOR A VARIETY OF HOUSING

Housing element law specifies that jurisdictions must identify adequate sites to be made available through appropriate zoning and development standards to encourage the development of a variety of housing types for all economic segments of the population. This includes single-family homes, multifamily housing, second units, mobile homes, emergency shelters and transitional housing, among others. Table 7-31 summarizes the various housing types permitted within the City's zoning districts. Besides single-family homes, the City provides for various other housing types to meet the special needs of the community, including persons earning lower income, seniors, the disabled, the homeless, and agricultural workers, among others.

TABLE 7-31: HOUSING TYPES PERMITTED BY ZONE

Housing Types Permitted	RE-1, RE-2, RE-20, RE-30, RE-30 NH, PD	RA-3, RA-5, RA-10, PD	R1-3.5, R1-5, R1-6, R1-7.5, R1-10, R-12.5, R1-15, PD	R-2, PD	R-3, PD
Single-Family	P	P	P	P	--
Secondary Unit	P	P	P	P	P
Mobile Home Parks	C	C	C	C	C
Manufactured Housing	P	P	P	P	--

TABLE 7-31: HOUSING TYPES PERMITTED BY ZONE					
Housing Types Permitted	**RE-1, RE-2, RE-20, RE-30, RE-30 NH, PD**	**RA-3, RA-5, RA-10, PD**	**R1-3.5, R1-5, R1-6, R1-7.5, R1-10, R-12.5, R1-15, PD**	**R-2, PD**	**R-3, PD**
Community Care Facilities (<6 persons)	P**	P**	P**	P**	P**
Community Care Facilities (7+ persons)	--	C	C	C	C
Duplexes	--	--	--	P	P
Triplexes	--	--	--	P	P
Apartments, townhouses, condominiums	--	--	--	--	P
Transitional/Supportive Housing	P	P	P	P	P
Emergency Residential Shelter [1]	--	--	--	--	--

P = Permitted; C = Permitted Subject to a Conditional Use Permit (CUP); -- = Not Permitted

***Per California Health and Safety Code 1520.5., subject to 300-ft spacing requirement.*

Source: Zoning Ordinance, City of Rocklin, 2020.

1. Emergency residential shelters are permitted in any industrial zone district or equivalent planned development zone where it is listed as a permitted use.

Note: Most land in the City that is designated for multifamily development consists of PD (Planned Development) zoning. Most PD's allow apartments, condominiums and townhouses as a permitted use. Some may require approval of a use permit if buildings will be three stories or more than 40 feet in height.

SINGLE FAMILY HOMES

Single family homes are permitted within all residential zones, with the exception of the R-3 zone.

ACCESSORY DWELLING UNITS

The Zoning Ordinance defines an accessory dwelling unit (otherwise known as a "secondary dwelling unit" or ADU) as an attached or detached residential dwelling unit that provides complete, independent living facilities for one or more persons and is located on a lot with a proposed or existing primary residence. Junior accessory dwelling units are defined as a unit that is no more than five hundred square feet in size, includes an efficiency kitchen consistent with building code standards, is contained entirely within the walls of a single-family residence or multifamily building, and may include separate sanitation facilities or may share sanitation facilities with the existing structure or unit. Accessory dwelling units may be an alternative source of affordable housing to lower-income households and seniors.

California law requires local jurisdictions to adopt ordinances that establish the conditions under which second dwelling units are permitted (Government Code, Section 65852.2); Rocklin adopted such an ordinance in 2020. Per State law a jurisdiction cannot adopt an ordinance that precludes the development

of second dwelling units unless findings are made acknowledging that allowing second units may limit housing opportunities of the region and result in adverse impacts on public health, safety, and welfare. An amendment to the State's second dwelling unit law in 2019 limits the ways in which local governments can regulate ADUs and Junior ADUs. Permits for ADUs and Junior ADUs must be reviewed ministerially, and must be reviewed within 60 days from the date when an application is deemed complete if there is an existing dwelling unit on the lot, or reviewed concurrently with an application to build a new single-family dwelling. Recent state law also limits the required setbacks to no more than 4' for side and rear yards, and prohibits setback requirements for conversions of existing structures.

Second units that meet the following performance standards are permitted in all residential zones as well as in any planned development zone where residences are a permitted or conditional use:

- Each accessory dwelling unit shall be a maximum 850 square feet for a studio or one bedroom or 1,200 square feet for a unit containing more than one bedroom. Junior accessory dwelling units shall not exceed five hundred square feet in size.

- Secondary dwelling units shall be designed and constructed to be compatible with the primary residential structure and the immediate neighborhood. This standard is implemented by a staff level review and has not prevented City approval of any ADUs to date. It is also not expected to create an issue for ADU development in the future as staff has a great deal of discretion in evaluating and determining compatibility. Typical review times for Planning approval of ADU permits ranges from over the counter to a maximum of five business days depending upon the completeness of the information provided and the complexity of the proposal.

In 2019, three accessory dwelling units were issued building permits. As of November 2020, the City has received nine building permit applications for ADU's. Three of those building permits have been issued and six are currently pending waiting for action or additional information from the applicants.

The City has included Program 7 to promote and assist with the development of ADUs through the following actions.

- Provide guidance and educational materials for building ADUs on the City's website, including permitting procedures and construction resources. Additionally, the City shall present homeowner associations with the community and neighborhood benefits of accessory dwelling units, inform them that covenants, conditions, and restrictions (CC&Rs) prohibiting ADUs are contrary to state law, and ask homeowner associations to encourage such uses.

- Develop, and offer free of charge, prototype plans for second units to bring down permit costs.

- Explore options for establishing a loan program to help homeowners finance the construction of ADUs. The City shall consider incentives to encourage homeowners to deed restrict ADUs for lower-income households.

- Monitor the construction and/or rental of ADUs annually to ensure that ADUs are available and affordable to low-income households.

MOBILE HOME PARKS

Mobile homes offer an affordable housing option to many low- and moderate-income households. According to the State Department of Finance (2019), approximately 2% of Rocklin's housing stock consists of mobile homes (502 mobile homes). Between 2010 and 2019, the number of mobile homes in Rocklin increased by one. Mobile home parks are permitted in all residential zones, subject to a Conditional Use Permit (CUP). Five large mobile home parks are located in Rocklin: the Rocklin Mobile Home Park, Royal Oaks, Shady Spot, Rocklin Estates, and Sierra Lakes.

Prior to approval of any CUP in Rocklin, the City must find that the establishment, maintenance or operation of the use, building or structure applied for will not, under the circumstances of the particular case, be detrimental to the health, safety, or general welfare of persons residing or working in the neighborhood of such proposed use or be detrimental or injurious to property and improvements in the neighborhood, or to the general welfare of the city.

MANUFACTURED HOUSING/MOBILE HOMES

Manufactured housing units/mobile homes are permitted within all single-family residential districts and should comply with all of the following criteria:

- It is to be occupied only for residential purposes;
- It conforms to all requirements for single-family structures applicable to the district in which the mobile home will be located including, but not limited to height requirements, setback requirements, and lot area and coverage requirements;
- It is certified under the National Mobile Home Construction and Safety Standards Act of 1974 and has been constructed after June 15, 1976;
- It is to be attached to a permanent foundation system approved by the building inspector of the City;
- It should be covered with an exterior material customarily used in new residential structures in the City. This also includes garages, as well as the main structure;
- The exterior covering material should extend toward the ground to a point customary on new residential structures in the City and include the texturing and coloring of solid masonry perimeter foundations customary to new residential structures;
- Roofing material, the roof overhang, and the roof pitch should be similar to the material, overhang and pitch design customarily used on new residential structures in the City; and
- The mobile home development must meet all requirements for a garage facility, setbacks and other development standards applicable to the zone in which it is to be located.

COMMUNITY CARE FACILITIES

Sections 5115 and 5116 of the California Welfare and Institutions Code declare that mentally and physically disabled persons are entitled to live in normal residential surroundings. The use of property for the care of six or fewer disabled persons is a residential use for the purpose of zoning per State law. A

State-authorized, certified or licensed family care home, foster home, or group home serving six or fewer disabled persons or dependent and neglected children on a 24-hour-a-day basis is considered a residential use that is permitted in all residential zones. To ensure the normal residential character of the neighborhood environment, community care facilities are not permitted within 300 feet of each other per California Health and Safety Code Section 1502.5.

Through the CUP process, the Rocklin Zoning Ordinance permits community care facilities serving more than six persons in various Planned Development (PD) zones and all residential zones, except the rural RE districts. The required findings for approval of a CUP are the same as required for mobile home parks (described above). Typical conditions for approval relate to the operation and performance of such facilities, primarily on-site management, security, and parking requirements. Approval requires a public hearing before the Planning Commission only, unless the facility exceeds 30 feet in height or is three stories or higher, in which case a public hearing before the City Council is required. The City will continue to comply with State law with regard to group homes and State licensed community care facilities and group home residency among unrelated persons.

MULTIFAMILY HOUSING

According to the State Department of Finance (2019), multifamily housing made up approximately 22% of the existing housing stock in Rocklin. The Zoning Ordinance expressly permits duplexes and triplexes in the R-2 zone. In addition, duplexes, triplexes, apartments, townhouses, and condominiums are permitted in the R-3 zone.

Most multifamily housing in the City is primarily processed as a PD, providing flexibility in development standards. A CUP is not required in the PD zone.

Given the City's success in providing multifamily housing, development standards and permit processing procedures are not unduly onerous or serve to constrain multifamily housing development. Additionally, the City will promote the development of "missing middle" housing types such as duplexes, triplexes, and fourplexes by providing information to developers (Program 9).

FARMWORKER HOUSING

The City has no agricultural land use designation. Correspondingly, the Zoning Ordinance does not expressly address housing for agricultural workers. According to the 2014–2018 American Community Survey, less than 1% of Rocklin residents were employed in agriculture, forestry, fishing and hunting, and mining. However, Rocklin is home to three multifamily residential projects developed through the Section 515 mortgage program offered by the Farmers Home Administration (FmHA) program. These projects include the 50-unit Shannon Bay, 104-unit Sunset Street, and 44-unit Placer West apartments. Based on the City's demographics, the City no longer qualifies for FmHA funding and no new programs are needed for farmworker housing. According to Health and Safety Code 17021.5 regarding employee housing, no conditional use permit, zoning variance, or other zoning clearance shall be required of employee housing that serves six or fewer employees that is not required of a family dwelling of the same type in the same zone. At present employee housing does not have regulations separate from other residences of the same

type and is such is not subject to additional restrictions. However, to comply with Health and Safety Code Section 17021.5 and 17021.6, the City has included Program 21.

EMERGENCY SHELTERS

An emergency shelter is a facility that provides shelter to homeless families and/or homeless individuals on a limited short-term basis. While there are no emergency shelters located within City limits, several organizations including the Placer County Department of Health and Human Services and The Gathering Inn have 208 beds for homeless individuals, including 17 dedicated to men and 6 dedicated to women, specifically; the remainder are not designated for either sex. The City's Zoning Ordinance permits emergency shelters in the Rocklin Ranch Planned Development industrial zone (PD-LI) as a permitted use. There are approximately 51.5 acres in the Rocklin Ranch PD-LI zone with parcels ranging in size 0.5 acres to 10 acres. There are both developed and vacant lots within this zone. These parcels are within close proximity to services and therefore make these sites more available for the development of a shelter. Surrounding uses include single family residential neighborhoods across the primary access street into the area (i.e., Del Mar Avenue). Existing uses within the zone include light manufacturing, offices and warehousing. The majority of these uses are conducted completely within enclosed buildings. This zone is a mile or less from fixed route transit, grocery/retailers (Target and others at the Rocklin Commons Shopping Center), as well as other convenience stores and restaurants. Dial-A-Ride/Paratransit services are also available to the area providing additional public transportation options for both the general public and disabled individuals. Rocklin's Dial-A-Ride system (operated by Placer County Transit) provides transportation service to all locations in Rocklin and connections to other communities and regional routes and systems from the existing transfer station at the Roseville Galleria. Emergency shelters are required to provide a minimum of one off-street parking space for every ten adult beds, plus one parking space for the manager and one parking space for each on-site employee.

The State statute also permits the City to apply limited conditions to the approval of ministerial permits for emergency shelters, including the following:

- The maximum number of beds/persons permitted;
- Parking based on demonstrated need but that does not exceed parking requirements for other uses in the same zone; if demonstrated need is less than required parking in zone, then provisions shall be made for lot areas to be converted to parking to meet requirements if the homeless shelter goes away in the future;
- The size/location of exterior and interior onsite waiting and client intake areas;
- The provision of onsite management;
- The proximity of other emergency shelters, provided that emergency shelters are not required to be more than 300 feet apart;
- The length of stay;
- Lighting;
- Security during hours that the emergency shelter is in operation; and
- Design review.

The City's adopted standards for emergency residential shelters require that the building be in compliance with all building codes and fire standard and limits the maximum occupancy of the shelter to sixty individuals. The City requires emergency residential shelter to provide on-site waiting and intake areas that are screened from public view, requires intake/discharge hours to be set, and requires at least one staff member of the shelter to be on-site at all times while temporary residents are present. Security lighting and a security plan (developed in coordination with the Rocklin Police Department and including contact information for responsible parties) must be provided to the satisfaction of the community development director. Emergency shelters are encouraged to be located no more than one-half mile from an existing bus route, or as an alternative, it is encouraged that transportation between the facility and a transit corridor or bus line be provided.

Pursuant to AB 101 (2019), the City will also establish a streamlined approval process for low-barrier navigation centers to be permitted by right (Program 16). Low-barrier navigation centers are temporary housing with case management available that also use best practices to reduce barriers to access, such as not prohibiting pets or storage of possessions, permitting individuals to reside with partners, or designing the shelter to permit privacy. Vacant land and underutilized properties are available in this zone to accommodate at least one shelter, as required by State law.

TRANSITIONAL AND SUPPORTIVE HOUSING

In addition to mandating the provision for emergency shelters, SB 2 enacted in 2007 also requires that local jurisdictions address the provision for transitional and supportive housing. SB 2 references the CA Health and Safety Code for the definition of transitional and supportive housing.

- H&S 50675.2: "Transitional housing" and "transitional housing development" are buildings configured as rental housing developments, but operated under program requirements that call for the termination of assistance and recirculation of the assisted unit to another eligible program recipient at some predetermined future point in time, which shall be no less than six months.

- H&S 50675.14 (b): "Supportive housing" means housing with no limit on length of stay, that is occupied by the target population as defined in subdivision (d) of Section 53260, and that is linked to onsite or offsite services that assist the supportive housing resident in retaining the housing, improving his or her health status, and maximizing his or her ability to live and, when possible, work in the community.

- H&S 53260 (d) "Target population" means adults with low incomes having one or more disabilities, including mental illness, HIV or AIDS, substance abuse, or other chronic health conditions, or individuals eligible for services provided under the Lanterman Developmental Disabilities Services Act (Division 4.5 (commencing with Section 4500) of the Welfare and Institutions Code) and may, among other populations, include families with children, elderly persons, young adults aging out of the foster care system, individuals exiting from institutional settings, veterans, or homeless people.

SB 2 further stipulates that transitional and supportive housing meeting these definitions should be treated as a regular residential use and subject only to those restrictions that apply to other residential

uses of the same type in the same zone. However, these definitions do not encompass all types of transitional and supportive housing, which can take several forms, including group quarters with beds, single-family homes, and multifamily apartments.

In 2011, the Rocklin Zoning Ordinance was amended to address different types of transitional and supportive housing. Traditional single- and multifamily units being used as transitional and supportive housing meeting the above H&S Code definitions will be treated as regular residential uses and permitted according to the same restrictions for similar uses in the same zone. Transitional and supportive housing meeting the definition of group quarters will be permitted according to the City's regulations for community residential care facilities.

SINGLE ROOM OCCUPANCY UNITS (SRO)

An SRO unit is a one-room unit intended for occupancy by a single individual. It is distinct from a studio or efficiency unit, in that a studio is a one-room unit that must contain a kitchen and bathroom. Although an SRO unit is not required to have a kitchen or bathroom, many SROs have one or the other. To facilitate and encourage the provision of SROs in Rocklin, the Zoning Ordinance was amended to conditionally permit SROs within the Commercial Highway (C-H), Retail Business Commercial (C-2), General Service Commercial (C-3), and General Retail Service Commercial (C-4), as well as any planned development district that would also allow hotels or motels.

Criteria that would be used to review Design Review (DR) and / or CUP applications for SROs will be specific to the proposed use. Potential conditions for approval of these facilities may include security and management. Conditions would be similar to those for other similar uses in the same zones and would not serve to constrain the development of such facilities.

DEVELOPMENT PERMIT PROCEDURES

The processing time needed to obtain development permits and required approvals is commonly cited by the development community as a prime contributor to the high cost of housing. Development permit procedures are necessary to ensure proposed projects comply with established City, State, and Federal standards and regulations. In Rocklin the development process typically starts with a pre-application review of preliminary drawings, often limited to site layout drawings and a cursory project description. The information is reviewed by representatives including, but not limited to: The City's Fire and Police Departments, the Planning, Engineering, and Building Divisions of the Community Development Department, the Public Services Department and the regional sewer and water service providers for potential concerns, issues, entitlements needed, information required as part of an application, and estimated time lines. Normally staff is also able to provide an estimate as to whether a project is likely to be recommended for approval or not. In most cases, staff also recommends that the applicant contact residents and property owners within 600 feet of the project site and provide them an opportunity to meet and discuss the proposed project before filing an application in order to understand and, hopefully, address any potential concerns prior to formalizing development proposals.

Once a formal application for approval of development entitlements is received by the Planning Division it is reviewed to determine if it is complete (i.e., is there sufficient information to process the application).

Once an application is determined to be complete enough to process the application, it is routed to other City departments and outside agencies for review and comment. The Planning Division keeps the project applicant informed about any significant comments received, reviews revised and updated information submitted by the applicant in response to comments and generally works with the applicant to get the project ready for a public hearing. Simultaneously, the Planning Division determines the appropriate level of environmental review needed, reviews any required special studies, and prepares the environmental documents needed for the project consistent with State law.

Most projects require approval by the Planning Commission or City Council, at a public hearing. Once all issues have been worked through and the environmental documents completed, staff will schedule and notice the project for a public hearing. Once a hearing date is scheduled staff prepares an information packet (staff report and draft resolutions for action) for the decision makers and public to explain the project, it's compliance with City and State regulations, any issues, suggested conditions of approval, and staff's recommended action typically to approve, deny, or approve with conditions.

When determining whether to approve, deny, or approve with conditions, the Planning Commission or City Council must make the following findings (positive for approval, or negative for denial):

A. Whether the use is substantially similar in character to a use or uses within the zoning classification applicable to the property;

B. Whether the use would be appropriate in the zoning classification applicable to the property as a conditional use;

C. Whether the proposed use, with the appropriate conditions, will not be detrimental to the health, safety and general welfare of persons residing or working in the neighborhood of such proposed use, or be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the city.

Once an application for entitlements to develop a site has been approved, the developer can proceed to submit construction documents (Grading and Improvement plans, Building Permits, Final Maps) for review and approval. These construction plans are reviewed by City staff for compliance with adopted City standards, State and Federal regulations, and consistency with approved entitlements. In some limited circumstances, developers are permitted to submit construction plans to the Building or Engineering Division prior to approval of the project entitlements; however, they do so at their own risk as the reviewing body may reject the proposal or require significant revisions that would then have to be reflected in the construction documents. Once construction is complete and has been inspected by City staff and representatives of the applicable utility providers to verify compliance with all approvals and requirements, as reflected in the construction documents, the project will be released for occupancy. Depending upon the type of project, that release could take the form of a final inspection sign off, a Recorded Final Map, or a Certificate of Occupancy.

As indicated in Table 7-32, the entitlement processing time varies depending upon the entitlements requested and which approving body is required to take final action. Generally, upon submittal of a complete application, an apartment project requiring only Planning Commission approval would be

estimated to take approximately 4 months to get to a final public hearing and a condominium project which must be approved by the City Council would take approximately 6 months. These are considered to be reasonable timeframes, especially compared to communities where it could take years to process and approve multifamily developments and do not unduly constrain or delay the development of housing.

In 2012, in an effort to provide additional flexibility and streamlined processing to encourage redevelopment and revitalization of older commercial areas, the City amended its Zoning Ordinance to create the Business Attraction, Retention and Revitalization Zone (BARRO Zone). The BARRO zone, an overlay alternative zoning tool for those properties to which it has been applied provides a mechanism to propose a commercial, residential, or mixed-use development and streamlines the regulatory process by allowing a staff level review and approval in most cases. The majority of the BARRO zone has an underlying land use with a density range of 10-40 dwelling units per acre. In commercial areas within the BARRO zone, the Community Development Director can work with the developer to incorporate residential uses. By eliminating the need for a formal public hearing before the Planning Commission and/or the City Council the work and time required to get a project approved is significantly reduced thereby allowing for reduced processing time and lower application fees than the traditional processes.

The City is currently processing an application in the BARRO Zone that will include development of a new 2,820 square foot mixed use building consisting of an office/garage/shop area for a swimming pool service company on the ground floor and a residential unit on the second floor. The proposed project would be located on a 0.17-acre parcel located at 4865 Pacific Street. There was also an existing building on the rear portion of the lot that the landowner recently demolished and is now interested in proposing a new second residential unit in its place as part of the project.

TABLE 7-32: DEVELOPMENT REVIEW PROCESS

Type of Development	Approving Authority	Approximate Planning Processing Time[1]	Construction Permit Review Time[2] (working days)
Single-Family Tentative Subdivision Maps	City Council	6 months with Negative Declaration; 12-18 months with EIR	1st review: 21-30 days 2nd review: 14-21 days (Improvement Plans / Final Map)
Single-Family Homes	Staff (Building Permit only, most homes on lots > 6,000 s.f.)	N/A	1st review: 15-20 days 2nd review: 45 days (Building Permits)
	Planning Commission / Staff (the design of homes on lots <6,000 s.f. must be approved by the Planning Commission, staff then reviews the Building Permits.)	4 months (Design Approval entitlement)	1st review: 15-20 days 2nd review: 45 days (Building Permits)

TABLE 7-32: DEVELOPMENT REVIEW PROCESS			
Type of Development	**Approving Authority**	**Approximate Planning Processing Time[1]**	**Construction Permit Review Time[2] (working days)**
Condominiums	City Council	6 months with Negative Declaration (Tentative Map and Design Approval entitlements)	1st review: 21-30 days 2nd review: 14-21 days (Improvement Plans / Final Map) 1st review: 15-20 days 2nd review: 45 days (Building Permits)
Apartments	Planning Commission[3]	4 months with Negative Declaration	1st review: 15-20 days 2nd review: 45 days ((Improvement Plans / Building Permits)
Accessory Dwelling Units	Staff	N/A	1st review: 15-20 days 2nd review: 45 days (Building Permits)
Residential and Mixed Use in BARRO Zone	Staff	2 months with Negative Declaration (Design / Use Entitlement)	1st review: 15-20 days 2nd review: 45 days (Improvement Plans / Building Permits)

Source: Community Development Department, City of Rocklin, 2020.

1, *Time commences after applicant's application has been determined to be completed.*

2. *Timing for second reviews begins when an applicant turns in their second submittal and assumes that all the corrections that were noted by the City in the first review have been included and no further changes made.*

3. *In most cases where apartments are 2 stories or less, Planning Commission is the review body. If apartments are more than 2 stories, City Council design review approval may be required.*

DESIGN REVIEW

Design review is required for all non-residential and multifamily development in the City. It is also required for single-family residential subdivisions where the lots are less than 6,000 square feet in area. Previously design review had been required for every single-family project, but this was reduced because the City had not experienced as many design (dominance of garages) and setback issues on larger lots. Design review is currently still required on small-lot residential projects because they were previously less common within the City.

Typical processing time for a Design Review Planning entitlement is 3 to 4 months. After Design Review approvals have been completed developers can submit for improvement plan approvals and Building Permits. The timing of those subsequent submittals is entirely up to the developer and vary however, typical time between design approvals and building permits is approximate 3 to 6 months. Typical City processing times for single family and multifamily building permits is 15 to 20 days for initial review and up to 25 days for second review and end processing (combined total of 45 total days). These timelines are dependent upon the completeness of the information in the initial submittal and the thoroughness of the applicant's responses or requests for additional information.

The City has not found design review to be a hindrance to the approval process for new development and has a good track record of working successfully with developers toward completion of design review for both single- and multifamily development projects, including those that are affordable to moderate- and lower-income households. Additionally, developers working within the City have expressed that the cost of the design review process is regionally competitive. Recent examples of small lot single-family residential projects include, but are not limited to: Sierra Pine and Granite Bluff subdivisions. Recent multifamily projects include Quarry Place and Sierra Gateway Apartments.

The objective of design review is to encourage originality in building and landscaping design in a manner that will enhance the physical appearance and sense of place of the community. The City's Design Review Guidelines emphasize the use of building articulation, varied rooflines, a mix of complimentary color schemes and variety in the selection of building materials to create architectural interest in development projects. These components of good design are partially based upon the City's experience with design elements developers typically utilize to make their project more appealing from a marketing perspective. The City has also created four Architectural Districts each of which is intended to promote a unique design theme for all new projects within their boundaries in order to create a greater identity and sense of place for these neighborhoods.

The following list includes the standard findings applied to all Design Review approvals:

A. Notice of Exemption (or other applicable CEQA document – ND, MND, etc.) has been approved for this project.

B. The design of the site is compatible with surrounding development, natural features and constraints.

C. The height, bulk, area, color scheme and materials of the buildings and structures are compatible with surrounding development.

D. The buildings and structures have been oriented with consideration given to minimizing energy consumption and maximizing use of natural lighting.

E. Exterior lighting has been oriented so as not to cause adverse glare and light to impact adjoining properties by the location and height of light standards in addition the project has been conditioned to use light fixtures that will direct the light downward.

F. Adverse light and glare impacts upon adjoining properties have been eliminated or reduced to a less than significant level by consideration and modification of the location and height of light standards, orientation of exterior lighting fixtures, and conditioning the project to use light fixtures that will direct light downward.

G. The dimensions, placement, and design of the signs are compatible with the proposed buildings and structures and the surrounding development and environment.

H. The landscaping design is compatible with surrounding development and has been designed with provisions for minimizing water usage and maintenance needs.

I. The parking design, including ingress and egress traffic patterns, is compatible with the surrounding development and the public street patterns.

J. The design of the site and buildings or structures is consistent with the goals, policies, and land use designations in the General Plan and with all zoning standards, regulations, and restrictions applicable to the property.

The City's emphasis in making the findings for Design Review are tied to measurable standards (i.e., downward lighting, requiring height limitations on light standards), traffic policies in the general plan regarding Level of Service and City Engineering Standards regarding items such as driveway locations. Building energy efficiency is regulated through the Building Code. Water efficiency is implemented through compliance with the State Water Efficiency Landscape Ordinance. Setbacks, building height limits and lot coverage limitations are all specified in the applicable zoning. Cosmetic features such as preferred building materials and treatments are clearly identified in the Rocklin's Citywide Design Guidelines and Guidelines that are applicable to specific Architectural Districts.

Almost all projects requiring Design Review also involve some other type of development entitlement, such as a tentative parcel map, subdivision map, use permit, etc. The design review aspect of the project is analyzed concurrently with the other applications. Therefore, no additional time is added to the entitlement review process. Additionally, in some cases the City allows developers to submit building permit and improvement plan drawings for preliminary review at risk before processing of Design Review and other entitlements has been completed in order to expedite the plan check process.

Consistent with Senate Bill (SB) 330, housing developments for which a preliminary application is submitted that complies with applicable general plan and zoning standards are subject only to the development standards and fees that were applicable at the time of submittal. This applies to all projects unless the project square footage or unit count changes by more than 20 percent after the preliminary application is submitted. The developer must submit a full application for the development project within 180 days of submitting the preliminary application.

Rocklin requires pre-application meetings with applicants for all projects prior to submission of formal applications to better define the information needed to review a project. Pre-application meetings have helped to shorten the review process and allow for better communication between applicants, City departments and utility providers. The City currently defers to HCD for the required application process related to SB 330 but will consider creating a City specific process during the planning period.

Review of Local Ordinances

The City does not have any locally adopted ordinances that hinder the development of housing.

Site Improvements, Development Fees and exactions

For large subdivisions, the City requires the construction of reasonable on- and off-site improvements as permitted by the Subdivision Map Act. Typical improvements required of a developer include:

- Grading and improvement of public and private streets including surfacing, curbs, gutters, sidewalks, street lighting, street name signs, and necessary barricades or traffic safety devices;
- Storm drainage and flood control facilities within and outside of the subdivision (when necessary) to carry storm runoff both tributary to and originating within the subdivision;
- A public or private sewage system that meets public sewer system standards;
- A water supply system providing an adequate supply of potable water to each lot and minimum flows for fire hydrants within the subdivision;
- Fire hydrants of the type and at locations specified by the Fire Department; and
- Public utility distribution facilities including gas, electric, telephone and cable television necessary to serve each lot in the subdivision.

Specific standards for design and improvements of subdivisions must be in accordance with the applicable sections of the Rocklin General Plan, Applicable Specific Plans, Zoning Ordinance, Subdivision Ordinance, other standards and requirements of the City Engineer and each applicable utility provider.

The City also may require dedication of land for public use. Dedicated transportation rights-of-way must be designed, developed, and improved according to City standards. The City of Rocklin street design criteria are summarized in Table 7-33.

Table 7-33: Roadway Design Criteria

Roadway Type	Right-of-Way	Curb-to-Curb	Stopping Sight Distance
Cul-de-Sac	42-ft	38-ft	150-ft
Minor Residential	46-ft	38-ft	250-ft
Residential Collector	50-ft	42-ft	200-ft
Residential Collector w/ Bike Lanes	60-ft	52-ft	300-ft
Collector	62-ft	54-ft	300-ft
Minor Arterial	80-ft	68-ft	430-ft
Primary Arterial	120-ft	104-ft	500-ft

Source: City of Rocklin, Department of Public Works, Improvement Standards, November 2016 (verified in 2020).

In addition to improvements and dedication of public land, residential developers are subject to a variety of fees and exactions needed to process permits and provide for necessary services and facilities as allowed by State law. In general, these development fees can be a constraint to the provision of housing because the additional cost borne by developers contributes to overall increased housing cost per unit.

However, the fees are necessary to provide and maintain adequate public services and facilities for new development in the City.

The City's development impact fees are summarized in Table 7-35. These fees are levied to offset the cost of serving new development with parks, roadways, drainage, and public facilities. Certain fees are set by regional agencies and are beyond the control of the City such as the Highway 65 Interchange Improvement Fee, Placer County Capital Facilities Impact Fee, Dry Creek (DC) Watershed Drainage Fee and the South Placer Regional Transportation Impact Fee.

APPLICATION PROCESSING FEES

Rocklin's processing fees are summarized in Table 7-34. The City's fees are evaluated annually and adjusted as necessary to reflect the costs of services, consistent with State law. Fees and development standards are posted online for easy review by potential applicants. The City's website also provides a residential fee calculator for both single family and multifamily projects. Specific fee estimates for multifamily projects are also prepared by staff if requested. The City recognizes the financial impact of development fees on affordable housing construction and works to keep them as low as possible while still recovering the costs of providing the services.

TABLE 7-34: PLANNING, ENGINEERING, AND PUBLIC WORKS FEES

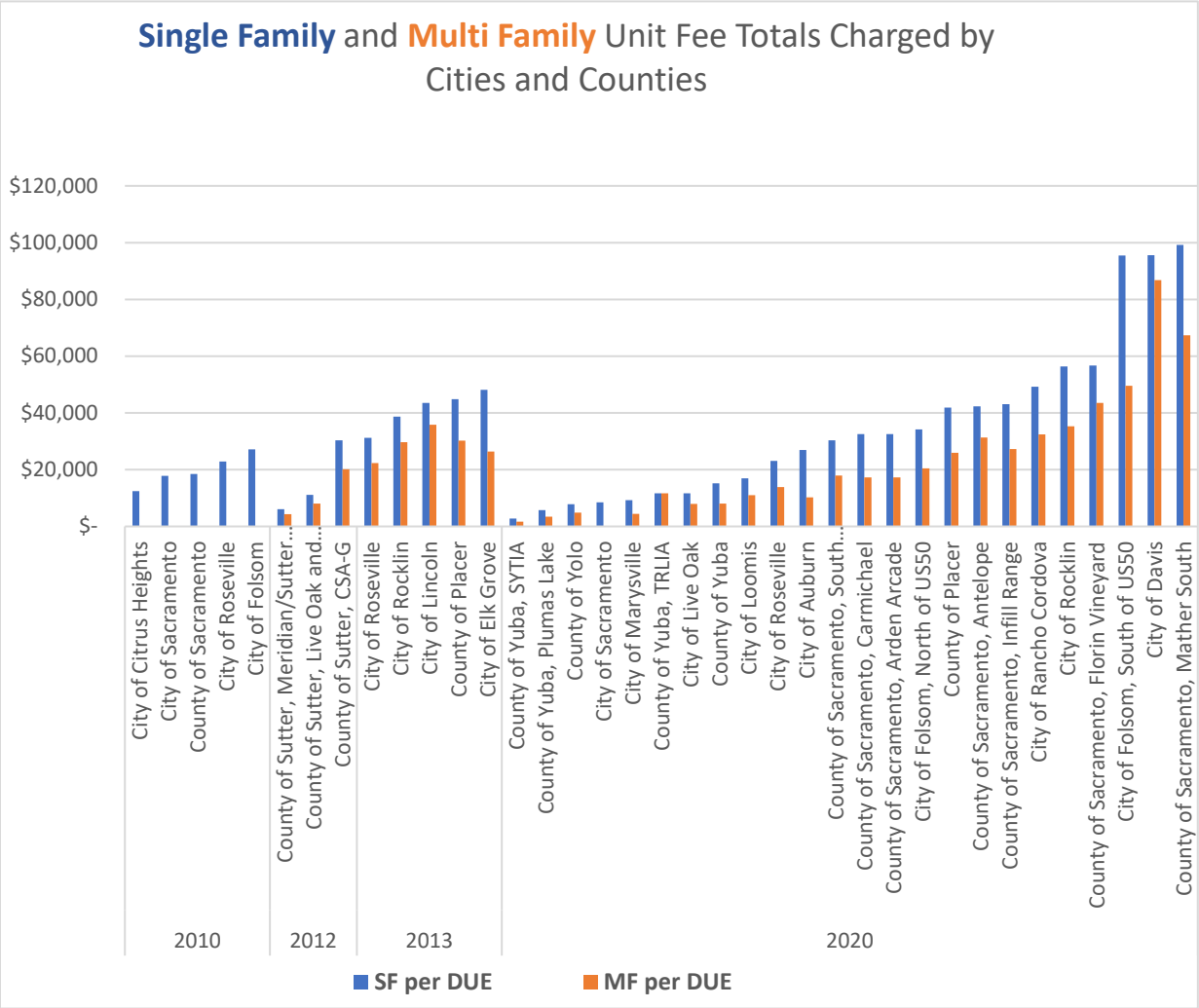
Service Provided	Fee Amount
Annexation	$16,791
Conditional Use Permit	
City Council Review	$13,972
Existing Building	$9,107
Minor	$6,158
Modification	$5,271
New Building	$12,263
Environmental	
Initial Study (Negative Declaration)	$4,965
Initial Study (Mitigated Negative Declaration)	$5,683
Mitigation Monitoring	$4,183
Environmental Impact Report	$32,407 to $123,031
Design Review	$10,086
Development Agreement	$17,143
General Development Plan	
General Development Plan, New	$13,899
Major Modification	$13,376
Modification	$13,330
General Plan Amendment	$14,351
Historical Review	$1,630
Tentative Subdivision Map	
Tentative Subdivision Map New	$15,167
Modification	$11,912
Variance	
Planning Commission Review	$6,372

TABLE 7-34: PLANNING, ENGINEERING, AND PUBLIC WORKS FEES	
Service Provided	**Fee Amount**
Administrative-Staff Level Review	$1,639
Zone Change	
Change Zoning Designation	$13,661
Ordinance Amendment	$12,122
Interpretation	$4,029
Engineering and Public Works	
Final Map Check – Subdivision	$7,692
Final Resident Parcel Map Check	$2,666
Improvement Plan Revision	$597
Public Improvements and Subdivision Plan Check /Inspection Fee	% of Construction Valuation
Certificate of Compliance Processing	$1,148
Grading Plan Check	$1,347
Grading Inspection	$736
Landscape Plan Check	$1,627
Landscape Inspection	$1,280
Source: Community Development Department, City of Rocklin, July 2020.	
Notes: Fees are typically updated annually. Call the Community Development Department for the updated fees information.	

SACOG FEE STUDY

In 2020, SACOG completed a comparative analysis of development impact fees in jurisdictions across the Sacramento region. In 2020, the City of Rocklin had per-unit fees of $46,136 per single-family dwelling unit equivalent (DUE) and $31,169 per multifamily DUE. This places Rocklin's fee levels slightly lower than the estimated single family and multifamily per-unit fees in the City of Rancho Cordova ($49,197 and $32,384, respectively) and moderately higher than those of the City of Folsom south of US-50 ($40,899 and $30,958, respectively). Compared to other similar jurisdictions Rocklin's water and sewer connection fees are provided by outside agencies and tend to represent a larger percent of the overall fees on a per-unit basis. In neighboring jurisdictions such as Folsom and Sacramento County, transportation fees make up a higher percentage of the overall fee amount than in Rocklin.

FIGURE 7-10 SACOG FEE COMPARISON



Source: SACOG, 2020.

Rocklin's impact fees are summarized in Table 7-35. The City's fees are evaluated regularly and adjusted as necessary to reflect the costs of services / improvements, consistent with State law. The City recognizes the financial impact of development fees on affordable housing construction. As available, affordable housing monies from various federal, state and local funding sources may be used to reduce or offset fees and assist in the construction and/or acquisition/rehabilitation of affordable housing.

Development fees total $46,136 per single-family unit and $31,169 per multifamily unit. According to Realtor.com, Rocklin's median sales price for single-family homes in August 2020 was $539,000. Therefore, the fees represent 8.5% of the per-unit development costs for a single-family unit. In terms of multifamily homes, Realtor.com lists multifamily units for sale ranging from $217,500 to $282,500 per unit. The fees represent 11% to 14% of the per-unit development costs for a multifamily unit. This is a lower percentage of the overall home cost as compared to the previous Housing Element planning period;

in 2013, fees represented 16% to 22% of development costs for a single-family unit and 15% to 35% of development costs for a multi-family unit.

Based on the residential fee comparison prepared by SACOG, the City of Rocklin's fees are in line with the fees charged by other jurisdictions. The current residential fees are considered reasonable and not constraining to housing development.

TABLE 7-35: DEVELOPMENT IMPACT FEES AND TAXES

Impact Fee	Purpose	Fee
Park Impact Fee	Provide new park facilities to serve new development	$1,299 or $1,985 per single-family unit
		$1,199 or $1,799 per multifamily unit
		$1,099 or $1,648 per apartment unit
Community Park Fee	Offset incremental impacts of growth to existing park facilities	$711 per single-family unit
		$569 per multifamily unit
Northwest Rocklin Community Park Fee[1]	Provide new park facilities to serve new development	$3,823 per single-family unit
		$2,209 per unit w/in PD-20 zone
Whitney Interchange Fee[1]	Fund Highway 65 improvements	$957 per single-family unit
		$689 per unit w/in PD-20 zone
Traffic Impact Fee	Offset incremental impacts of growth to roadway network and traffic signalization	$3,774 per single-family unit and $2,378 per multifamily unit.
DC Watershed Drainage Fee	Offset incremental impacts of growth to municipal storm drain system	$311 per single-family unit (Secret Ravine)
		$119 per multifamily unit (Secret Ravine)
		$274 per single-family unit (Antelope Creek)
		$113 per multifamily unit (Antelope Creek)
Construction Tax/ Public Facilities Impact Fee[2]	Acquire and develop parks, open space, bike trails, public buildings, and fire equipment to serve new development	0.1397 multiplied by valuation of multifamily development
		0.01050 multiplied by valuation of single-family development
		$4,187 per single-family unit
		$2,130 per multifamily unit
Highway 65 Interchange Improvement Fee[3]	Fund Highway 65 improvements	$294 to $1,447 per single-family unit
Placer County Capital Facilities Impact Fee[3]	Offset incremental impacts of growth within Rocklin on general county services	$2,916.90 per single-family unit
		$2,124.20 per multifamily unit
		$1,917.80 per senior unit
		$1,984 per single-family unit

TABLE 7-35: DEVELOPMENT IMPACT FEES AND TAXES		
Impact Fee	**Purpose**	**Fee**
South Placer Regional Transportation Improvement Program Traffic Fee[3]	Offset incremental impacts of growth to the sub-regional transportation system	$1,230 per apartment unit
		$1,547 per townhome/condominium
Fire Service[4]	Fund fire service to serve new development areas.	$500 per unit
Source: Community Development Department, City of Rocklin, December 2019.		
Notes:		
1. Only applicable to development within the Whitney Ranch Area of North West Rocklin.		
2. The City credits the public facilities fee owed on each development project for the amount of the Construction Tax paid.		
3. Fees set by regional agencies and are beyond the control of the City.		
4. Only applicable to development within the Whitney Ranch area of North West Rocklin, Clover Valley and portions of Whitney Oaks.		

BUILDING CODES AND ENFORCEMENT

The California Building Codes establish standards and require inspections at various stages of construction to ensure code compliance and minimum health and safety standards. The City of Rocklin has adopted 2019 CA Title 24 Building Code. Rocklin's adoption included the City's traditional Fire Department local amendment pertaining to a prohibition of open burning which would otherwise be permissible under current State codes. In addition, the City's adoption included an exception to the Uniform Swimming Pool, Spa and Hot Tub Code regarding barrier requirements because those are enforceable through the California Swimming Pool Safety Act. These local amendments are not considered a constraint to development.

The City's Community Development Department carries out code enforcement and inspection activities as a means to preserve and maintain the livability and quality of neighborhoods. City staff investigates violations of property maintenance standards as defined in the Municipal Code as well as other complaints. Although these standards and the time required for inspections increase housing maintenance costs and may impact the viability of rehabilitation of older properties which are required to be brought up to current code standards, the intent of the codes is to provide structurally sound, safe, and energy-efficient housing.

HOUSING FOR PERSONS WITH DISABILITIES

Both the federal Fair Housing Amendment Act (FHAA) and the California Fair Employment and Housing Act direct local governments to make reasonable accommodations (i.e., modifications or exceptions) in local zoning laws and other land use regulations when such accommodations may be necessary to afford disabled persons an equal opportunity to use and enjoy a dwelling. In 2011 the City adopted an amendment to the Zoning Code, Chapter 17.83 - REQUESTS FOR REASONABLE ACCOMMODATIONS FOR PERSONS WITH DISABILITIES, giving the Community Development Director authority to approve requests

for reasonable accommodations to provide a process and surety for staff and applicants on how to address such requests.

BUILDING CODE

The City has adopted the 2019 California Building Codes, which are based on the International Building Codes. The City's building code requires new multifamily residential construction to comply with FHAA, which specifies that ground floor dwelling units in new developments must be adaptable to the physically disabled. The requirements include (1) adaptive design features for the interior of the units, (2) accessible public use and common use areas, and (3) sufficiently wider doors to allow wheelchair access.

REASONABLE ACCOMMODATION PROCEDURES

Pursuant to the FHAA, a disabled person or representative may request reasonable accommodation relating to the various land use, zoning, or building codes, rules, and policies, practices, and/or procedures. For rehabilitation projects, such as installation of ramps or interior modifications, the City processes these requests for reasonable accommodation over the counter. No special review is required and therefore, will not constrain the rehabilitation of housing. Some projects require modifications to development standards to accommodate persons with disabilities. The City reviews requests for reasonable accommodation at the staff level. Often requests are processed within one week. Furthermore, the City provides zoning flexibility for rehabilitation of existing nonconforming housing. Some requests for reasonable accommodation may be processed under these provisions.

The City will continue to provide information regarding the extent of and procedures for requesting reasonable accommodation to the public. The City will also continue to monitor its development codes and procedures to ensure that no conditions exist to unduly constrain the development of housing for persons with disabilities. When constraints are identified, the City will work to mitigate or eliminate such constraints.

ZONING ORDINANCE

The Rocklin Zoning Ordinance complies with the Lanterman Developmental Disabilities Services Act in addressing community residential care facilities for persons with disabilities. Community care facilities serving six or fewer residents are permitted by right in all residential zones.

DEFINITION OF FAMILY

Local governments may restrict access to housing for households failing to qualify as a "family" by definition specified in the Zoning Code. Specifically, a restrictive definition of "family" that limits the number of and differentiates between related and unrelated individuals living together may illegally limit the development and siting of group homes for persons with disabilities but not for housing families that

are similarly sized or situated.[14] In 2011, the City of Rocklin amended its Zoning Ordinance to remove the definition of "family".

Dry Utilities

Dry utilities, including electricity and telephone service, are available to all areas within the City. The extension of power and gas to service new residential development has not been identified as a constraint. Service providers are as follows:

- Electricity: PG&E
- Telephone: AT&T
- Fiber Cable: AT&T

Conclusion

The amendments to the City's Zoning Ordinance related to persons with disabilities and the removal of the definition of family has enabled the policies to be less restrictive to the development, redevelopment, or modification of housing to address the needs of persons with disabilities.

ENVIRONMENTAL CONSTRAINTS

A community's environmental setting affects the feasibility and cost of developing housing. Environmental issues range from the availability of water and preservation of oak trees to the suitability of land for development due to potential exposure to seismic, flooding, wildfire and other hazards. This section summarizes these potential constraints in Rocklin. (Refer to the Community Safety Element and Open Space, Conservation and Recreation Element of the General Plan for more detailed analyses and mitigating policies that address environmental issues or hazards within the Rocklin area.)

Water Supply

The Placer County Water Agency (PCWA) provides domestic water service in the City of Rocklin. PCWA plans to increase the total available water supply with a new permanent American River Pump Station and Sacramento River Diversion. In its 2015 *Urban Water Management Plan*, PCWA estimated that Rocklin was anticipated to have the greatest expansion of development at build-out. PCWA concluded that its water entitlements were sufficient to meet the projected demands based on current General Plan land use designations and provisions.

As required by State law, the City of Rocklin consulted with PCWA in the development of its 2012 General

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14 *California court cases (City of Santa Barbara v. Adamson, 1980 and City of Chula Vista v. Pagard, 1981, etc.) have ruled an ordinance as invalid if it defines a "Family" as (a) an individual; (b) two or more persons related by blood, marriage, or adoption; (c) a group of not more than a specific number of unrelated persons as a single housekeeping unit. These cases have explained that defining a family in a manner that distinguishes between blood-related and non-blood related individuals does not serve any legitimate or useful objective or purpose recognized under the zoning and land use planning powers of a municipality, and therefore violates rights of privacy under the California Constitution.*

Plan Update to assure that there will be adequate water supply to serve future development. The City of Rocklin General Plan Update Environmental Impact Report (2011) also concluded that PCWA has adequate and reliable water supplies during normal and dry years to meet demand projected in association with the 2012 Rocklin General Plan Update. The City coordinates directly with the PCWA to ensure sufficient water supply is available for development.

The Public Facilities and Services Element includes policies to facilitate water conservation to help maintain adequate water supply for the community.

A copy of the Public Review Draft of this Housing Element was forwarded to PCWA for their review and an additional copy will be forwarded to PCWA once adopted.

Sewer Capacity

The South Placer Municipal Utility District (SPMUD) provides wastewater conveyance services to the City of Rocklin. SPMUD is a partner in the South Placer Wastewater Authority (SPWA) which provides wastewater treatment for the City of Rocklin and other municipalities via Regional Wastewater Treatment Facilities.

The SPMUD has indicated that the City's 2012 General Plan Update, in combination with other projects in the area, would not have a significant unanticipated cumulative impact on wastewater conveyance and treatment. The contribution of growth under the 2012 General Plan Update would not trigger the need for new regional wastewater conveyance or treatment beyond what has already been planned for by the SPMUD and SPWA. Regional wastewater conveyance and treatment was planned for in the SPWA's 2020 Systems Evaluation and Capacity Assurance Plan, which considered buildout development based on general plans and specific plans as of June 2012, plus estimated future growth for cities and county areas within their service area. The Systems Evaluation also included approved or near certain changes in zoning and development intensity for major planned development projects in Roseville, plus intensification in areas where redevelopment is anticipated in Roseville, Loomis, and Rocklin. Therefore, regional conveyance and treatment facilities for the buildout of the SPWA service area, including likely land use intensifications, have been planned for in the systems evaluation. Sewer line extensions and any necessary upsizing of existing lines are routinely addressed as part of the development review process. The sewer modeling performed as part of this plan suggested that in the Antelope Creek and Secret Ravine areas, aging infrastructure may affect the long-term sewer capacity, however long-term capital improvements are planned on these trunk sewers to address the potential for sewer overflows during wet weather. No system deficiencies were found in the Pleasant Grove basin which serves west Rocklin. Additionally, in 2014 the City Council passed Resolution 2014-15 which authorized the City Manager to enter into an agreement with SPMUD for the funding and construction of the planned replacement of the Atherton Trunk Sewer.

The estimated growth through 2060 would not trigger the need for new regional wastewater conveyance and treatment expansion planning beyond what has already been conducted by the SPMUD and SPWA.

A copy of this Housing Element was provided to SPMUD for their review and comment.

Oak Tree Preservation

Rocklin's oak woodlands are an important part of the City's heritage and constitute a valuable natural resource within the community. The oak woodlands provide habitat for wildlife, contribute to the City's beauty and varied scenery, provide shade in parks as well as in developed areas, and enrich soils and protect watersheds and streams from erosion. To address the decline of oak woodlands due to urbanization, the City adopted an Oak Tree Preservation Ordinance and implementing guidelines that strive to balance preservation with the social benefits of private property ownership and development. The City's oak tree preservation regulations establish a comprehensive design review process for new development, offer incentives for oak tree preservation, and provide feasible alternatives and options to removal where practicable, and provides for mitigation options where preservation is not possible consistent with the Rocklin General Plan Open Space Conservation and Recreation Elements of the Rocklin General Plan.

Seismic Safety

The Rocklin area is subject to moderate to strong ground shaking from large earthquakes on active faults in the Truckee/Lake Tahoe area and the Coast Ranges/San Francisco Bay area. An earthquake on the potentially active Foothills Fault Zone, which runs through Auburn, is less likely, but would probably produce much stronger motion due to the proximity of the Foothills Fault Zone to the Rocklin area.

Historically, seismic activity in the northern Sacramento Valley has been slight in comparison to the rest of California. Throughout recorded history, no major movement has occurred. Earthquakes felt locally are from seismic disturbances to the west of the valley and include the San Andreas, Calaveras and Hayward faults.

Flooding

Flood threats exist within the Rocklin area on occasion. Perennial streams flowing through the Rocklin area, including Antelope Creek, Secret Ravine Creek, Clover Valley Creek, and Sucker Creek, do not ordinarily carry large volumes of water. Although winter storms occasionally swell these streams to larger than average flows, the increased flows typically cause only very limited flooding that is restricted within existing flood plain areas. The City has a Recreation-Conservation (R-C) zoning designation for all established flood plain areas and restricts development in those areas that could have an adverse impact on flood control. The City also requires new development to detain drainage to maintain peak flow runoff at pre-development levels. Detention can be provided either on or off-site, provided it can be demonstrated that the detention facility will effectively meet City adopted goals and policies with respect to drainage.

Fire Protection

A significant amount of grassland and oak woodland exists within the Rocklin planning area. Fire danger is especially high in the summer months in these areas. Dry range grass is susceptible to wildland fires that can move quickly if there is a stiff breeze. Several fires have occurred within the Rocklin area in recent years.

The Rocklin Fire Department is responsible for reviewing all development proposals within the City to ensure the proper design, adequate sizing of infrastructure, provision of adequate access for firefighting equipment, and identification of fire hazard areas. The City encourages the restriction of construction of new buildings within 100 feet of designated fire hazard areas unless fuel modification measures are included in the design. Fire hazard areas are those that create excessive firefighting problems due to slope, lot and / or street configuration.

ISO Rating

The Insurance Services Office (ISO) is an independent organization that serves insurance companies, fire departments, insurance regulators, and others by providing information about risk. ISO's Public Protection Classification (PPC) service gauges the quality of local fire departments by collecting information on a community's public fire protection and then analyzing the data using a Fire Suppression Rating Schedule (FSRS). ISO then assigns a PPC from 1 to 10. Class 1 represents the best public protection and Class 10 indicates no recognized protection. The Rocklin Fire Department currently has an ISO Public Protection Classification rating of 2.

Other Hazards

Natural gas and refined petroleum product transmission lines cross through the Rocklin area. A petroleum products storage tank farm operated by Kinder Morgan is also located to the southwest of the Sunset Boulevard/Pacific Street intersection. The rupture of transmission lines or petroleum storage tank presents a potential hazard.

The Safety Element provides for various policies to mitigate and address these environmental constraints and safety issues.

7-4 HOUSING RESOURCES

REGIONAL HOUSING NEED

State law (California Government Code Section 65584) requires that each city and county plan to accommodate a fair share of the region's housing construction needs. In urban areas, state law provides for councils of governments to prepare regional housing allocation plans that assign a share of a region's housing construction need to each city and county. In the six-county greater Sacramento region (comprising the counties of Sacramento, Placer, El Dorado, Yolo, Sutter, and Yuba), SACOG is the entity authorized to determine the future housing needs for the region. SACOG adopted a regional housing allocation plan in March 2020, called the Regional Housing Needs Plan (RHNP). This plan covers the period from May 15, 2021, through May 15, 2029.

The Regional Housing Needs Allocation (RHNA) is a minimum projection of additional housing units needed to accommodate projected household growth at all income levels by the end of the housing element's statutory planning period.

Table 7-36 shows the City's regional housing need by income level.

TABLE 7-36: REGIONAL HOUSING NEED ALLOCATION 2021-2029

Income Category (% of County AMI)	Number of Units	Percent
Very Low (31 to 50%)	1,911	33.8%
Low (51 to 80%)	1,151	20.3%
Moderate (81% to 120%)	771	13.6%
Above Moderate (Over 120%)	1,828	32.3%
Total	5,661	100.0%

Source: Final Regional Housing Needs Plan, SACOG, 2020.
*Note: * It is assumed that 50 percent of the low income RHNA will be allocated towards extremely low-income units.*

UNACCOMMODATED REGIONAL HOUSING NEED ALLOCATION FROM THE 5TH CYCLE

Program 11 of the 2013–2021 Housing Element stated that the City would identify and rezone approximately 261.4 acres of underutilized and vacant land within the City, at a minimum density of 22 units per acre with a maximum allowable density of 30 units per acre. This rezone would have provided for the development of the remaining lower-income RHNA of 1,769 units

After further review it was determined that there were several sites that were appropriately zoned with a corresponding land use designation to accommodate the 5th cycle RHNA in 2012, with additional sites available in 2014. Table 7-37 below depicts the available sites prior to the beginning of the 5th cycle projection period (January 1, 2013). Table 7-38 summarizes the available capacity in the 5th cycle planning period compared to the 5th cycle RHNA. Table 7-38 shows that the City had capacity for 1,288 units and after subtracting the 1,769 lower- income RHNA, there is an unaccommodated need of 481 units.

TABLE 7-37: AVAILABLE SITES FOR RESIDENTIAL DEVELOPMENT DURING THE 5TH CYCLE PLANNING PERIOD							
Year Available	**Site Name**	**Zoning**	**Approximate Vacant Acreage**	**Permitted Density (Units/Acre)**	**Realistic Density**	**Max Capacity**	**Realistic Capacity**
	Mixed Use High Density Residential Sites						
2012	Whitney Ranch Parcel 2	MU (HDR)	18.7	22 to 30	22	411	205
2012	Whitney Ranch Parcel 3	MU (HDR)	11.8	22 to 30	22	259	129
2012	Sierra College property east of Sierra College Blvd.	MU (HDR)	70.8	22 to 30	22	1,557	778
2012	Big Gun Quarry Area	MU (HDR)	8.1	22 to 30	22	178	44
2012	Front Street Area	MU (HDR)	10.3	22 to 30	22	226	113
2012	Deercreek Lumber Area	MU (HDR)	1.8	22 to 30	22	39	19
Units Available in 2012 - prior to the start of the 5th cycle planning period.							**1,288**

Source: SACOG, City of Rocklin, May 2021.

TABLE 7-38: UNACCOMMODATED LOWER INCOME NEED FROM THE 2013–2021 PLANNING PERIOD			
5th Cycle RHNA		**5th Cycle Site Capacity**	**Remaining RHNA**
Very Low	1,040	1,288	481
Low	729		

Source: SACOG, City of Rocklin, May 2021.

Based on the unaccommodated need from the previous cycle and the need of the 6th Cycle RHNA, the City must accommodate 3,543 units in the lower income category. Table 7-39 shows the RHNA that the City needs to accommodate for the lower income RHNA for the 5th and 6th Cycles.

TABLE 7-39: 5TH AND 6TH CYCLE LOWER INCOME RHNA TO ACCOMMODATE			
Income Category	**Unaccommodated Need from the 5th Cycle**	**6th Cycle RHNA**	**Total RHNA to Accommodate**
Very Low	481	3,062	3,543
Low			

Source: SACOG, City of Rocklin, May 2021.

REALISTIC CAPACITY

Housing Element law requires jurisdictions to provide a requisite analysis showing that zones identified for lower-income households are sufficient to encourage such development. The law provides two options for preparing the analysis: (1) describe market demand and trends, financial feasibility, and recent development experience; (2) utilize default density standards deemed adequate to meet the appropriate zoning test. According to state law, the default density standard for the City of Rocklin is 30 dwelling units per acre.

The City is relying on the High Density Residential land use designation that currently allows for 15.5 or more units per acre and the Mixed Use land use designation that currently allows from 10-40 units per acre. There is no density cap on development within the High-Density Residential land use designation. Program 10 will modify the allowable densities to require a minimum of 24 units per acre for both designations. Additionally, for the Mixed-Use sites that the City is relying on to accommodate a portion of the lower income RHNA the analysis includes a conservative approach and reduced the unit potential by 50% to accommodate potential for non-residential development.

AVAILABILITY OF SITES

SITE IDENTIFICATION PROCESS

The City is required by state law to identify and maintain an Available Sites Inventory that provides zoning and land use at densities considered feasible to accommodate the City's RHNA for all income levels. The default density standard for the City of Rocklin is 30 units per acre.

Since 2018, City staff has worked to identify available sites with assistance from the RHNA Ad Hoc Committee.

The Ad Hoc Committee consisted of two City Council Members, two Planning Commissioners, one former mayor, three housing developers (including those with expertise in affordable housing development) and a representative from the Building Industry Association. All meetings of the Committee were open to and regularly attended by members of the public. The City also retained a professional meeting facilitator to assist throughout the process.

The focus of the Ad Hoc Committee was:

1. Review and provide recommendations related to the Land Use Balance Assessment.
2. Develop guidelines to evaluate requests for rezoning/re-designation of property from non-residential to residential and/or increase residential densities to 22+ units per acre.
3. Develop recommendations to update the City's inventory of available sites for affordable residential development and any additional criteria for considering future changes to the inventory with the goal of meeting the City's RHNA.
4. Prepare recommendations to clarify the standards for development in Mixed Use zones.

The City received preliminary recommendations from the Committee regarding potential sites to be included in the City's available sites inventory which were reviewed by the Planning Commission at a public workshop conducted on April 16, 2019 and a final sites vote on June 21, 2019 was informed by input from the Planning Commission workshop conducted in April 2019 and the information presented by the Land Use Balance Assessment consultants on March 17, 2019.

Property owners of all sites under consideration were notified of the workshops and the Committee's work efforts by direct mail. Several landowners as well as RHNA Committee Members and members of the public were in attendance.

To help inform the development of a potential sites list, the City identified a set of objective criteria (both positive and negative). Criteria included avoiding locations that were largely adjacent to single-family land uses and considering sites that were in close proximity to arterials and transit routes, parks, services and places of employment. Looking at the types of land use conversions that might be considered, a number of items came into play, such as the age of structures, whether or not properties had existing revenue or job generating land uses, and whether existing developed sites were significantly underutilized.

Vacant land was preferred to developed land, but redevelopment of some sites was factored in due to the lack of areas for expansion, since the City is close to buildout. Ultimate City Council action on the sites to be selected was based in large part on the recommendations from the Committee.

Large Sites

Per State law, sites smaller than half an acre or larger than 10 acres are not considered adequate to accommodate lower income housing needs unless it can be demonstrated that sites of equivalent size were successfully developed during the prior planning period or other evidence is provided that the site can be developed as lower income housing. The City has assisted with large lot development as discussed under the heading -- *Large Site and Underutilized Site - Project Examples*.

Underutilized Sites

The inventory lists several non-vacant, underutilized sites with land use designations that allow for residential development and are suitable for residential redevelopment at a higher density or with greater intensity. The inventory includes analysis for the vacant developable portion of underutilized sites, on underutilized sites consisting of excess parking areas or abandoned foundations, the entire site is included as it is anticipated that the parking would be redeveloped, and where demolition of an existing structure would be required and there's uncertainty about whether or not that is feasible during the projection period, the assumed capacity has been reduced, assuming 24 units per acre.

Large Site and Underutilized Site - Project Examples

The City's Mixed Use (MU) General Plan Land Use Designation allows for office, commercial and residential uses with a density range of 10 to 40 units per acre. There is currently no percent requirement for office, commercial or residential, the site can develop with just one of any of the three use types. Since the City created the Mixed-Use Land Use Designation in 2012 as part of its comprehensive General Plan Update, the actual development proposals that have come forward are largely solely residential.

It is typical for MU sites to develop with solely residential.

- The Wildcat Subdivision (aka Durango) in Whitney Ranch, the Spring Valley Project in North West Rocklin.
- The Pines Assisted Living site in North West Rocklin
- The Rocklin Gateway Project at Midas and Pacific Street in Central Rocklin.

The City is also currently processing an application for another Mixed Use site in North West Rocklin (Placer Creek Apartments) which would also be a solely residential project.

It should be noted that several of the units in both the Spring Valley and Wildcat Subdivision projects consisted of single family residential for sale products that sold at Moderate Income levels. The Rocklin Gateway Project has not yet been constructed, but was approved for 204 apartment units, 42 of which were required to be affordable to lower income households at 80% or less AMI. Although ideally the MU designation would result in the construction of true vertical or horizontal mixed use projects, the City has a healthy track record of approving solely residential projects within that land use category.

K-Mart Site Redevelopment into the Quarry Place Project – The City has also worked creatively with St. Anton Development Company, a well-known affordable housing developer, to process entitlements including a General Plan Amendment, Rezone, Tentative Subdivision Map and Design Review to facilitate the conversion of the former K-Mart property (both vacant and developed commercial parcels) located at the corner of Pacific Street and Sunset Boulevard into 180 apartments that will be 100% affordable to households at 50 and 60% AMI. The project also includes 40 small lot single family residential lots (referred to as "Cobblestone") and two future commercial pads on the Pacific Street frontage of the development. The 15.4 acre site originally consisted of 9 separate parcels that were consolidated and reconfigured into the new development layout. The density of the apartment component is just under 21 dwelling units per acre. Removal of the former K-Mart retail building (i.e., 86,479 square feet in size and built in 1988) is a key component of the development plan illustrating that redevelopment opportunities are feasible.

Another residential development proposed on a consolidated site greater than 10 acres is the Placer Creek Apartments project (a current application for a Rezone and Design Review). This proposal would combine one 0.84-acre site and one 9.18-acre site into a single 10.2 acre parcel and proposes the development of 232 apartments.

In 2015, developers requested the creation of 14.23-acre site out of a 92-acre parcel and processed a Use Permit and Design Review entitlement to create the Sagora Senior Independent Living and Assisted Living Project on a site in Northwest Rocklin designated as Business Professional and zoned Business Professional/Commercial (PD-BP/Comm). The project is age restricted and consists of 226 total living units offering a range of living and care options including duplex cottages, independent living units, assisted living units, and memory care. This project is now fully developed and occupied.

SMALL SITE RESIDENTIAL DEVELOPMENTS

While there are examples of multifamily development projects and proposals on parcels larger than 10 acres in the City, there are also examples where multifamily housing units have been developed or proposed on small sites or a series of small sites that have been consolidated.

There is an existing occupied 6-unit single story garden court style apartment building on a 0.43-acre lot (Assessor's Parcel Number 016-230-005) located at 3350 Sunset Boulevard.

Just prior to the economic downturn, the City approved Triton Towers, a mixed-use project on Sunset Boulevard, consisting of a two-story office building and 10 detached single family residential units on a 1.26 acre site created by the consolidation of 3 contiguous lots consisting of Assessor's Parcel Numbers 016-230-001, 002, and 003. The individual lots were each 0.42 acres in size. Unfortunately, the proposal was not developed due to economic conditions at the time, however, the current landowner has expressed interest in coming forward with a revised proposal in the future that includes residential development.

Hidden Grove Apartments is also a 124-unit multifamily complex located at 5415 South Grove Street that has been developed through consolidation of numerous parcels ranging in size from two at 0.20 acre and others at 0.28, 0.31, 2.25 and 2.26 acres (Assessor's Parcel Numbers: 010-270-014, 010-270-013, 010-270-012; 010-270-010; 010-270-009; and 010-270-015) for a combined total of 5.84 acres.

The examples of both large site development and consolidation of small sites show that the City has a history of this type of development and therefore believe that all sites included in the inventory are appropriate to meet the City's RHNA.

Accessory Dwelling Unit Capacity

Recent changes in State law have promoted the development of accessory dwelling units (ADUs) by limiting restrictions a local jurisdiction can place on such units. ADUs can be an important source of affordable housing as they can be constructed relatively cheaply and have no associated land costs. ADUs can also provide supplemental income to the homeowner, allowing the elderly to remain in their homes

or moderate-income families to afford housing. The City has included Program 7 to promote production of ADUs through educational materials, process streamlining, and pre-approved plans.

Government Code Section 65583.1 states that a city or county may identify sites for ADUs based on the number of ADUs developed in the prior housing element planning period, whether or not the units are permitted by right, the need for ADUs in the community, the resources or incentives available for their development, and any other relevant factors. Based on recent changes in State law reducing the time to review and approve ADU applications, requiring ADUs that meet requirements be allowed by right, eliminating discretionary review for most ADUs, and removing other restrictions on ADUs.

The City reviewed past trends of ADU construction from January 2018 through December 2020 to determine an annual average of 3.25 ADUs per year. Based off the annual average and the addition of Program 7 which promotes the development of ADUs, the City assumed an average of 5 ADUs per year which is a projected 40 ADUs for the 2021-2029 timeframe. Although the 5 units per year will be used to accommodate a portion of the City's RHNA, as shown in Table 7-41, the City believes that based on additional marketing efforts there will be a much higher ADU production rate, as discussed in Appendix B. Although the City assumes a higher production, no additional units beyond the 40 ADUs will be used to meet the 2021 – 2029 RHNA.

In order to determine assumptions on ADU Affordability the City has inquired with landowners of most recent ADU applications and discovered that the vast majority are being constructed to accommodate extended family with little or in most cases no rent being charged. Unlike larger metropolitan areas, the impetus driving ADU development in Rocklin does not seem to be for income. Therefore, the City has assumed that of the total 40 ADUs that are projected to be built during the projection period, 30 are estimated to lower-income households, 10 to moderate-income households, and 0 to above-moderate income households (Table 7-40).

TABLE 7-40:
AFFORDABILITY OF ACCESSORY DWELLING UNITS IN THE CITY OF ROCKLIN

Income Level	Percent of Affordable ADUs
Extremely Low	25%
Very Low	15%
Low	35%
Moderate	24%
Above Moderate	1%

Source: City of Rocklin, 2020.

MEETING THE RHNA

Table 7-41 compares the City of Rocklin's RHNA to the site inventory capacity. This capacity is based on implementation of Program 10 which commits the City to rezoning 159.91 acres to accommodate the lower income housing need and 77.75 acres to accommodate the moderate-income housing need. Based on these rezones, projected ADUs, and approved projects, the City has a surplus of 301 units available to

lower-income households (including extremely low-, very low-, and low-), 239 units available to moderate-income households, and 152 units available to above moderate-income households, a total surplus of 692 units.

Table 7-42 provides the characteristics of the available sites to accommodate the lower income RHNA, Table 7-43 lists sites to accommodate the moderate income RHNA and Table 7-44 includes capacity that will accommodate the City's above moderate RHNA. Tables 7-42 and 7-43 list the current zoning and General Plan Designation and the proposed changes per Program 10. The minimum density to meet the lower income RHNA will be 24 units per acre. Assumed density (realistic capacity) for the lower income RHNA is 30 units per acre. The Mixed Use Land Use designation allows up to 40 dwelling units per acre and there is no cap on density for sites designated as High Density Residential. Mixed use sites assume a realistic capacity of 12 units per acre.

TABLE 7-41: COMPARISON OF REGIONAL HOUSING NEED AND SITE CAPACITY

Income Category	Number of Units	5th Cycle Carryover	Vacant Site Capacity*		Underutilized Site Capacity*		Projected ADU Capacity	Capacity from Table7-42	Unit Surplus
			Residential	Mixed Use	Residential	Mixed Use			
Very Low	1,911	481	1365	583	1497	369	30		301
Low	1,151								
Moderate	771	--			805	195	10		239
Above Moderate	1,828	--					0	1,980	152
Total	**5,661**	**481**	**1365**	**583**	**2302**	**564**	**40**	**1,980**	**692**

Source: City of Rocklin, November 2020.
**Capacity is based on implementation of Program 10.*

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA

New Site #	APN	Total Acreage	Assumed Acreage	Location	Existing GP	Proposed GP	Existing Zoning	Proposed Zoning	Assumed Density	Unit Capacity[1]	NOTES	Site Affordability	Previous Site #
Vacant Residential Sites													
1	045-013-022-000	6.00	6.00	Between Granite Dr and Pacific St / near Dovetail Dr	HDR and R-C	HDR	M-2 and OA	Res-24+	30	180		Lower	Site 18
2	010-270-008-000	2.71	2.71	South Grove St near Winding Ln - South of DMV	MU	HDR	PD-R	Res-24+	30	81		Lower	Site 19
3	016-220-005-000	0.44	1.29	W side of Sunset Blvd between Springview Meadows /Third St and Whitney Blvd	RC	HDR	C-1	Res-24+	30	38		Lower	Site 10 (Portion)
	016-220-004-000	0.44											
	016-220-006-000	0.41											
4	045-131-001-000	21.68	5.00	Rocklin Rd and El Don Dr	MU	HDR	PD-C	Res-24+	30	150	This site is owned by Sierra college and there is currently a developer contracted and proposing to build a senior project on the site within the agreed upon acreage of 5 acres.	Lower	Site 26
	045-131-003-000	13.42											
5	010-024-002-000	1.20	2.45	Midas Ave between UPRR and Meadow Way	RC	HDR	UN	Res-24+	30	73		Lower	Site 15
	010-023-002-000	1.25											
6	045-013-023-000	7.58	7.50	Pacific St near Brace Road - Former Bella Vida Site -	RC, R-C and HDR	HDR	C-2 and OA	Res-24+	30	225	Significant Open Space/ Floodplain, acreage reduced	Lower	Site 17
	045-013-024-000	5.06											
7	017-276-004-000	25.0	10.00	W side of University Ave /Adjacent to SR 65	LI	HDR	PD-LI	Res-24+	30	300	large majority wetlands, acreage reduced	Lower	Site 2
8	045-101-059-000	1.48	1.48	Granite Dr near Rocklin Rd	RC and R-C	HDR	C-2	Res-24+	30	44		Lower	Site 20
9	017-281-014-000	4.00	4.00	W side of Lonetree Boulevard, between Atherton Rd and West Oaks Blvd	LI	HDR	PD-IP	Res-24+	30	120	Undefined resource area, acreage reduced	Lower	SITE A-6 (Portion)

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA

New Site #	APN	Total Acreage	Assumed Acreage	Location	Existing GP	Proposed GP	Existing Zoning	Proposed Zoning	Assumed Density	Unit Capacity[1]	NOTES	Site Affordability	Previous Site #
10	017-281-015-000	5.16	5.16	W side of Lonetree Blvd, between Atherton Rd and West Oaks Blvd	LI	HDR	PD-IP	Res-24+	30	154		Lower	SITE A-6 (Portion)
		80.83	**45.59**							1365			
Vacant Mixed-Use Sites													
11	Portion of 378-010-003	2.1	13.00	NW corner of W Stanford Ranch Road and Wildcat Blvd.	BP/C/LI	MU	BP/C/LI	MU-24+	15	195		Lower	NEW Site A-10
	Portion of 378-010-004	3.51											
	378-010-007	7.39											
12	010-162-001-000	1.29	1.29	Pacific St and Bush St	MU	MU	C-3	MU-24+	15	19		Lower	Site 13
13	017-284-029-000	0.60	3.52	S side of West Lonetree Blvd	RC	MU	PD-BP/C	MU-24+	15	52	Gross Acreage is 4.18 but some of it is drive aisles. Sites are all contiguous.	Lower	Site 6 (Portion)
	017-284-028-000	0.61											
	017-284-006-000	1.88											
	017-284-030-000	0.66											
	017-284-027-000	0.43											
14	016-230-003-000	0.42	1.26	W Sunset Blvd between Springview Meadows /Third St and Whitney Blvd	MU	MU	PD-MU	PD-MU	15	18		Lower	Site 10 (Portion)
	016-230-002-000	0.42											
	016-230-001-000	0.42											
15	010-082-059-000	1.28	1.28	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	19		Lower	Site 16 (Portion)
16	010-121-001-000	1.38	1.38	Oak / Pine and Pacific St	MU	MU	C-4	MU-24+	15	20		Lower	Site 14
17	017-284-026-000	1.52	1.52	S side of West Lonetree Blvd	RC	MU	PD-BP/C	MU-24+	15	22		Lower	Site 6 (Portion)
18	017-281-016-000	6.55	6.55	NW corner of Lonetree Blvd and West Oaks Blvd	LI	MU	PD-IP	MU-24+	15	98		Lower	SITE A-6 (Portion)
19	017-284-015-000	6.74	6.74	NE corner of Lonetree Blvd and West Oaks Blvd	LI	MU	PD-IP	MU-24+	15	101		Lower	SITE A-6 (Portion)
20	017-190-045	2.64	2.64	Stanford Ranch Road and Victory Lane	BP/C/LI	MU	PD-BP/C	MU-24+	15	39		Lower	Former Site 8 now Portion Site A-12
		39.84	39.18							583			
Underutilized Residential Sites[2]													
21	016-170-014-000	3.09	3.09	Sunset Blvd and Coronado Way	PQP	HDR	PD-15	Res-24+	30	92	Currently a church originally constructed in 1975. Potential to construct housing on the north and west portions of the site or full site redevelopment should	Lower	Site 9

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA

New Site #	APN	Total Acreage	Assumed Acreage	Location	Existing GP	Proposed GP	Existing Zoning	Proposed Zoning	Assumed Density	Unit Capacity[1]	NOTES	Site Affordability	Previous Site #
											the church elect to relocate in the future.		
22	045-052-038	24.07	16.90	W side of Sierra College Blvd south of Dominquez Road.	RC and R-C	HDR	PD- C and PD-OA	Res-24+	30	507	Single family home on site constructed in 1963. Owner interested in developing multi-family. Site also has biological resources, so acreage is reduced.	Lower	Site 22
23	045-052-012-000	1.60	1.60	W side of Sierra College Blvd, just north of College Campus property and south of Secret Ravine Creek -	RC and R-C	HDR	PD-OA	Res-24+	30	48	Single-family home on the southern half of the site constructed in 1948. Acreage reduced due to open space and creek on-site.	Lower	Site 23
24	016-230-013-000	0.38	1.17	E side of Sunset Blvd between Springview Meadows /Third St and Whitney Blvd	BP	HDR	C-1	Res-24+	30	35	Approximately 1/4 of 016-230-011-000 is covered by a parking lot. Office building associated with the parking lot was constructed in 1963.	Lower	Site 11
	016-230-011-000	0.39											
	016-230-012-000	0.40											
25	365-020-067-000	4.36	10.00	Lonetree Blvd and Terminus of West Oaks Extn/ Adjacent to SR 65 -East Portion Only	BP/C/LI	HDR	PD-BP/C/LI	Res-24+	30	300	Site contains five abandoned foundations and a drainage basin, all built in 2005, that would need to be removed or built around. Site was recently purchased by a new owner who has expressed interest in creating a high-density residential project.	Lower	Site 5
	365-020-072-000	1.26											
	365-020-071-000	0.85											
	365-020-069-000	0.72											
	365-020-070-000	0.99											
	365-020-068-000	4.32											
26	016-351-035-000	6.50	6.50	Pacific Street at Roseville/Rocklin border (6355 Pacific Street)	HI	HDR	M-2	Res-24+	30	195	Auto dismantler on-site that would need to be removed in order to develop housing. The majority of the site does not have physical improvements on it. Existing buildings were constructed in 1974.	Lower	SITE A-1
27	016-460-030-000	5.25	5.25	Fairway Dr and Stanford Ranch Road (6500 Fairway Drive)	RC	HDR	PD-C	Res-24+	30	157	Storage facility on-site that would need to be removed in order to develop housing. Existing structures were constructed in 1998. Construction type (storage units) are easily removed at the time of redevelopment.	Lower	SITE A-3
28	016-410-008-000	3.02	3.02	Corner of Springview Dr and Hearthstone Circle (5901 Springview Dr)	RC	HDR	PD-C	Res-24+	30	90	Storage facility on-site that would need to be removed in order to develop housing.	Lower	SITE A-4

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA

New Site #	APN	Total Acreage	Assumed Acreage	Location	Existing GP	Proposed GP	Existing Zoning	Proposed Zoning	Assumed Density	Unit Capacity[1]	NOTES	Site Affordability	Previous Site #
											Existing structures were constructed in 1987. Construction type (storage units) are easily removed at the time of redevelopment.		
29	045-031-041-000	2.46	2.46	W Side of Sierra Meadows Drive at Tuttle Drive (2340 Sierra Meadows Dr)	LI	HDR	LI	Res-24+	30	73	Storage facility on-site that would need to be removed in order to develop housing. Existing structures were constructed in 1983. Construction type (storage units) are easily removed at the time of redevelopment.	Lower	SITE A-5
		59.66	49.99							1497			
Underutilized Mixed-Use Sites													
30	010-030-006-000	0.65	0.65	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	9	Partly fenced lot. Undeveloped, but with dirt paths.	Lower	Site 16 (Portion)
31	010-030-005-000 010-030-004-000	0.15 0.16	0.31	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	4	Single-family home on the eastern portion of the site constructed in 1949. Some small accessory buildings (possibly a shed) on the western portion.	Lower	Site 16 (Portion)
32	010-030-007-000	2.65	2.65	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	39	Currently Royal Oaks Mobile Home Park. Originally constructed in 1985. Approximately 34 units. Most are older mobile homes and some are RV's. City discussed redevelopment potential with experienced affordable housing developer who indicated that relocation requirements would not be cost prohibitive and that redevelopment especially in conjunction with adjacent lots as envisioned had high potential.	Lower	Site 16 (Portion)

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA

New Site #	APN	Total Acreage	Assumed Acreage	Location	Existing GP	Proposed GP	Existing Zoning	Proposed Zoning	Assumed Density	Unit Capacity[1]	NOTES	Site Affordability	Previous Site #
33	010-030-001-000	0.95	0.95	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	14	Western half of the lot (street frontage) is self-serve by hand car wash constructed in 1985. Construction type is easily removed at the time of redevelopment. Eastern half of site is vacant. Owner has expressed interest in housing development in the vacant portion in the near term.	Lower	Site 16 (Portion)
34	010-082-063-000	0.58	1.35	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	20	Existing use is outdoor recreation vehicle sales. The majority of the site has no permanent structures. The existing sales office building was constructed in 1976 and would need to be removed as part of redevelopment.	Lower	Site 16 (Portion)
	010-082-061-000	0.77											
35	010-030-002-000	0.45	0.45	Grove and Pacific Streets	RC	MU	C-3	MU-24+	15	6	Commercial buildings on-site originally constructed in 1946. Vacant space on northeast quarter of the parcel.	Lower	Site 16 (Portion)
36	367-160-008	6.15	6.15	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	92	Stanford Ranch Plaza with Save Mart and associated parking lot. Originally constructed in 2002. However, this center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-11
37	367-160-007	1.05	3.36	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	50	Stanford Ranch Plaza with shops and associated parking lot. Originally constructed in 2002. However, this center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-11
	367-160-009	0.55											
	367-160-011	0.62											
	367-160-012	1.14											
38	367-160-010	0.88	0.88	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	13	Stanford Ranch Plaza with bank and associated parking lot. This center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-11
39	367-160-014	0.80	0.56	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	8	The Shops at Stanford Ranch. Pad site, reduced acreage. Constructed in 2003 and currently occupied as an office	Lower	Portion A-12

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA

New Site #	APN	Total Acreage	Assumed Acreage	Location	Existing GP	Proposed GP	Existing Zoning	Proposed Zoning	Assumed Density	Unit Capacity[1]	NOTES	Site Affordability	Previous Site #
											for a roofing contractor. This center has had difficulty getting and retaining tenants since its opening.		
40	367-160-015	0.47	0.47	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	7	The Shops at Stanford Ranch pad building and parking. Existing building constructed in 2004 appears to be partially vacant. This center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-12
41	367-160-016	0.88	0.88	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	13	The Shops at Stanford Ranch pad building and parking. Existing building constructed in 2004 appears to be partially vacant. This center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-12
42	367-160-017	1.33	1.33	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	19	Stanford Ranch Plaza with shops and associated parking lot. Existing building constructed in 2003. This center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-12
43	367-160-018	2.52	2.52	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	37	Stanford Ranch Plaza with CVS and associated parking lot. This site is the anchor tenant for the center. Over the years the current tenant has explored relocation several times and would prefer a location where a drive through could be added. That design is not possible at this location.	Lower	Portion A-12
44	367-160-019	1.76	1.76	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	26	Stanford Ranch Plaza with shops and associated parking lot. Multi tenant building constructed in 2006. Appears to be partially vacant. This center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-12
45	367-160-020	0.44	0.44	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	6	The Shops at Stanford Ranch multi tenant pad building and associated parking. Building	Lower	Portion A-12

TABLE 7-42: AVAILABLE SITES TO ACCOMMODATE THE LOWER INCOME RHNA													
New Site #	**APN**	**Total Acreage**	**Assumed Acreage**	**Location**	**Existing GP**	**Proposed GP**	**Existing Zoning**	**Proposed Zoning**	**Assumed Density**	**Unit Capacity[1]**	**NOTES**	**Site Affordability**	**Previous Site #**
											constructed in 2003. Appears to be partially vacant. This center has had difficulty getting and retaining tenants since its opening.		
46	367-160-021	0.44	0.44	Park Drive and Stanford Ranch Road.	BP/C/LI	MU	PD-BP/C	MU-24+	15	6	The Shops at Stanford Ranch multi tenant pad building and associated parking. Building constructed in 2005. This center has had difficulty getting and retaining tenants since its opening.	Lower	Portion A-12
		25.39	25.15							369			

Source: City of Rocklin, November 2020.

1.Mixed use capacity is assumed at 50 percent to accommodate nonresidential uses.

2.Underutilized (non-vacant) sites only account for 49 percent of the lower income RHNA sites.

Table 7-43: Available Sites Accommodate the Moderate Income RHNA									
Site #	**Site Name**	**APN**	**Acreage**	**General Plan Designation**	**Existing Zoning**	**Proposed Zoning**	**Unit Capacity**	**Notes**	**Affordability**
Vacant Residential Sites									
	China Garden	045-400-013 045-110-034	6.86	HDR	C-2	R-3	106		Moderate
	Aguilar Area West	045-110-063	3.4	MHDR	R-3		30		Moderate
	Aguilar Area West	045-110-064	0.6	MHDR	R-3		5		Moderate
	Aguilar Area West	045-110-065	0.4	MHDR	R-3		3		Moderate
	Aguilar Area West	045-120-052	1.1	MHDR	R-3		9		Moderate
	Aguilar Area West	045-120-059	1.6	MHDR	R-3		14		Moderate
	Aguilar Area West	045-120-060	1.9	MHDR	R-3		17		Moderate
	Sierra Gateway Site	045-161-014	0.8	HDR	PD-20		16		Moderate
	Sierra Gateway Site	045-161-015	3.1	HDR	PD-20		62		Moderate
	Sierra Gateway Site	045-161-016	5.9	HDR	PD-20		118		Moderate
	Sunset Whitney	016-240-044	4.8	HDR	PD-R		96		Moderate
	Sunset Whitney	016-210-011 (portion)	3.7	HDR	PD-R		59		Moderate
	Snecchi High Density north of Creek	045-053-064 (portion)	5	HDR	PD-C		80		Moderate
	Whitney Ranch Unit 8	017-172-014	11.9	HDR	PD-20		190		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161-015	0.3	MU	PD-C-4, C-4	MU-10+	3		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161-016	0.3	MU	PD-C-4, C-4	MU-10+	3		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-040-039	0.4	MU	PD-C-4, C-4	MU-10+	4		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-121-002	0.08	MU	PD-C-4, C-4	MU-10+	0		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-121-004	0.2	MU	PD-C-4, C-4	MU-10+	2		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-121-005	0.2	MU	PD-C-4, C-4	MU-10+	2		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-121-006	0.2	MU	PD-C-4, C-4	MU-10+	2		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-122-009	0.05	MU	PD-C-4, C-4	MU-10+	0		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-122-010	0.07	MU	PD-C-4, C-4	MU-10+	0		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-122-011	0.05	MU	PD-C-4, C-4	MU-10+	0		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-122-012	0.1	MU	PD-C-4, C-4	MU-10+	1		Moderate

Table 7-43: Available Sites Accommodate the Moderate Income RHNA									
Site #	**Site Name**	**APN**	**Acreage**	**General Plan Designation**	**Existing Zoning**	**Proposed Zoning**	**Unit Capacity**	**Notes**	**Affordability**
	Downtown Plan Blocks 35 and 37	Block 37: 010-131-006	0.3	MU	C-4	MU-10+	3		Moderate
	Downtown Plan Block 33	010-170-002	0.3	MU	PD-C-4	MU-10+	3		Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-002	0.3	MU	C-4, C-2	MU-10+	3		Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-012	0.2	MU	C-4, C-2	MU-10+	2		Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-015	0.2	MU	C-4, C-2	MU-10+	2		Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-009	0.06	MU	C-4, C-2	MU-10+	0		Moderate
	Downtown Plan Blocks 40 and 42	Block 40: 010-092-010	0.3	MU	C-4	MU-10+	3		Moderate
	Downtown Plan Blocks 40 and 42	Block 42: 010-091-018	0.2	MU	C-4	MU-10+	2		Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-044	0.2	MU	C-2, R1-5	MU-10+	2		Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 55: 010-134-010	0.3	MU	C-2, R1-5	MU-10+	3		Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 57: 010-132-013	0.2	MU	C-2, R1-5	MU-10+	2		Moderate
			51.06				805		
Underutilized Mixed-Use Sites									
	Downtown Plan Block 6	010-191-018	2	MU	PD-C-2	MU-10+	20		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161-003	0.4	MU	PD-C-4, C-4	MU-10+	4		Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161- 004	0.07	MU	PD-C-4, C-4	MU-10+	0	Storage yard.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161-005	0.07	MU	PD-C-4, C-4	MU-10+	0	Single-family residence, built in 1930.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161-011	0.3	MU	PD-C-4, C-4	MU-10+	3	Office building, built in 1910.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 34: 010-161-013	0.4	MU	PD-C-4, C-4	MU-10+	4	Commercial building (organ refurbishing) and associated parking.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-001	0.2	MU	PD-C-4, C-4	MU-10+	2	Single-family residence, built in 1888.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-002	0.2	MU	PD-C-4, C-4	MU-10+	2	Single-family residence and commercial building with associated parking.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-003	0.1	MU	PD-C-4, C-4	MU-10+	1	Single-family residence, built in 1900	Moderate

Table 7-43: Available Sites Accommodate the Moderate Income RHNA									
Site #	**Site Name**	**APN**	**Acreage**	**General Plan Designation**	**Existing Zoning**	**Proposed Zoning**	**Unit Capacity**	**Notes**	**Affordability**
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-004	0.2	MU	PD-C-4, C-4	MU-10+	2	Single-family residence, built in 1920	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-005	0.3	MU	PD-C-4, C-4	MU-10+	3	Restaurant built in 1964.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-015	0.1	MU	PD-C-4, C-4	MU-10+	1	Parking lot.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-016	0.2	MU	PD-C-4, C-4	MU-10+	2	Restaurant built in 1962.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 36: 010-122-017	0.04	MU	PD-C-4, C-4	MU-10+	0	Restaurant built in 1987.	Moderate
	Downtown Plan Blocks 34, 36, 38 and 39	Block 39: 010-122-013	0.07	MU	PD-C-4, C-4	MU-10+	0	Upholstery shop on street frontage. Rear portion of the parcel is empty.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-009	0.2	MU	C-4	MU-10+	2	Single-family home on site, built 1938.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-010	0.2	MU	C-4	MU-10+	2	Single-family home on site, built 1925.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-012	0.2	MU	C-4	MU-10+	2	Single-family home on site, built 1949. Western half of the site is vacant.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-015	0.3	MU	C-4	MU-10+	3	Single-family home on site, built 1949. Rear yard is vacant.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-016	0.2	MU	C-4	MU-10+	2	Single-family home on site, built 1949. Rear yard is adjacent to a vacant lot.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-017	0.2	MU	C-4	MU-10+	2	Auto repair shop and associated parking.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-018	0.2	MU	C-4	MU-10+	2	Tire shop and associated parking.	Moderate
	Downtown Plan Blocks 35 and 37	Block 35: 010-132-019	0.3	MU	C-4	MU-10+	3	Commercial site and associated parking.	Moderate
	Downtown Plan Blocks 35 and 37	Block 37: 010-131-007	0.3	MU	C-4	MU-10+	3	Commercial site and associated parking.	Moderate
	Downtown Plan Blocks 35 and 37	Block 37: 010-131-008	0.2	MU	C-4	MU-10+	2	Office and associated parking.	Moderate
	Downtown Plan Blocks 35 and 37	Block 37: 010-131-010	0.3	MU	C-4	MU-10+	3	Western half of site (street frontage) is an office; rear half is vacant.	Moderate
	Downtown Plan Blocks 35 and 37	Block 37: 010-131-011	0.3	MU	C-4	MU-10+	3	Restaurant built in 1985.	Moderate
	Downtown Plan Block 33	010-170-004	0.07	MU	PD-C-4	MU-10+	0	Parking lot of gas station and associated retail.	Moderate
	Downtown Plan Block 33	010-170-005	0.1	MU	PD-C-4	MU-10+	1	Parking lot of counseling office.	Moderate
	Downtown Plan Block 33	010-170-012	0.2	MU	PD-C-4	MU-10+	2	Providence Bible Church.	Moderate
	Downtown Plan Block 33	010-170-013	0.1	MU	PD-C-4	MU-10+	1	Counseling office and associated parking.	Moderate

Table 7-43: Available Sites Accommodate the Moderate Income RHNA									
Site #	**Site Name**	**APN**	**Acreage**	**General Plan Designation**	**Existing Zoning**	**Proposed Zoning**	**Unit Capacity**	**Notes**	**Affordability**
	Downtown Plan Block 33	010-170-014	0.07	MU	PD-C-4	MU-10+	0	Half of the parcel is covered by parking. Other half is vacant.	Moderate
	Downtown Plan Block 33	010-170-021	0.5	MU	PD-C-4	MU-10+	5	Gas station and associated retail.	Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-001	0.3	MU	C-4, C-2	MU-10+	3	Small commercial building on half of the parcel with parking in the rear.	Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-003	0.2	MU	C-4, C-2	MU-10+	2	Small commercial building (guitar shop) on half the parcel with parking on the back half.	Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-013	0.2	MU	C-4, C-2	MU-10+	2	Office and associated parking. Built in 1924.	Moderate
	Downtown Plan Blocks 41 and 43	Block 41: 010-072-014	0.2	MU	C-4, C-2	MU-10+	2	Office and associated parking. Built in 1975.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-071-003	0.1	MU	C-4, C-2	MU-10+	1	Auto repair shop built before 1964.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-071-004	0.3	MU	C-4, C-2	MU-10+	3	Auto repair shop built before 1982.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-071-005	0.3	MU	C-4, C-2	MU-10+	3	Commercial buildings (archery shop) and associated parking. Built in 1973.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-071-007	0.06	MU	C-4, C-2	MU-10+	0	Commercial building. Built in 1982.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-071-008	0.2	MU	C-4, C-2	MU-10+	2	Commercial building. Built in 1982.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-071-010	0.1	MU	C-4, C-2	MU-10+	1	Single-family residence, built in 1940	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-005	0.07	MU	C-4, C-2	MU-10+	0	Storage yard and associated parking.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-006	0.07	MU	C-4, C-2	MU-10+	0	Single-family residence, built in 1924.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-007	0.1	MU	C-4, C-2	MU-10+	1	Part of single-family residence, built in 1945.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-008	0.04	MU	C-4, C-2	MU-10+	0	Part of single-family residence, built in 1945.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-010	0.06	MU	C-4, C-2	MU-10+	0	Part of single-family residence, built in 1924.	Moderate
	Downtown Plan Blocks 41 and 43	Block 43: 010-072-016	0.2	MU	C-4, C-2	MU-10+	2	Part of single-family residence, built in 1924.	Moderate
	Downtown Plan Blocks 40 and 42	Block 40: 010-092-012	0.3	MU	C-4	MU-10+	3	Single-family residence, built in 1927.	Moderate
	Downtown Plan Blocks 40 and 42	Block 40: 010-092-013	0.2	MU	C-4	MU-10+	2	Single-family residence, built before 1995.	Moderate
	Downtown Plan Blocks 40 and 42	Block 40: 010-092-014	0.2	MU	C-4	MU-10+	2	Single-family residence, built in 1905	Moderate

Table 7-43: Available Sites Accommodate the Moderate Income RHNA									
Site #	**Site Name**	**APN**	**Acreage**	**General Plan Designation**	**Existing Zoning**	**Proposed Zoning**	**Unit Capacity**	**Notes**	**Affordability**
	Downtown Plan Blocks 40 and 42	Block 40: 010-092-015	0.2	MU	C-4	MU-10+	2	Office and associated parking.	Moderate
	Downtown Plan Blocks 40 and 42	Block 40: 010-092-016	0.2	MU	C-4	MU-10+	2	Single-family residence, built in 1952.	Moderate
	Downtown Plan Blocks 40 and 42	Block 42: 010-091-017	0.5	MU	C-4	MU-10+	5	Small commercial building. Built in 1935.	Moderate
	Downtown Plan Blocks 40 and 42	Block 42: 010-091-019	0.2	MU	C-4	MU-10+	2	Single-family residence, built in 1933.	Moderate
	Downtown Plan Blocks 40 and 42	Block 42: 010-091-020	0.2	MU	C-4	MU-10+	2	Single-family residence, built in 1900.	Moderate
	Downtown Plan Blocks 40 and 42	Block 42: 010-091-021	0.2	MU	C-4	MU-10+	2	Single-family residence, built in 1932.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 52: 010-136-005	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1944.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 52: 010-136-023	0.34	MU	C-2, R1-5	MU-10+	3	Office building. Built before 1980.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 52: 010-136-024	0.3	MU	C-2, R1-5	MU-10+	3	Office building. Built in 1917.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 52: 010-136-025	0.26	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1954.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-019	1	MU	C-2, R1-5	MU-10+	10	Single-family commercial, built in 1989.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-021	0.6	MU	C-2, R1-5	MU-10+	6	Vacant commercial building. Built in 1963.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-022	1	MU	C-2, R1-5	MU-10+	10	Day care. Built 1987.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-036	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1954	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-037	0.1	MU	C-2, R1-5	MU-10+	1	Single-family residence, built in 1936	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-038	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1963	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-039	0.1	MU	C-2, R1-5	MU-10+	1	Single-family residence, built in 1970	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-040	0.1	MU	C-2, R1-5	MU-10+	1	Single-family residence, built in 1949	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-042	0.1	MU	C-2, R1-5	MU-10+	1	Single-family residence, built in 1952	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 53: 010-181-056	0.2	MU	C-2, R1-5	MU-10+	2	Parking, vacant commercial building on southeast quarter.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 54: 010-136-005	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1944	Moderate

Table 7-43: Available Sites Accommodate the Moderate Income RHNA									
Site #	**Site Name**	**APN**	**Acreage**	**General Plan Designation**	**Existing Zoning**	**Proposed Zoning**	**Unit Capacity**	**Notes**	**Affordability**
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 54: 010-136-006	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 2007	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 54: 010-136-023	0.3	MU	C-2, R1-5	MU-10+	3	Half office/parking, half vacant.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 55: 010-134-021	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built before 1980.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 56: 010-134-007	0.4	MU	C-2, R1-5	MU-10+	4	Office and associated parking. Backyard undeveloped.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 56: 010-134-017	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1989.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 56: 010-134-020	0.2	MU	C-2, R1-5	MU-10+	2	Commercial (spa), western half of the parcel is vacant.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 57: 010-132-014	0.2	MU	C-2, R1-5	MU-10+	2	Single-family residence, built in 1925.	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 57: 010-132-022	0.2	MU	C-2, R1-5	MU-10+	2	Museum parking	Moderate
	Downtown Plan Blocks 52, 53, 54, 55, 56 and 57	Block 57: 010-132-023	0.2	MU	C-2	MU-10+	2	Rocklin History Museum	Moderate
			26.69				195		

Source: City of Rocklin, November 2020.

TABLE 7-44: CAPACITY TO ACCOMMODATE THE ABOVE MODERATE RHNA.			
Residential Subdivision Project Name (Construction Name)	**Zoning**	**Assumed Units during the 2021-2029 Planning Period**	**Developer**
PROJECTS APPROVED AND ARE GRADING/UNDER CONSTRUCTION			
Crowne Pointe (aka Croftwood) - Phase 4	PD-1.93	17	Tim Lewis Communities
Los Cerros Subdivision - Phase 2	PD-1.2	72	GBD Communities
Sierra Pine Subdivision	PD-8	199	Burrell Consulting Group / Sierra Pine Limited Partnership
Whitney Ranch Phase 2J - Has approved Imp Plans. Final Maps done for 65, 66, & 67B. Pulled some BP's in FY 18/1 and 19/20. Shown all those in 19/20.	PD-2.1, 2.6, 2.4, 1.6	58	Sunset Ranchos Investors, LLC /TBD
Racetrack Subdivision	R1-6	10	Rick McGrath/ Equity Smart Investments, LLC
Winding Lane Estates - Has recorded map and Imp. Plans approved. No Bldg Permits pulled as of 11/2020	RD-4	25	Robert and William Ballow
Whitney Ranch Unit 61 C	PD-8.3	61	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 63	PD-3.2C	36	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 64A	PD-4.1C	66	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 64B	PD-4.7C	70	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 69	PD-3.8C	49	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 50	PD-7.3	68	Sunset Ranchos Investors, LLC
PROJECTS APPROVED BUT NOT CONSTRUCTED			
Rocklin Meadows Subdivision	R1-10	26	Rocklin Meadows Greenbrae 22, LLC
Croftwood 2	PD-2.5	55	Jesper Petersen Revocable Trust
Whitney Ranch Unit 1	PD-12	51	Ubora Engineering & Planning/Sunset Ranchos Investors LLC
Granite Lakes Estates 2-4	PD-1.5	65	Dave Cook / Capital Equity Management Group, Inc
Clover Valley Lakes	Various	558	Philip D. Oates Trust et al /Massie & Company

TABLE 7-44: CAPACITY TO ACCOMMODATE THE ABOVE MODERATE RHNA.			
Residential Subdivision Project Name (Construction Name)	**Zoning**	**Assumed Units during the 2021-2029 Planning Period**	**Developer**
Vista Oaks Subdivision	PD-1.08	100	Guntert Family
Highlands Parcel A	PD-0.67	20	Elliot Homes Inc
Whitney Ranch Unit 60 - In second round of ENG Plan Check	PD-3.5C	16	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 61A -In second round of ENG Plan Check	PD-5.3C	57	Sunset Ranchos Investors, LLC
Whitney Ranch Unit 61B	PD-5.4C	66	Sunset Ranchos Investors, LLC
UNENTITLED LAND			
Bell Property SE Rocklin	RA-10	48	NOT ENTITLED
South of Greenbrae Site	PD-1.5	19	NOT ENTITLED
Snecchi Site south of Creek on Sierra College Boulevard	PD-3.5	63	NOT ENTITLED
College Park (North Site) MDR portion	Currently PD-CC (Community College). Proposed as PD-3.5 to 8.4	40	NOT ENTITLED
College Park (Sorth Site) south of creek area - MDR Portion	Currently R1-10. Proposed as PD-8.4	25	NOT ENTITLED
LDS Church Site - 046-020-071	PD-2	24	NOT ENTITLED
LDS Church Site - 046-020-072	PD-2	7	NOT ENTITLED
Nightwatch / Galaxy Lane Area - 046-041-001	PD-0.4	5	ENTITLEMENT EXPIRED
Yankee Hill Rd / Independence Place - 010-010-044	RE-30	4	NOT ENTITLED
TOTAL UNITS		**1980**	

Source: City of Rocklin, November 2020

FIGURE 7-11: AVAILABLE SITES TO MEET THE LOWER-INCOME RHNA

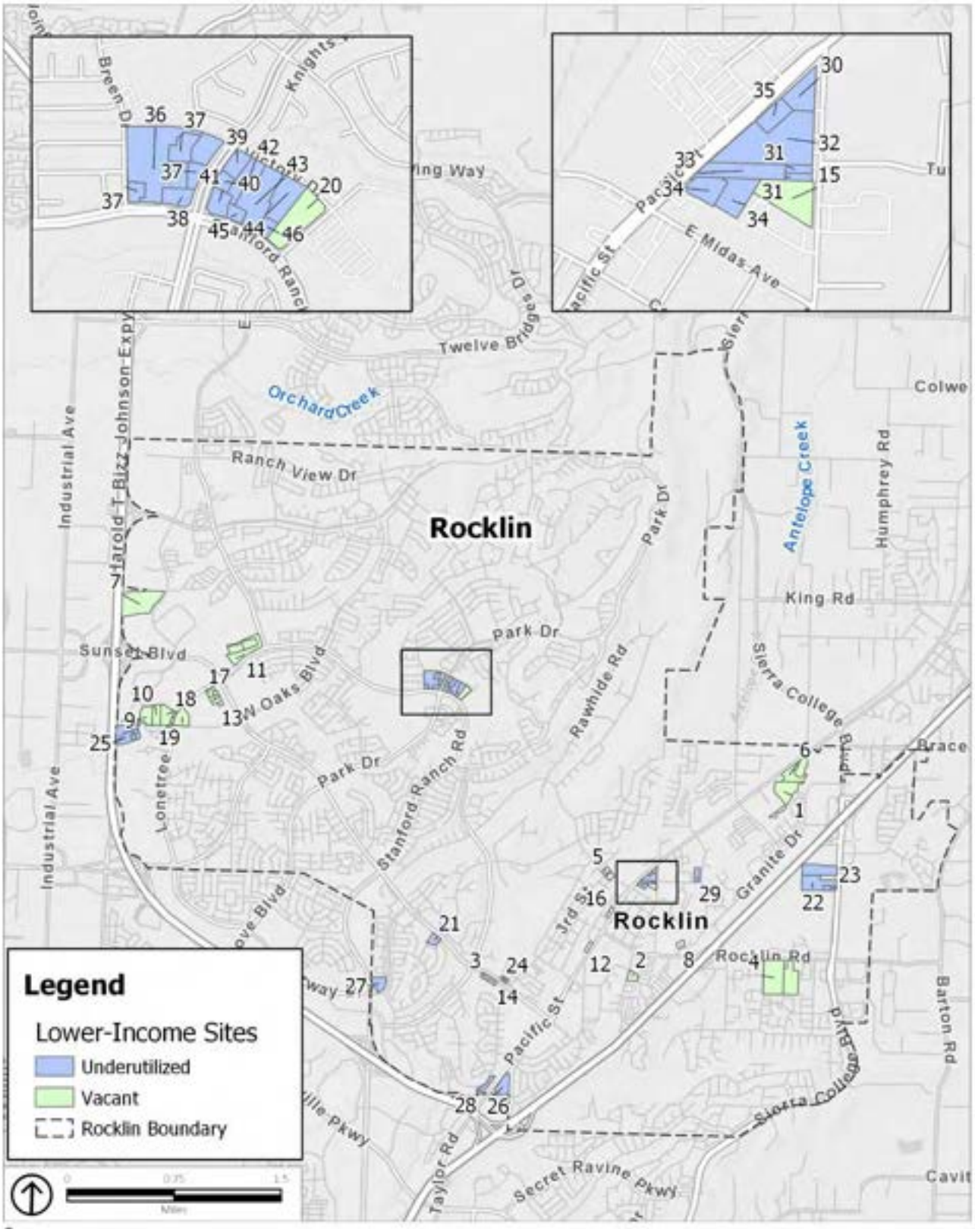


FIGURE 7-12: AVAILABLE SITES TO MEET THE MODERATE-INCOME RHNA

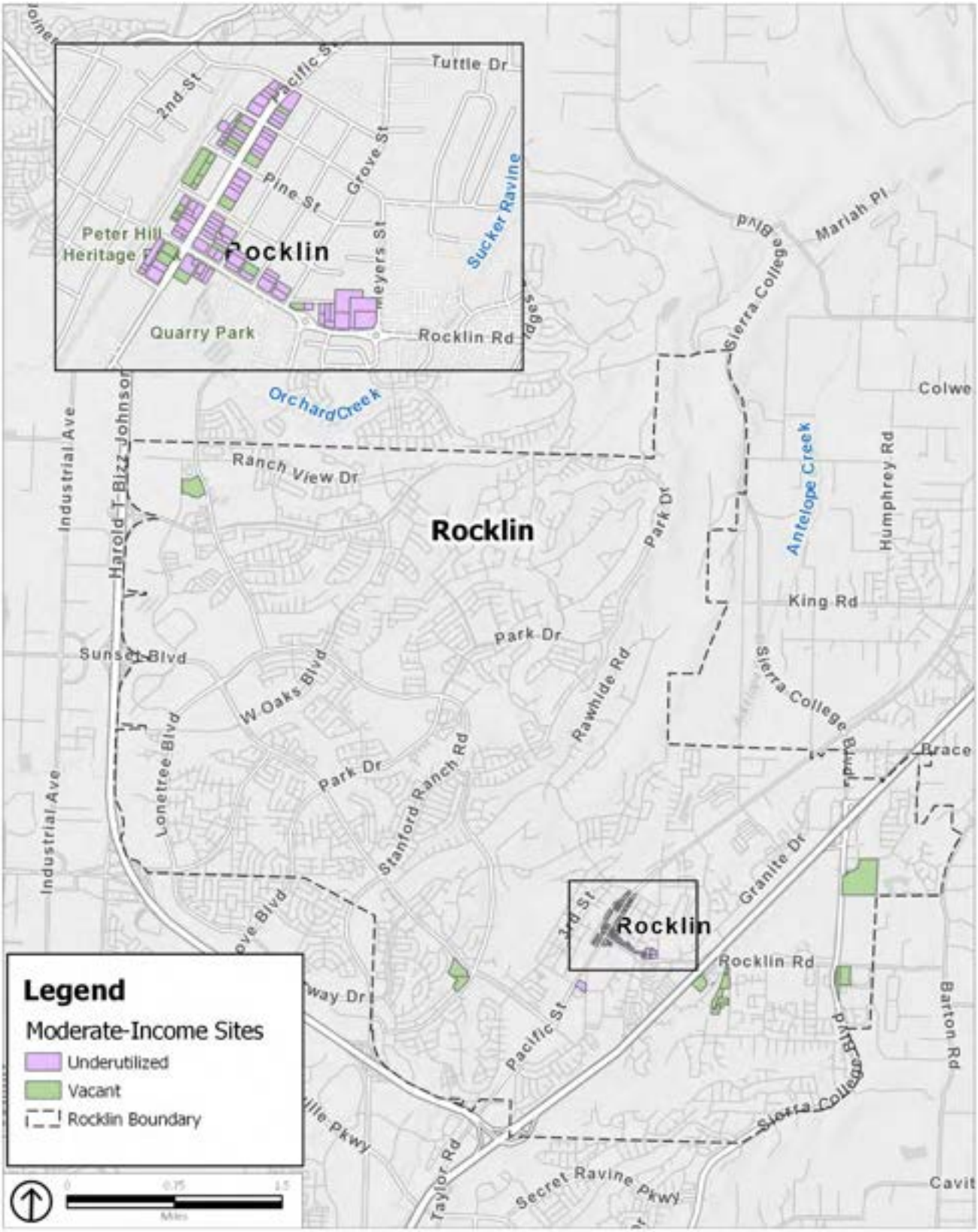
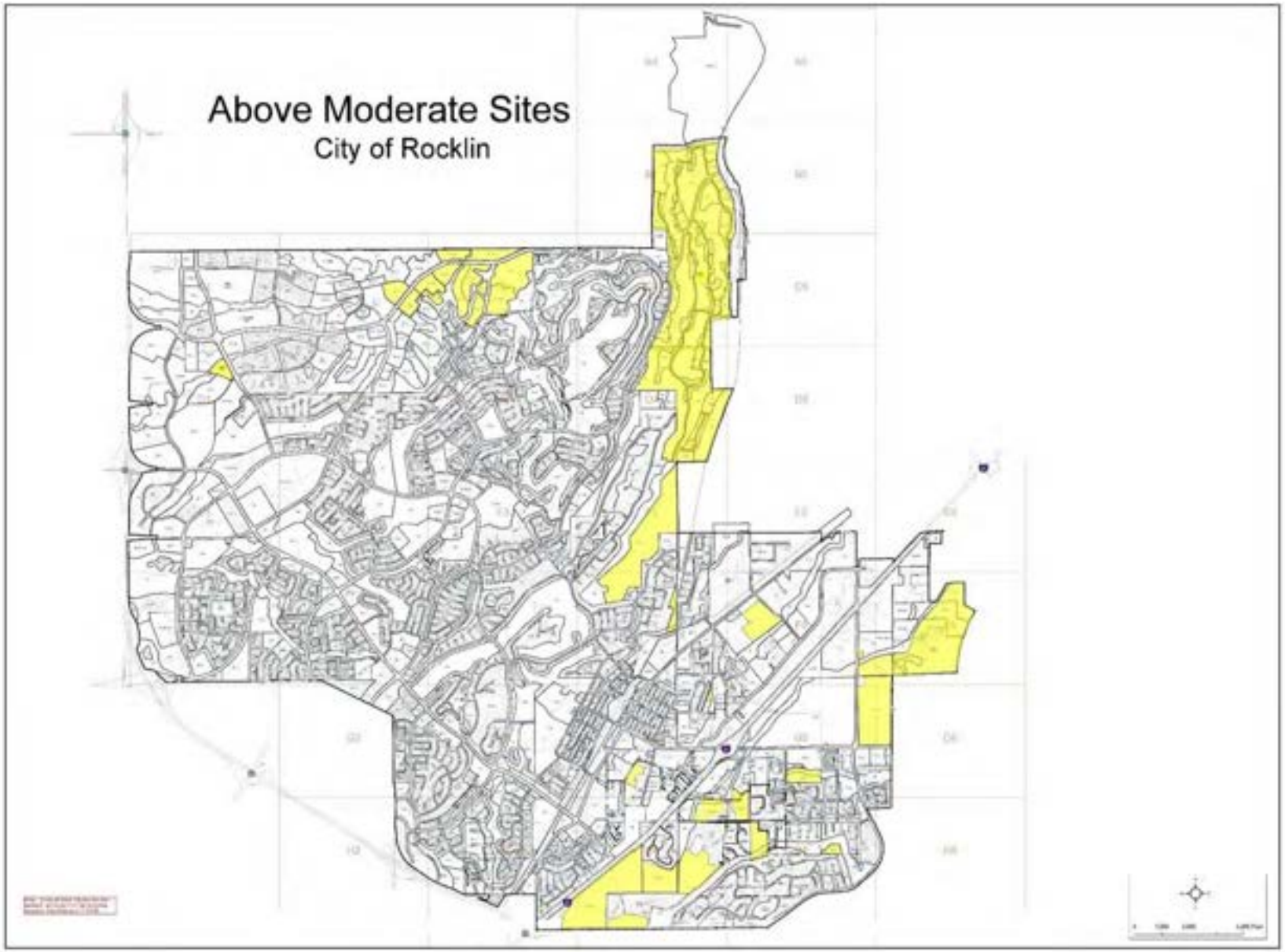


FIGURE 7-13: PROJECTS AND SITES TO MEET THE ABOVE MODERATE-INCOME RHNA



AVAILABILITY AND ADEQUACY OF PUBLIC SERVICES AND INFRASTRUCTURE

The provision of public services, facilities, and infrastructure to serve new development depend on funding availability. Funding requirements are based on planning that includes identification of the desired level of service, construction and maintenance of required infrastructure, and attracting, training and retaining qualified personnel. As development occurs in Rocklin, the agencies providing the various public services must expand facilities and operations to accommodate the expanded service area. The costs of providing public services and facilities are at least partially offset by service fees and charges paid by current users, either through direct service charges or payments to an assessment district or other entity. In the case of new development, impact fees are designed to provide required new facilities.

Infrastructure necessary to support future development is in place within the City of Rocklin. All vacant land designated for medium-high or high-density residential use is served by sewer and water lines, streets, storm drains, telephone, electrical and gas lines. To ensure the availability and adequacy of public facilities and services for future development, the City, along with other providers of public services, will continue to carry out regular infrastructure improvements and upgrading.

There is sufficient water and wastewater capacity to meet the 2021-2029 RHNA.

FINANCIAL RESOURCES FOR HOUSING

Rocklin has access to a variety of existing and potential funding sources available for affordable housing activities. These include programs from local, State, federal and private resources. The following section describes the primary housing funding sources available to the City of Rocklin for housing production, rehabilitation, or preservation: HUD CDBG funds, and Section 8 Housing Choice Vouchers program.

HOUSING AND URBAN DEVELOPMENT (HUD)/COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG) FUNDS

The HUD CDBG program provides funds for a range of community development activities. The program is flexible in that the funds can be used for a range of activities. The eligible activities include, but are not limited to: acquisition and/or disposition of real estate or property, public facilities and improvements, relocation, rehabilitation and construction (under certain limitations) of housing, homeownership assistance, and also clearance activities.

As an entitlement jurisdiction under the HUD CDBG program, the City is “entitled” to receive an annual allocation of CDBG funds directly from HUD and does not have to apply to the State Department of Housing and Community Development (HCD) for CDBG funding through the Small Cities program. As an entitlement jurisdiction, the City of Rocklin anticipates received $279,064 in CDBG funds in 2020, plus two additional grants as part of the CARES Act totaling $463,302. The City intends to use the CDBG funds for housing, public facilities and public service projects and programs.

Section 8 Housing Choice Voucher Program

The Section 8 Housing Choice Voucher Program is a federal program that provides rental assistance to very low-income persons in need of affordable housing. The program offers a voucher to income-qualified tenants that pays the difference between the payment standard (an exception to fair market rent) and what a tenant can afford to pay (e.g., 30% of their income). A voucher allows a tenant to choose housing that may cost above the payment standard, with the tenant paying the extra cost. The Housing Authority of the City of Roseville administers the Housing Choice Voucher Program in most of Rocklin. The Placer County Housing Authority also administers a limited number of vouchers to Rocklin residents.

ADMINISTRATIVE RESOURCES

Described below are public and non-profit agencies that have been involved or are interested in housing activities in Rocklin. These agencies play important roles in meeting the housing needs of the community. In particular, these agencies have been or are currently involved in the improvement of the housing stock, expansion of affordable housing opportunities, preservation of existing affordable housing, homeless resources and/or provision of housing assistance to households in need in Rocklin.

Acres of Hope

Acres of Hope provides a safe family environment where healthy relationships can set the foundation of change for at-risk and/or homeless women and children. They improve the economic, social and spiritual quality of life for every at-risk and/or homeless single mother that is accepted into the program.

Habitat for Humanity of Sacramento County

Habitat for Humanity is a non-profit, faith-based private, non-governmental organization dedicated to building affordable housing and rehabilitating homes for lower-income families. Habitat builds and repairs homes with the partner families and the help of volunteers. Habitat homes are sold to partner families at no profit with affordable, no-interest loans. Volunteers, churches, businesses, and other groups provide most of the labor for the homes. Government agencies or individuals usually donate land for new homes.

Foothills Habitat for Humanity

Foothills Habitat for Humanity is a non-profit, faith-based private, non-governmental organization that has recently received CDBG funds to re-start a Handyperson Program in the City focusing on minor safety and accessibility repairs for low-income households.

Home Start

Home Start is a non-profit transitional housing program serving families in Placer County. They accept families headed by single fathers, single mothers, couples with children and grandparents raising children.

Housing Authority of Placer County

The County of Placer administers the Section 8 Housing Choice Voucher Program for the City of Rocklin. This program provides rental assistance to extremely low and very low-income households, including families, elderly persons, the disabled, and other special needs households.

Housing Authority of the City of Roseville

The City of Rocklin contracts with the Housing Authority of the City of Roseville to administer the Section 8 Housing Choice Voucher Program. This program provides rental assistance to extremely low and very low-income households, including families, elderly persons, the disabled, and other special needs households.

NeighborWorks®

NeighborWorks® HomeOwnership Center Sacramento Region is a non-profit organization with that offers a variety of services including pre purchase education and counseling, home purchase lending programs, real estate development, real estate sales services, foreclosure prevention counseling, home improvement loan programs and community building.

Roseville Conference of the Society of St. Vincent de Paul

This organization provides food, meals, clothing, a medical clinic and a thrift store.

The Gathering Inn

This network of 42 local churches offer emergency overnight shelters on a first come, first serve basis for families with children as well as single adults. The network offers case management services, a clothing closet, medical and dental clinic, substance abuse treatment and resource center to help with housing, jobs and life skills.

The Lazarus Project

The Lazarus Project has a variety of housing programs – transitional, financial assistance and soon to be permanent supportive housing for homes and at-risk families living in Placer County. In addition, they have an array of services for adults.

7-5 OPPORTUNITIES FOR ENERGY CONSERVATION

State law requires local government, in preparing a housing element, to address energy conservation measures with respect to residential developments within their jurisdiction. The City of Rocklin has taken several measures to implement energy conservation programs in residential projects. The building orientation, street layout, lot design, landscaping, and street tree configuration of all residential projects are reviewed to maximize solar access and energy conservation.

Energy conservation is achieved through implementation measures on different levels. The first level includes requiring new residential development to meet applicable energy standards of Title 24 of the California Administrative Code. Building additions or alterations must also meet Title 24 standards if they increase the heated or cooled floor space of the building. Builders of these units may achieve compliance either by calculating the energy performance in a prescribed manner or by selecting from alternative component packages that prescribe a fixed method of energy compliance. The City's Building and Code Compliance Division checks all proposed residential units for design and construction compliance with Title 24 energy standards.

Energy conservation implementation occurs during review and approval of residential subdivisions to ensure they are designed to maximize passive or natural heating and cooling opportunities as possible. This can be achieved by encouraging the incorporation of techniques to maximize use of solar energy. Passive cooling opportunities are listed and included in the design of lots to allow the appropriate orientation of a structure to take advantage of prevailing breezes or available shade. Passive heating opportunities include design of lots to allow structures to be aligned in an east-west direction for greater southern exposure. Section 66473.1 of the State Subdivision Map Act requires that the design of a subdivision for which a tentative map is required shall provide, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision. Although no precise standards are given, the State Attorney General issued an opinion in 1981 that "a tentative map of a subdivision must be disapproved if it fails to meet the design requirement of Government Code Section 66473.1."

Another way to advance energy conservation is through implementation of various programs that encourage weatherization of residential structures (i.e., to improve conditions of existing structures and to decrease their energy demand). The most common techniques for increasing building efficiency are: insulation of ceilings, heating-ventilating air conditioning ducts and hot water heaters; weather stripping and caulking; setting thermostats lower at night; installing low-flow shower heads; window treatments to provide shade; and furnace efficiency modifications. The Department of Energy, Weatherization Assistance Program (DOE WAP) has long served as the core program for delivering energy conservation services to lower-income Californians. The Weatherization Assistance Program reduces the heating and cooling costs for lower-income families by improving the energy efficiency of their homes and ensuring their health and safety. Among low-income households, the program focuses on those with elderly residents, individuals with disabilities, and families with children. The City also provides assistance to lower income homeowners for rehabilitation, including weatherization.

The City also actively promotes its Rocklin Build it Green initiative, a voluntary program to promote environmental protection through building and remodeling with a more sustainable approach. The City

encourages contractors, developers and homeowners to build and design residential homes to increase energy and water efficiency. Build it Green is a professional non-profit membership organization whose mission is to promote healthy, energy and resource efficient buildings in California. Build it Green fosters collaboration with local governments, including the City of Rocklin, other agencies, as well as community and stakeholder groups to accelerate the adoption of green building practices, policies, and programs. Build it Green has developed residential green building guidelines and rating systems (GreenPoint Rated) for new single- and multifamily construction and remodeling. The guidelines offer suggestions for conserving natural resources, using water and energy wisely, improving indoor air quality, and site planning for livable and vibrant communities. A GreenPoint rated home is graded on five categories:

1. Energy Efficiency
2. Resource Conservation
3. Indoor Air Quality
4. Water Conservation
5. Community

If the home meets the minimum point requirements in each category and scores more than 50 points, then it earns the right to bear the GreenPoint Rated label. GreenPoint homes are rated by independent, certified raters to ensure the rating has integrity and value.

Pacific Gas & Electric provides both natural gas and electricity to residential consumers in Placer County, including the City of Rocklin. PG&E also participates in several other energy assistance programs which help qualified homeowners and renters conserve energy and control costs. These include:

- The California Alternate Rates for Energy Program (CARE) provides a 20% monthly discount on energy rates to income qualified households, certain non-profits, facilities housing agricultural employees, homeless shelters, hospices and other qualified non-profit group living facilities.
- The Relief for Energy Assistance through Community Help (REACH) Program is administered by the Salvation Army and provides one-time energy assistance to lower-income customers. Those who have experienced an uncontrollable or unforeseen hardship may receive an energy credit up to $200, credit amount based on the past due amount of the bill. REACH assistance may be available once within an 18-month period, but exceptions can be made for seniors, the physically challenged and the terminally ill.
- Family Electric Rate Assistance (FERA) provides a monthly discount on electric bills for income qualified households of three or more people.
- Energy Savings Assistance Program provides income-qualified renters and homeowners with easy, free solutions such as weatherization materials to help manage their energy use and save money on their monthly energy bills.

7-6 HOUSING PLAN

This section of the Housing Element contains objectives and policies the City will implement to address a number of important housing-related issues and achieve the City's overarching housing goal, which states:

> *Ensure that decent, safe housing is available at a cost that is affordable to all current and future residents of this community. To this end, the City will strive to maintain a reasonable balance between rental and ownership housing opportunities and to encourage a variety of individual choices of tenure, type, and location of housing throughout the community.*

The section also contains quantified objectives for housing construction, rehabilitation, and the preservation of affordable housing, with an eight-year program of actions that:

- Conserves and improves the condition of the existing affordable housing stock, which may include addressing ways to mitigate the loss of dwelling units demolished by public or private action;
- Assists in the preservation of housing developments for lower-income households;
- Assists in the development of adequate housing to meet the needs of lower- and moderate-income households;
- Provides regulatory concessions and incentives and uses available local, state, and federal financial resources to support the development of affordable housing;
- Identifies adequate sites with appropriate zoning, development standards, services and facilities to encourage the development of a variety of housing types for all income levels;
- Addresses and, where appropriate and legally possible, removes governmental constraints to the maintenance, improvement, and development of housing, including housing for all income levels and housing for persons with disabilities;
- Promotes regional cooperation to expand housing opportunities and services to lower and moderate-income households, including extremely low-income households and the homeless; and
- Encourages housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability.

The Community Development Department staff regularly reviews Housing Element programs, objectives, and progress towards accommodating the City's share of the regional housing need. An annual implementation report will be prepared and provided to the California Office of Planning and Research and California Department of Housing and Community Development. Depending on funding availability, the City will consider modifications to Housing Element programs as necessary and appropriate to implement General Plan goals and policies.

This 2021–2029 Housing Plan builds upon the City's experience in implementing the previous Housing Element. Existing housing programs were evaluated for progress, continued appropriateness and modified, as necessary, for the new planning period. New housing programs have been added to respond to new issues and concerns, changing needs, and updated laws. This evaluation of existing housing programs is presented in Section 7-7.

GOALS AND POLICIES

The following Housing Element goals and policies have been developed in response to the community's identified housing needs.

HOUSING CONSERVATION

The City conducted a focused housing condition survey in the Old Town/Central Rocklin area in early 2002. This area is the oldest neighborhood in Rocklin and was determined to have the greatest repair/rehabilitation needs. Most housing units were found to be structurally sound; only 13% of residential structures were in need of minor to significant repairs to ensure structural integrity. Nearly one-fifth (19%) of homes were in need of minor roof repairs and 18% had minor maintenance issues. Other housing conservation needs of the City include existing affordable housing stock and rental units at-risk of converting to market-rents or condominiums, and the Housing Choice Voucher Program.

Based on consultations in 2020 with the City's Housing staff, Building Division and Code Enforcement Division, the City has received very few requests for low interest loans for home repairs and minimal complaints regarding nuisance housing conditions since 2008, further supporting that the City's housing stock is generally in good condition.

Goal 1 Maintain and improve the quality of existing housing and residential neighborhoods in Rocklin.

Policy 1.1 Promote increased awareness of the importance of property maintenance to long-term housing quality and engage the community to preserve neighborhoods.

Policy 1.2 Seek, through code enforcement, the private rehabilitation of substandard dwelling units and provide financial assistance, when available, to owners of dwelling units occupied by lower-income households. In applying this policy, the City shall seek to avoid the displacement of lower-income households.

Policy 1.3 Provide assistance to inspect and identify code violations in residential structures.

Policy 1.4 Require the abatement or demolition of substandard housing that is not economically feasible to repair.

Policy 1.5 Work with for-profit developers and non-profit housing corporations to identify existing affordable housing and develop strategies to maintain its affordability.

Policy 1.6 Continue to pursue available sources of funding for maintaining and expanding the supply of affordable housing for lower and moderate-income households, including extremely low-income households.

Policy 1.7 Preserve the existing stock of affordable housing, including (but not limited to) mobile homes and apartments, through City regulations as well as financial and other forms of assistance.

Policy 1.8 Support the Roseville's and Placer County's Housing Authority in the provision of Section 8 Housing Choice Voucher rental assistance to very low- and extremely low-income households.

Housing Production

The City of Rocklin encourages the production of a diversity of housing types to meet the needs of all segments of the community. Housing diversity is important to ensure that all households, regardless of age, income level, and household type, have the opportunity to find housing suited to their need and lifestyle. New construction is a major source of housing for prospective homeowners and renters but generally requires public sector support for the creation of units affordable to lower income households, including extremely low-income households. The following goals and policies support the expansion of housing opportunities in Rocklin.

Goal 2 Facilitate the provision of a range of housing types to meet the diverse needs of the community.

Policy 2.1 Provide quality housing opportunities for current and future residents with a diverse range of income levels.

Policy 2.2 Provide expanded housing opportunities for the community's workforce.

Policy 2.3 Encourage both the private and public sectors to produce or assist in the production of housing, with particular emphasis on housing affordable to lower income households, including extremely low-income households, as well as housing suitable for seniors, large families, female-headed households, the homeless, and persons with disabilities.

Policy 2.4 Encourage the provision of housing affordable to extremely low-income households when reviewing proposals for new affordable housing developments.

Policy 2.5 Facilitate the provision of second units as a means of providing affordable rental housing opportunities in existing neighborhoods.

Policy 2.6 Encourage diversity of unit size and number of bedrooms within housing developments to expand lower cost rental opportunities for large families.

Policy 2.7 Allow housing developments with at least 20 percent affordable housing by-right on lower-income housing sites that have been counted in previous housing element cycles, consistent with AB 1397.

Provision of Adequate Housing Sites

A key element in satisfying the housing needs of all segments of the community is the provision of adequate sites for housing of all types, sizes, and prices. The City's General Plan and Zoning Ordinance determine where housing may locate, thereby affecting the supply of land available for residential development.

Goal 3 Provide adequate housing sites through appropriate land use and zoning designations to accommodate the City's share of the regional housing needs.

Policy 3.1 Identify vacant parcels and provide to interested developers in conjunction with information on available development incentives.

Policy 3.2 Ensure new residential projects are developed at densities consistent with the density ranges established for each residential district in the Land Use Element.

Policy 3.3 Facilitate the development of multifamily housing on vacant parcels designated for medium-high and high-density residential uses.

Policy 3.4: Continue to work with developers requesting General Plan Amendments converting nonresidential designation to residential uses or from a higher density residential category to a lower density residential category to incorporate affordable housing as a component of the overall development. As an objective, target up to ten percent of the units as affordable, depending on the level of affordability or other amenities provided. Pursue the inclusion of extremely low-income units whenever possible in the negotiated target number of affordable units.

Removal of Governmental Constraints

State law requires that housing elements address, and where appropriate and legally possible, remove governmental constraints to the maintenance, improvement, and development of housing. The City will continue to monitor its development process and zoning regulations to identify and remove constraints to the development of housing affordable to lower- and moderate-income households, including housing for families, seniors, and persons with special needs.

Goal 4 Mitigate or remove potential governmental constraints to housing production and affordability.

Policy 4.1 Provide regulatory and/or financial incentives, where appropriate, to offset or reduce the costs of affordable housing development, including density bonuses and flexibility in site development standards.

Policy 4.2 Periodically review City regulations, ordinances, departmental processing procedures, and residential fees related to rehabilitation and/or construction to assess their impact on housing costs, and revise as appropriate.

Regional Coordination

The City seeks to take an active role in cooperating with neighboring jurisdictions in Placer County to resolve housing problems and issues facing Rocklin that are primarily regional in nature. Homelessness and limited supply of and funding for affordable housing are examples of major housing issues that should be addressed at the local as well as regional level.

Goal 5 Coordinate and cooperate with surrounding jurisdictions to address regional housing issues, including the supply of affordable housing and homelessness.

Policy 5.1 Coordinate with surrounding jurisdictions in the provision of housing assistance and related services to lower and moderate-income households, homeless persons, and other persons with special needs.

Policy 5.2 In conjunction with surrounding jurisdictions, actively pursue State, Federal, and other funding sources for affordable housing activities.

Equal Housing Opportunity

The City seeks to promote housing opportunities for all persons in Rocklin, regardless of race, religion, sex, family size, marital status, ancestry, national origin, color, age, physical or mental disability, sexual orientation, or source of income. In order to make adequate provision for the housing needs of all segments of the community, the City must also ensure equal and fair housing opportunities are available to all residents.

Goal 6 Promote equal opportunity for all residents to reside in the housing of their choice.

Policy 6.1 Support the enforcement of fair housing laws prohibiting arbitrary discrimination in the building, financing, selling or renting of housing on the basis of race, color, ancestry, national origin, gender, religion, marital status, family status, physical or mental disability, or other arbitrary factors.

Policy 6.2 Support organizations that offer fair housing and mediation services to Rocklin residents.

Policy 6.3 Promote housing that meets the special needs of the homeless, seniors, large families, and persons with disabilities.

PROGRAMS

The goals and policies outlined in the prior section address Rocklin's identified housing needs, and are implemented through a series of housing programs offered primarily through the City's Community Development Department. Housing programs define the specific actions the City will undertake to achieve the stated goals and policies. The City's housing programs for addressing community housing needs are described according to the following six issue areas.

- Housing Conservation
- Production of Housing
- Provision of Adequate Housing Sites
- Removal of Governmental Constraints
- Promotion of Regional Coordination
- Promotion of Equal Housing Opportunity

The housing programs presented on the following pages include existing programs as well as various revised and new programs that have been added to address the City's unmet housing needs.

CONSERVATION OF THE EXISTING SUPPLY OF HOUSING

Conserving and improving the housing stock is an important goal for the City of Rocklin. The City supports neighborhood preservation and improvement through housing rehabilitation and improvement programs, and code enforcement. The Old Town/Central Rocklin area is the oldest neighborhood in Rocklin and is determined to have the greatest repair/rehabilitation needs.

1. HOME HANDYPERSON PROGRAM

To encourage private rehabilitation efforts, the City will continue to partner with organizations such as Habitat for Humanity to offer a Home Handyperson Program. Eligible home repair activities include, weatherization, electrical upgrades, foundation and flooring repair, and accessibility retrofitting. Single-family homes, multifamily dwellings and mobile homes are eligible for assistance. The City will market the programs in the Old Town/Central Rocklin area where the greatest repair/rehabilitation needs exist to assist residents with the costs of repairs and thus reduce risk of displacement due to costs or housing condition.

Objective: Distribute flyers to households within the Old Town/Central Rocklin area at least once a year.

Quantified Objective: 8 lower income households (1 household annually) and 80 senior households (10 households annually) during the planning period. Target 15 in areas of concentrated poverty.

Responsible Agency: Community Development Department/Housing Services

Financing: CDBG, revolving loan funds

Timeframe: Ongoing, as funding is available, and households are interested. Advertise program in the newspaper once per year and place on the City's website.

2. CODE ENFORCEMENT AND ABATEMENT

The City's Code Compliance Division carries out code enforcement and inspection activities as a means to preserve and maintain the livability and quality of neighborhoods. City staff investigates violations of property maintenance standards as defined in the Municipal Code as well as other complaints. When violations are identified or cited on homes occupied by lower- and moderate-income households, staff encourages property owners to seek assistance through the Home Repair Program offered by the City.

Objective: Continue to implement the Code Enforcement and Abatement Program. Provide information about the Home Handyman Program to owners of all homes in need of repair. Complete a Housing Conditions Survey in older neighborhoods and neighborhoods with lower median incomes, to evaluate rehabilitation need. Based on findings of the focused evaluation, the City will identify measures to encourage housing preservation, conservation, and acquisition rehabilitation, and mitigate potential costs, displacement and relocation impacts on residents. These measures may include, but are not limited to:

- Reach out directly to homeowners of housing units in need of repair to promote the Home Handyman Program.
- Streamline permit review for home repairs on housing units identified during the conditions survey.
- Seek funding to offer relocation assistance to low-income tenants or owners displaced during rehabilitation efforts.
- Seek funding to develop a housing rehabilitation program.

Quantified Objective: 25 lower income units during the planning period. Target 15 units in areas of concentrated poverty.

Responsible Agency: City of Rocklin, Community Development Department Code Compliance Division

Financing: General Fund

Timeframe: Implement the Code Enforcement and Abatement Program on an ongoing basis. Provide information on the Home Handyman Program and complete the Housing Conditions Survey by June 2022 and determine next steps by February 2023.

3. ZONING FLEXIBILITY FOR HOUSING REHABILITATION

Many dwelling units in need of rehabilitation were constructed prior to adoption of current zoning standards. As a result, some of these dwellings do not conform to lot size, setbacks, yard requirement, location, and other zoning standards. To avoid discouraging rehabilitation efforts, the City will continue to allow non-conforming dwellings to be rehabilitated pursuant to Chapter 17.62 of the Rocklin Municipal Code so long as the non-conformity is not increased and no threat to public health and safety is identified.

Objective: Continue the practice of allowing non-conforming dwellings to be rehabilitated so long as the non-conformity is not increased and no threat to public health and safety is identified.

Quantified Objective: 40 units. Target 15 units in areas of concentrated poverty.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Time Frame: Ongoing, as projects are processed through the Planning Division.

4. PRESERVATION OF EXISTING AFFORDABLE HOUSING STOCK

State law requires jurisdictions to provide a program to preserve publicly assisted affordable housing projects at risk of conversion to market-rate housing. As of 2020, the City has a total of 1,097 assisted rental units in 13 developments in its jurisdiction. Of these projects, none are currently at risk of conversion to market-rate housing during the 2021–2029 period (Table 7-21).

Objectives Work with owners of at-risk projects, interested groups, and the State and federal governments to implement the following measures on an ongoing basis to conserve affordable housing stock:

- Monitor Units at Risk: Monitor the status of at-risk projects annually.
- Affordable Database: Encourage housing mobility by creating an affordable housing database available on the City's website and market the database regionally and in coordination with the Placer County Housing Authority and the Roseville Housing Authority.
- Work with Potential Purchasers: Where feasible, provide technical assistance to public and non-profit agencies interested in purchasing and/or managing units at risk.
- Tenant Education: Work with tenants to provide education regarding tenant rights and conversion procedures pursuant to California law.
- Assist Tenants of Existing Rent Restricted Units to Obtain Section 8 Housing Choice Voucher Assistance: The City will direct tenants of "at risk" units to obtain Section 8 vouchers, that can be administered in the City of Rocklin, through the Roseville Housing Authority or Placer County Housing Authority

Responsible Agency: City of Rocklin, Community Development Department, Housing Services

Financing: General Fund

Timeframe: Annually monitor and apply for funding as Notices of Funding Availability are released

5. HOUSING CHOICE VOUCHER PROGRAM

The Housing Choice Voucher Program extends rental subsidies to extremely low- and very low- income households, including families, seniors, and the disabled. The program offers a voucher that pays the difference between the current fair market rent (FMR) as established by the U.S. Department of Housing and Urban Development (HUD) and what a tenant can afford to pay (i.e. 30% of household income). The voucher allows a tenant to choose housing that costs above the payment standard, providing the tenant pays the extra cost. In Rocklin, the program is administered primarily by the Roseville Housing Authority. Additionally, some Rocklin residents receive assistance through the Placer County Housing Authority. Given the continued need for rental assistance, the City supports and encourages the provision of additional subsidies through the Housing Choice Voucher Program.

Objective: Provide assistance for low-income families that use Housing Choice Vouchers to identify housing opportunities in areas of high opportunity and close proximity to resources. In addition to providing referrals to Rocklin households in need of housing assistance, the City shall market applications for the voucher program in other areas of the region outside of Placer County to improve access to resources in Rocklin for more households. To reduce the concentration of voucher holders, promote mixed-income neighborhoods, and improve mobility between neighborhoods the City shall meet with property managers in high resource areas with a low percent of vouchers to encourage them to accept Section 8 assistance.

Additionally, the city will work with agencies in the region, the Placer County Housing Authority, and the Roseville Housing Authority to encourage mobility counseling to assist with pre- and post-moving counseling, housing search assistance and guidance about neighborhood features.

Quantified Objective: 110 households annually, 25 households targeted towards special needs groups (seniors, persons with disabilities, female headed households, farmworkers and homeless persons).

Responsible Agency: Roseville Housing Authority; Placer County Housing Authority; City of Rocklin, Community Development Department/Housing Services

Financing: HUD Section 8 Housing Choice Voucher Program

Timeframe: Refer households on an ongoing basis, meet with property owners at least 3 times during the planning period.

PRODUCTION OF HOUSING

The City of Rocklin implements various programs to encourage a diversity of housing types. Part of this diversity is addressed through the Regional Housing Needs Plan (RHNP), which encourages the construction of housing for all economic segments in the community. Housing diversity is important to ensure that all households, regardless of age, income level, and household type, have the opportunity to find housing suited to their need and lifestyle. The following programs support the provision of additional housing opportunities in Rocklin.

6. AFFORDABLE HOUSING DEVELOPMENT AND FUNDING

To effectively develop affordable housing depends on a variety of County, State, Federal, and local funding sources. Several government programs provide direct subsidies, mortgage insurance, or low-interest loans to non-profit housing developers. Agencies providing such assistance include the State Department of Housing and Community Development (HCD), the California Housing Finance Agency (CHFA), the California Tax Credit Allocation Committee (CTCAC) and the federal Department of Housing and Urban Development (HUD).

Objective: Work with housing developers to expand opportunities for affordable lower-income and workforce housing by creating partnerships, providing incentives, and pursuing funding opportunities. Specifically, the City shall:

- Promote construction of affordable housing including ADU's in high resource areas and in areas that have a shortage of affordable housing to enhance mobility for low-income residents (including extremely low income) to access these neighborhoods.

- Encourage affordable housing development for special needs groups, including, seniors, persons with disabilities, including developmental disabilities, female headed households, farmworkers and homeless persons.

- Provide technical assistance with site identification, site acquisition, and expedited permit processing;

- Conduct annual workshops with for-profit and nonprofit housing developers, local and regional funding agencies, and other organizations to review and promote available housing programs;

- Promote the use of the density bonus ordinance and fee deferrals to encourage affordable housing;

- Partner with nonprofit and for-profit affordable housing developers to support their financing applications for State and federal grant programs, tax-exempt bonds, and other programs that become available;

- Pursue federal, State, and private funding for low- and moderate-income housing by applying for State and federal monies for direct support of lower-income housing construction and rehabilitation, specifically for development of housing affordable to extremely low-income households.

Quantified Objective: 15 extremely low-income; 20 very low-income; 20 low-income units, 10 units targeted in high resource areas.

Responsible Agency: City of Rocklin, Community Development Department/Housing Services.

Financing: General Fund; CDBG; CTCAC; HUD; CHFA Revenue Bonds

Timeframe: Ongoing, as projects are processed. Meet with developers and contact HCD, CHFA, CTCAC and HUD annually. Maintain a sites inventory list on the City's website. Amend the density bonus ordinance as needed to comply with Government Code Section 65915.

7. ACCESSORY DWELLING UNIT DEVELOPMENT

An accessory dwelling unit is a second independent dwelling unit containing its own sleeping quarters, kitchen and bathroom facilities, and entrance from the outside, located on a single-family lot. A second unit may either be attached to or detached from the principal dwelling unit. Second units offer several benefits. Second units typically rent for less than apartments of comparable size and therefore offer an affordable rental housing option. Additionally, the primary homeowner is able to receive supplementary income by renting out their second unit, which can help many modest income and elderly homeowners remain in or afford their homes.

Objectives: Promote accessory dwelling units as an affordable housing option in Rocklin through the following actions.

- Provide guidance and educational materials for building ADUs on the City's website, including permitting procedures and construction resources. Additionally, the City shall present homeowner associations with the community and neighborhood benefits of accessory dwelling units, inform them that covenants, conditions, and restrictions (CC&Rs) prohibiting ADUs are contrary to state law, and ask homeowner associations to encourage such uses.

- Develop, and offer free of charge, preapproved plans for accessory dwelling units to bring down permit costs and expedite the permitting process.

- Explore options for establishing a loan program to help homeowners finance the construction of ADUs. The City shall consider incentives to encourage homeowners to deed restrict ADUs for lower-income households.

- Actively market ADU guidance and materials and preapproved plans in areas of high access to resources to encourage the development of new affordable housing in areas of opportunity as a strategy to enhance mobility and reduce displacement of low-income households seeking affordable housing options.

- Develop and implement a monitoring program. The program will track ADU approvals and affordability. The City will use this monitoring program to track progress in ADU development and adjust or expand the focus of its education and outreach efforts through the 2021-2029 planning period. The City will evaluate ADU production and affordability two years into the planning period (2023) and if it is determined these units are not meeting the lower-income housing need, the City shall ensure other housing sites are available to accommodate the unmet portion of the lower-income RHNA. If additional sites must be rezoned, they will be consistent with Government Code Sections 65583(f) and 65583.2(h).

Quantified Objective: 40 units. Target 20 units in high resource areas.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: Complete bullets 1-5 by December 2022**,** evaluate effectiveness of ADU approvals and affordability by 2023, rezone if necessary, by 2024.

8. ZONING FLEXIBILITY

The creation of the Business Attraction, Retention and Revitalization Zone (BARRO Zone) has created an alternative zoning tool for those properties within the boundaries of the zone to provide a mechanism to propose a commercial, residential, or mixed-use development. The BARRO Zone streamlines the regulatory process by allowing a staff level review and approval process. It eliminates the need for a formal public hearing before the Planning Commission and/or the City Council.

Quantified Objective: Assist with 16 BARRO Zone housing projects (2 per year) over the planning period.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund, SB 2, LEAP/REAP funding

Timeframe: Ongoing, as projects are processed through the Planning Division. Provide information about the BARRO Zone on the City's website.

9. PROMOTE MISSING MIDDLE HOUSING TYPES

Housing types of a scale between single-family detached homes and large apartment buildings are sometimes referred to as "missing middle" housing types. Because these homes typically have smaller floorplans and are built at higher density, they can be more affordable alternatives to single-family detached homes without requiring subsidies to maintain their affordability.

Objective: Promote the construction of 100 missing middle housing units (e.g., duplexes, tri/fourplexes, courtyard buildings, bungalow courts, townhouses, live/work units), cluster housing, and other innovative housing types by distributing educational and promotional materials on the City's website. Encourage construction of these units in in low- and medium-density areas with high opportunity to enhance mobility and increase housing options for lower-income households at risk of displacement. Consider strategies such as amending zoning to permit additional units in existing single-family zones.

Quantified Objectives: 125 moderate-income units, 45 targeted in high opportunity areas.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: 2022 and ongoing

PROVISION OF ADEQUATE HOUSING SITES

Meeting the housing needs of all segments of the community requires the provision of adequate sites for all types, size and prices of housing. The City's General Plan and Zoning Ordinance determine where housing may locate, thereby affecting the supply of land available for residential development.

10. INVENTORY OF SITES FOR HOUSING/REZONE

As part of this Housing Element update, the City identified additional parcels suitable for residential development. To help facilitate the development of affordable housing on these sites, the City will work with interested developers and provide financial and/or regulatory incentives, as feasible.

Objective: Annually review the sites inventory to accommodate the City's RHNA of 5,661. Monitor development applications with the available sites table and encourage and facilitate the development of affordable housing on Rocklin's remaining sites designated for medium-high and high-density residential uses. Make the inventory of sites available to developers and offer regulatory and/or financial incentives to facilitate the development of housing affordable to lower income households.

To accommodate the City's 6th cycle Regional Housing Needs Allocation (RHNA), and the 5th cycle unaccommodated need, the City will rezone and amend the land use designation on 95.58 acres of vacant and underutilized land to Res 24+, and 64.33 acres of land that is vacant and underutilized to MU 24+, to meet the City's lower income RHNA of 3,543 units (identified in Table 7-42). All sites will have a minimum density of 24 units per acre. Mixed Use sites will have a maximum density of 40 dwelling units per acre and sites zoned Res 24+ will have a High Density Residential (HDR) land use designation with no maximum density. Rezoned sites will permit owner-occupied and rental multifamily uses by right pursuant to Government Code section 65583.2(i) for developments in which 20 percent or more of the units are affordable to lower income households. All sites will require a minimum of 20 units per acre and will allow for at least 16 units per site, per state law requirements. The City will ensure that this rezone effort will ensure consistency with the general plan designations and zoning districts.

Additionally, to ensure capacity for the City's moderate income RHNA, the City will rezone 51.06 acres of vacant land to R-3, RD-20 and MU 10+, and 26.69 acres of underutilized land to MU 10+, identified in Table 7-43.

The City will emphasize applying the rezones to available lands in high resource areas, as defined by the TCAC/HCD Opportunity Areas map and on sites that are 0.5 to 10 acres in size.

All identified sites have water and sewer capacity and availability of dry utilities.

The City will also amend the zoning ordinance to allow for split zoning on the same APN or parcel. This will be done concurrently with the rezone effort.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund, SB 2, LEAP/REAP

Timeframe: Comply with Government Code Sections 65583(f) and 65583.2(h) and amend the Zoning Ordinance and Land Use Element to accommodate the unaccommodated need of 481 units from the 5th cycle RHNA within one year of adoption of the Housing Element and complete land use designation changes and establish zoning as necessary for remaining sites identified in Tables 7-42 and 7-43 within 3 years and 120 days of the start of the planning period (May 15, 2021), consistent with Government Code Section 65583(f) and 65583.2(h). The City will report on the progress of this rezone in its annual progress reports required pursuant to government Code Section 65400 and due on April 1st of each year. Allow for split zoning concurrently with the rezone efforts.

REMOVAL OF GOVERNMENTAL CONSTRAINTS

Under State law, the Housing Element must address, and where legally possible, remove governmental constraints affecting the maintenance, improvement, and development of housing. The following programs are designed to mitigate government constraints on residential development and facilitate development of housing affordable to lower- and moderate-income households, including families, seniors, and persons with special needs.

11. LARGE SITES AND SMALL SITES FOR HOUSING FOR LOWER INCOME HOUSEHOLDS

To assist the development of housing for lower income households on larger sites, the City will facilitate land divisions, lot line adjustments, and specific plans resulting in parcels sizes that facilitate multifamily developments affordable to lower income households. The City will work with property owners and non-profit developers to target and market the availability of sites with the best potential for development.

To encourage the consolidation of smaller adjacent parcels zoned for residential use, the City will work with property owners to consolidate parcels, coordinating with local property owners to support the development of affordable multifamily housing development, or working with developers to identify suitable vacant and adjoining sites.

To further assist, the City will offer the following incentives for both large and small site development of affordable housing which may include but is not limited to:

- Streamlining and expediting the approval process for land division for projects that include affordable housing units,
- Ministerial review of lot line adjustments,
- Deferral of fees related to the subdivision for projects affordable to lower income households,
- Providing technical assistance to acquire funding, and
- Modification of development requirements.

Responsible Agency: City of Rocklin, Community Development Department

Financing: A combination of General Fund, grants such as Community Development Block Grant (CDBG), SB 2, LEAP/REAP future housing funds and other funds as they become available

Time Frame: Develop the incentive program by December 2022, provide incentives throughout planning period, as projects are submitted to the Community Development Department

12. HOUSING FOR PERSONS WITH DISABILITIES

Pursuant to SB 520, the City must address the potential constraints to housing for persons with disabilities. In addressing this requirement, the State HCD focuses on the zoning and land use provisions for a variety of housing types suitable for persons with disabilities. Another concern is the provision of flexibility in the application of land use policies and zoning regulations for housing for persons with disabilities.

Both the Federal Fair Housing Act and the California Fair Employment and Housing Act direct local governments to make reasonable accommodations (i.e., modifications or exceptions) to allow disabled persons an equal opportunity to use and enjoy a dwelling. Existing City practice provides reasonable accommodation for disabled person housing on a case-by-case basis. For rehabilitation projects, such as installation of ramps or interior modifications, the City processes these requests for reasonable accommodation over the counter. No special review is required and therefore, will not constrain the rehabilitation of housing. Some projects require modifications to development standards to accommodate persons with disabilities. The City reviews requests for reasonable accommodation at the staff level. The Community Development Director will review and approve requests for reasonable accommodation using the following criteria:

- The request for reasonable accommodation will be used by an individual with a disability protected by applicable fair housing laws;
- The requested accommodation is necessary to make housing available to an individual with a disability protected by applicable fair housing laws;
- The requested accommodation would not impose an undue financial or administrative burden on the City; and
- The requested accommodation would not require a fundamental alteration in the nature of the City's land use and zoning program.

Objectives: Facilitate the development, maintenance and improvement of housing for persons with disabilities. Work with service providers to identify opportunities, and seek funding for, housing for persons with disabilities to reduce displacement risk of these residents due to availability of services. Continue to publicize information about the City's reasonable accommodation procedures at public counters and on the City's website.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: Ongoing, as projects are processed through the planning period

PROMOTION OF REGIONAL COORDINATION

Since many of the housing problems and issues facing Rocklin are regional in nature, the City will take an active role in cooperating with other jurisdictions in Placer County. Issues such as the lack of affordable housing, homelessness, housing opportunities for first-time homebuyers, and funding for affordable housing activities are major housing issues that should be addressed at the local as well as regional level.

13. REGIONAL PARTNERSHIP FOR AFFORDABLE HOUSING

Recognizing the regional nature of issues relating to affordable housing and homelessness, Rocklin will participate in regional efforts and coordinate with neighboring City of Roseville, Roseville Housing Authority, County of Placer, and Placer County Housing Authority in the provision of social services and housing assistance to lower and moderate-income persons, including extremely low-income households and the homeless. Rocklin will place an emphasis on improving mobility between low and high resource areas to connect residents of the city and the region with increased access to opportunities and resources and will market the availability of resources in the region to meet the needs of its residents.

Objective: Continue to coordinate with the City of Roseville, the Roseville Housing Authority, County of Placer, and the Placer County Housing Authority through phone calls and meetings to expand affordable housing opportunities and to meet the housing and supportive service needs of the homeless as strategies to reduce displacement risk for extremely low-, very low-, and low-income persons. Continue to participate in regional efforts to reduce homelessness by continuing to attend Homeless Resource Council of the Sierras (HRCS)/CA-515 Continuum of Care (CoC) meetings, when appropriate. In addition, the City will continue to maintain its relationship and information exchanges with the Placer Consortium on Homelessness (PCOH) and Placer Collaborative Network (PCN). The City will also continue to participate in regular Point In Time (PIT) counts of the local homeless population in Placer County.

Responsible Agency: City of Rocklin, Community Development Department/Housing Services

Financing: General Fund

Timeframe: Annually meet with the City of Roseville, the Roseville Housing Authority, County of Placer, and the Placer County Housing Authority.

PROMOTION OF EQUAL HOUSING OPPORTUNITY

To adequately meet the housing needs of all segments of the community, the Housing Element must include program(s) that promotes housing opportunities for all persons regardless of race, religion, sex, family size, marital status, ancestry, national origin, color, age, physical or mental disability, sexual orientation, or source of income.

14. FAIR HOUSING PROGRAM

Fair housing is defined as a condition in which individuals of similar income levels in the same housing market have a like range of choice available to them regardless of race, color, ancestry, national origin, religion, sex, age, disability, marital status, familial status, sexual orientation, source of income, or any other arbitrary factor.

Objective: The City identified barriers to fair housing through the Fair Housing Assessment (see Section 7.2 Housing Needs Assessment). To address identified barriers, foster an inclusive community, and promote the development of affordable housing, the City will complete the following actions:

- Implement Programs 1, 2, 3, 4, 5, 6, 7, 9, 13, and 24 to affirmatively further fair housing, including targeting community revitalization through place-based programs, enhancing mobility between neighborhoods, and developing strategies to reduce displacement risk in areas of higher concentration of lower-income households and overpayment (e.g. Programs 4, 6, 19, and 24) and facilitating affordable housing in high opportunity areas.

- As inquiries and complaints are received, refer residents with fair housing questions to the California Department of Fair Employment and Housing, Legal Services of Northern California (Auburn), or the Fair Housing Hotline Project.

- Continue to maintain information about fair housing services available to City residents on the City's website, update the materials annually as new information or requirements are available.

- Work with fair housing organizations such as Legal Services of Northern California on an annual basis to identify patterns of fair housing issues and track fair housing complaints to enforce fair housing laws.

- Beginning in 2022 and in every other year following, provide training to landlords and property owners on avoiding discriminatory practices based on income or other protected classes, and their requirement to grant reasonable accommodation requests.

- Continue to encourage development of multifamily housing in high resource areas by assessing the feasibility of providing incentives such as density bonuses or parking reductions on a project-by-project basis.

- Meet annually with Placer County Transit Dial-A-Ride and other transit agencies, as appropriate, to ensure their capacity is sufficient to meet the needs of the community and to assess the need for and feasibility of providing increased service between neighborhoods to improve residents' access to employment (consistent with fare box recovery standards). Explore mechanisms to fund expansion and investment in disconnected neighborhoods. Also work with PCT to market and increase awareness of citywide Dial-A-Ride services that are already available to the general public.

- Meet with service providers for special needs groups by December 2021, and annually thereafter, to discuss funding opportunities and other mechanisms to expand availability of services and housing for special needs groups.

- The City shall require affordable developers to prepare an affirmative marketing plan, as a condition of receiving public funding, and encourage private developers to prepare an affirmative marketing plan. The affirmative marketing plan shall ensure marketing materials for new developments are designed to attract renters and buyers of diverse demographics, including persons of any race, ethnicity, sex, handicap, and familial status. This new requirement will be set by 2024.

Responsible Agency: City of Rocklin, Community Development Department/Housing Services

Financing: General Fund

Timeframe: Refer to each strategy in the AFFH program for metrics and specific timeframes. Review and implement programs identified in the City's Analysis of Impediments to Fair Housing Choice (AI) developed as a HUD CDBG requirement based on the timeframes identified in the AI.

15. DEVELOPMENTALLY DISABLED PROGRAM

Pursuant to SB 812, the City must analyze the needs of community members with developmental disabilities to include an evaluation of the special housing needs of these residents. A "developmental disability" is defined as a disability that originates before an individual becomes 18 years old, continues, or can be expected to continue, indefinitely, and constitutes a substantial disability for that individual. The development of affordable and accessible homes is critical to expand opportunities for persons with developmental disabilities to live in integrated community settings.

Objective: Work with the Alta California Regional Center and PIRS to implement an outreach program that informs families within the City on housing and services available for persons with developmental disabilities. The program could include the development of an informational brochure, including information on services on the City's website and providing housing-related training for individuals/families through workshops. This outreach will inform future activities related to expanding access to affordable housing to individuals with developmental disabilities.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: Develop an outreach program by December 2022 and annually coordinate with regional offices and developers to pursue opportunities.

16. LOW-BARRIER NAVIGATION CENTERS.

Pursuant to AB 101, the City must establish a streamlined approval processes for low-barrier navigation centers to allow them to be permitted by right in areas zoned for mixed use and nonresidential zones permitting multifamily uses. Low-barrier navigation centers are temporary housing with case management that use best practices to reduce barriers to access, provided that they meet the requirements of Government Code 65662. Streamlining this approvals process can remove barriers to access for Rocklin residents experiencing homelessness who might otherwise struggle to find shelter appropriate to their circumstances.

Objective: Amend the City's zoning ordinance to add low-barrier entry practices to the City's Emergency Residential Shelter use, per Government Code 65660-65668. Low-barrier practices may include, but are not limited to:

- Permitting the presence of partners if it is not a population-specific site;
- Allowing pets;
- Providing space for the storage of possessions; and
- Providing privacy such as partitions around beds or private rooms.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund, SB 2, LEAP/REAP funding

Timeframe: Within one year from adoption of the Housing Element

17. SUPPORTIVE HOUSING.

Pursuant to AB 2162 (2018), the City must expedite the approval of supportive housing by permitting this use by right in zones where multifamily and mixed-use projects are permitted. This program will remove barriers to the development of supportive housing in order to meet the needs of homeless community members and allow supportive housing to be built in areas where it does not currently exist. Supportive housing is defined in section 65582 of the Health and Safety Code as "housing with no limit on length of stay, that is occupied by the target population, and that is linked to onsite or offsite service that assists the supportive housing resident in retaining the housing, improving his or her health status, and maximizing his or her ability to live and, when possible, work in the community."

Objective: Amend the zoning code to allow for the approval of 100% affordable developments that include a percentage of supportive housing units, either 25% or 12 units, whichever is greater, to be allowed without a conditional use permit or other discretionary review in all zoning districts where multifamily and mixed-use development is permitted.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund, SB 2, LEAP/REAP funding

Timeframe: Within one year from adoption of the Housing Element

18. DEVELOPMENT STREAMLINING.

Pursuant to SB 35 (2017), the City must establish a process through which multifamily projects that meet a defined affordability threshold may apply for a streamlined review process. The goal of this streamlined review is to encourage the development of affordable housing by offering an expedited entitlement process to project developers.

Objective: Establish a written policy or procedure and other guidance, as appropriate, to specify the Senate Bill (SB) 35 streamlining approval process and standards for eligible projects, as set forth under California Government Code, Section 65913.4.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund, SB 2, LEAP/REAP funding

Timeframe: Ongoing, as projects are processed through the Community Development Department.

19. AFFORDABLE HOUSING IMPACT FEE

The City will explore the feasibility of an affordable housing impact fee. This would help to offset the impact of new development on the need for affordable housing The City will explore both Commercial linkage fees and residential impact fee options.

Objective: Conduct a nexus study to evaluate the extent to which new development projects contribute to the local need for affordable housing.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: Determine the viability of an Affordable Housing Impact Fee by December 2023. Annually review fee to determine if additional updates are necessary.

20. REPLACEMENT PROGRAM

The City will require replacement housing units subject to the requirements of Government Code, section 65915, on sites identified in the site inventory when any new development (residential, mixed-use or non-residential) occurs on a site that has been occupied by or restricted for the use of lower-income households at any time during the previous five years. This requirement applies to non-vacant sites and vacant sites with previous residential uses that have been vacated or demolished.

Objective: Mitigate the loss of affordable housing units by requiring new housing developments to replace all affordable housing units lost due to new development.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: The replacement requirement will be implemented immediately and applied as applications on identified sites are received and processed.

21. EMPLOYEE HOUSING

To comply with the State Employee Housing Act (Health and Safety Code Sections 17021.5 and 17021.6), the City will amend the Zoning Ordinance to treat employee housing that serves six or fewer persons as a single-family structure and permit this housing type in the same manner as other single-family structures of the same type in the same zone in all zones allowing single-family residential uses. Additionally, employee housing consisting of no more than 12 units or 36 beds will be treated as an agricultural use and permitted in the same manner as other agricultural uses in the same zone.

Objective: Amend the Zoning Code to comply with State Law.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund, SB 2, LEAP/REAP funding

Timeframe: Within one year from adoption of the Housing Element

22. PARKING FOR EMERGENCY SHELTERS

The City will review and revise as necessary, parking requirements for emergency shelters to ensure that parking standards are sufficient to accommodate all staff, provided standards do not require more parking for emergency shelters than other residential or commercial uses within the Rocklin Ranch Planned Development industrial zone (PD-LI).

Objective: Amend the Zoning Code to comply with State Law.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: Within one year from adoption of the Housing Element

23. COMMUNITY CARE FACILITIES

To comply with Government Code section 65008, subdivision (a), the City will review and revise, as appropriate, requirements to allow group homes and residential care facilities in all residential zones for seven or more residents and ensure that the City's policies do not pose a constraint to housing for persons with disabilities.

Objective: Amend the Zoning Code as appropriate to comply with State Law.

Responsible Agency: City of Rocklin, Community Development Department

Financing: General Fund

Timeframe: Within one year from adoption of the Housing Element

24. SUCESSORY AGENCY

All redevelopment agencies were dissolved in California effective February 1, 2012. The City of Rocklin ultimately elected to function as the successor to the former Redevelopment Agency ("Successor Agency") and to form a Housing Successor to serve as the governing body for the former agency's low- and moderate-income housing assets. Housing Successors receive the non-cash housing assets of the former Redevelopment Agencies and are charged with monitoring and maintaining existing low-and

moderate-income housing assets and meeting outstanding requirements for former redevelopment agencies. The City will annually track the demographics of the people benefiting from these funds to ensure they are equitably distributed and make adjustments to funding if they are not; this assessment shall use the best available data, including updated Census, ACS, Point in Time counts, and other data. Going forward the fund's revenues will be only from loan payment funds. Surplus funds may provide small gap funding for future affordable development projects. Projects in areas of high opportunity or in areas at risk of displacement will be prioritized to receive any funds collected.

Objective: Gap financing for future developments and Homeless Prevention and Rapid Rehousing Program. Prioritize funding for 2 projects in high opportunity areas.

Responsible Agency: City of Rocklin, Community Development Department

Financing: City loan payoffs

Timeframe: Within one year from adoption of the Housing Element

QUANTIFIED OBJECTIVES

As shown in **Table 7-45,** the City expects more than five thousand new dwelling units to be constructed in Rocklin during the current (2021 to 2029) planning period.

TABLE 7-45: QUANTIFIED OBJECTIVES BY INCOME CATEGORY 2021-2029

Income Category	New Construction[1]	Rehabilitation[2]	Conservation[3]
Extremely Low	955	44	
Very Low	956	64	40
Low	1,151	60	206
Moderate	771		
Above Moderate	1,828		
Total	**5,661**	**168**	**246**

Source: City of Rocklin, SACOG, 2020.

(1) New construction objectives are based on the Regional Housing Needs Allocation.

(2) Objectives based on program 1, 3, and 5.

(3) Objectives based on program 2, 4, and 5.

7-7 REVIEW OF PREVIOUS HOUSING ELEMENT PROGRAMS

To develop an effective housing plan for the 2021–2029 period, the City must assess the effectiveness of its existing housing programs and determine the continued appropriateness of such programs in addressing housing adequacy, affordability, and availability issues.

This section evaluates the accomplishments of each program in the 2013–2021 Housing Element and includes the status of each program and the effectiveness of implementing that program.

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
Home Repair Program	Assist 8 lower income households (1 household annually) with rehabilitation loans during the planning period plus assist 80 senior households through the Handyman Program (10 households annually) with minor rehabilitation assistance during the planning period. Distribute flyers to households within the Old Town/Central Rocklin area at least once a year. Advertise program in the newspaper once per year and place on the City's website.	The Home Repair Program guidelines were updated in December 2013. In the planning period, one lower-income household was assisted by the City's Housing Rehabilitation program in 2014. Information on the program has continued to be advertised on the City's website. From 2013 to 2016 Seniors First received funding from the City's CDBG program and assisted 119 Low Income Residents with minor repairs through their Handyman Program. Seniors First elected to discontinue the program in 2017. In 2019, the City partnered with Foothill's Habitat for Humanity by awarding them with CDBG funds to establish a new Handyman Program targeted at assisting very low and extremely low-income households with minor home and safety repairs. This program is being advertised on the CDBG page of the City's website.	Modify and Continue
Code Enforcement and Abatement	Continue to implement the Code Enforcement and Abatement Program. Provide information about the Home Repair Program to owners of all homes in need of repair.	Throughout the planning period, the City has continued to implement the Code Enforcement and Abatement Program by responding to complaints from the public as well as enabling City staff to drive by homes to determine if there are any violations of property maintenance standards pursuant to Chapter 8.04 of the Municipal Code.	Continue

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
Inspection Program	Prepare a brochure that describes the Inspection Program and make it available at the Economic and Community Development Department and advertise the program on the City's website within one year of the adoption of the Housing Element. Provide information about the Home Repair Program to owners of all homes in need of repair.	The City conducted approximately 72,839 residential inspections of building permits associated with single- and multifamily structures. In addition, the City has continued to inspect residential properties, upon request, to identify health and safety hazards, and other building code violations that should be corrected.	Remove
Zoning Flexibility for Housing Rehabilitation	Continue the practice of allowing non-conforming dwellings to be rehabilitated so long as the non-conformity is not increased and no threat to public health and safety is identified.	Throughout the planning period, the City continued to allow non-conforming dwellings to be rehabilitated pursuant to Chapter 17.62 of the Municipal Code so long as the non-conformity is not increased and no threat to public health and safety is identified.	Continue
Preservation of Existing Affordable Housing Stock	Work with owners of all at-risk projects, interested groups, and the State and federal governments to implement the following measures on an ongoing basis to conserve affordable housing stock: Work with interested buyers of Lyn Roc Apartments, Quarry Oaks Apartments and Rolling Oaks Apartments to encourage the new owners to continue public subsidies in order to maintain the affordability of these units and evaluate the costs associated with preservation option such as 1) transfer of project to non-profit ownership; 2) provision of rental assistance to tenants using non-federal funding sources, and 3) purchase of affordability covenants by the end of 2015 for Quarry Oaks Apartments and Rolling Oaks	Affordable housing projects were monitored on an ongoing basis. In 2016, the City contacted the management entities of three different projects (Lyn-Roc, Rolling Oaks, and Quarry Oaks) that appeared to have subsidies nearing expiration. Staff was assured by all parties that they were in the process of renewing their Section 8 contracts. At-risk projects will continue to be monitored on an ongoing basis and actions will be taken as the needs, opportunities, and funding availability allow. As of 2019, there were no projects with affordability expirations considered at-risk. The earliest expiration of affordability is the College Manor Apartments with an expiration date of May 31, 2028.	Continue

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
	Apartments and by the end of 2016 for Lyn Roc Apartments. Monitor Units at Risk: Monitor the status of at-risk projects annually. Work with Potential Purchasers: Where feasible, provide technical assistance to public and non-profit agencies interested in purchasing and/or managing units at risk. Tenant Education: California Legislature extended the noticing requirement of at-risk units opting out of low-income use restrictions to one year. Should a property owner pursue conversion of the units to market rate, the City will ensure that tenants were properly noticed and informed of their rights and that they are eligible to receive Section 8 Housing Choice Vouchers that would enable them to stay in their units. Assist Tenants of Existing Rent Restricted Units to Obtain Section 8 Housing Choice Voucher Assistance: Tenants of housing units with expired Section 8 contracts are eligible to receive special Section 8 vouchers that can be used only at the same property. The City will direct tenants of "at risk" units to obtain these Section 8 vouchers, that can be administered in the City of Rocklin, through the Roseville Housing Authority or Placer County Housing Authority. Maintain a list of Section 8 inquires		

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
	received through the City's Comcate database (a program that residents can email questions regarding various City related issues).		
Housing Choice Voucher Program	Continue to support the assistance of 110 households each year throughout the planning period. Provide referrals to households in need of housing assistance. Encourage property owners to accept Section 8 assistance	The City has continuously participated in the Housing Choice Voucher Program (Section 8) administered by the Roseville Housing Authority and Placer County Housing Authority throughout the planning period. The program provides rental assistance to very low-income households in Rocklin. Between 100 (in 2013) and 193 (in 2019) vouchers per month were in Rocklin.	Continue
Affordable Housing Development	Provide available financial and regulatory incentives to non-profit housing corporations, private developers, and public agencies to increase the supply of housing affordable to Rocklin's lower and moderate-income households throughout the planning period. Maintain a list of qualified housing developers with a track record of producing quality housing that includes affordable units. Provide information on potential sites which will be compiled in a list format and provided on the City's website within one year of adoption of the Housing Element. In addition, communicate with the development community the City's goal to provide quality housing affordable to lower and moderate-income households.	In 2013, 2014, and 2015, the City did not receive any requests from non-profit housing agencies to develop affordable housing. In 2016, the City worked with two specific developers processing planning entitlements for new apartment projects to be developed in the City. It is estimated that, combined, these projects would provide more than 200 units with rental prices that serve both low- and some very low-income households. A rezone for one of the projects was approved in December 2016. The Rocklin Gateway project was approved by City Council in 2017 and proposed 41 units at an affordable rent to low-income individuals. However, the project has not yet been built due to funding issues. The Quarry Place project, which included 162 units for low-income households and 18 units for very low-income households, was approved by City Council on October 8, 2019. The City has also been in discussions regarding future properties with several other affordable housing developers.	Modify and continue; combined with #9.

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
Second Unit Development	Continue to advertise second dwelling units as a relatively low-cost affordable housing option in Rocklin through preparation and distribution of a brochure and placing information on the City's website. Maintain a brochure and place at public counters and post information about second dwelling units on the City's website	The Rocklin Municipal Code is on the City's website and regulations regarding second units are included in Title 17 (Zoning Ordinance). The City adopted an updated Accessory Dwelling Unit Ordinance in February 2020 to incorporate recent changes in legislation.	Modify and continue
Affordable Housing Funding Sources	Work with affordable housing developers to assist the organizations in securing funds. Provide technical assistance in preparing funding applications, grant density bonuses and regulatory concession(s) as appropriate and apply for complementary programs that can help reduce land or site development costs for housing projects. Contact HCD, CHFA, CTCAC and HUD at least annually to obtain information on upcoming funding cycles, eligibility, and eligible uses. Maintain a list of qualified housing developers active in the City and region. Notify developers via email or phone call of available funding resources along with funding cycles. Make efforts to apply for funding for which the City is eligible on an annual basis. Specifically, pursue funding that can help bridge the financial gap of housing affordable to extremely low-income households.	During the planning period, the City did not provide any funding to preserve affordable units. The Seniors First program consistently received a portion of the City's CDBG funds to assist seniors with minor home repairs through its Handyman Program. In 2019 the City also partnered with Habitat for Humanity to re-establish a Handyman Program after the Seniors First Program was discontinued by that entity in 2017. In 2018 and 2019, Salvation Army received a portion of the City's CDBG funds to assist people at risk of homelessness with one-time rental assistance or deposit assistance. Information about HCD, CHFA, HUD, and other affordable housing programs is collected on a regular basis and shared with developers.	Combined with Program 7
Zoning Flexibility	Provide information about the BARRO Zone on the City's website. Assist with 16 BARRO Zone	There were no housing-related BARRO Zone Program projects during the planning period. However, staff received multiple inquiries regarding opportunities to develop	Continue

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
	housing projects (2 per year) over the planning period.	residential units in the zone and will continue to provide guidance and assistance to prospective applicants.	
Inventory of Sites for Housing	Maintain an inventory of vacant sites that is adequate to accommodate the City's RHNA of 3,813 units (520 very low income, 729 low income, and 709 moderate income). Monitor development applications with the available sites table and encourage and facilitate the development of affordable housing on Rocklin's remaining sites designated for medium-high and high-density residential uses. Make the inventory of sites available to developers and offer regulatory and/or financial incentives to facilitate the development of housing affordable to lower income households. To facilitate development of affordable housing and to accommodate the remaining RHNA of 1,769 low-income households, the City will identify and rezone approximately 261.4 acres of underutilized and vacant land within the City, at a minimum density of 22 units per acre and a maximum allowable density of 30 units per acre. The rezone designation will be Mixed Use High Density Residential (MU-HDR). At least 50% of the remaining need (885 units) will be accommodated on sites designated for exclusively residential uses. The City will identify sites exclusively for residential uses	Program 11 of the 2013–2021 Housing Element stated that the City would identify and rezone approximately 261.4 acres of underutilized and vacant land within the City, at a minimum density of 22 units per acre with a maximum allowable density of 30 units per acre. This rezone would have provided for the development of the remaining lower-income RHNA of 1,769 units. After further review it was determined that there were several sites that were appropriately zoned with a corresponding land use designation to accommodate the 5th cycle RHNA in 2012, with additional sites available in 2014. In 2012 , City Council approved a General Plan Amendment to the Land Use Element of the General Plan to amend various land use designations identified in the Housing Element to Mixed-Use (MU) or High-Density Residential (HDR). This provided the City with 1,288 units on mixed use sites to meet a portion of the lower income RHNA. On February 25, 2014, City Council approved a General Plan Amendment to the Land Use Element of the General Plan to amend various land use designations identified in the Housing Element to Mixed-Use (MU) or High-Density Residential (HDR). The General Plan Amendment expanded the allowed density in the current High-Density Residential land use designation category. The available sites in place prior to the beginning of the 5th cycle projection period (January 1, 2013) shows that the City had capacity for 1,288 units and after subtracting the 1,769	Continue Will be a two-part program; maintain inventory and monitor as projects are approved. Will include all rezone properties.

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
	during the rezone process, at a minimum density of 22 units per acre and a maximum allowable density of 30 units per acre. The rezone designation will be RHNA High Density Residential (RHDR). Rezoned sites will be selected from the Available Sites Tables Figure 7-3, 7-4 and 7-5 and in Appendix C, will have the capacity for at least 16 units and will be available for development in the planning period where water and sewer can be provided. The City shall follow the requirements of subdivision (h) of Section 65583.2 of the Government Code and shall ensure that owner-occupied and rental multi-family residential development is allowed by right in accordance with subdivision (f) of Section 65589.5 of the Government Code. Complete land use designations and establish zoning as necessary for sites identified in the available sites table within 1 year of adoption. The City will report on the progress of this rezone in its annual progress reports required pursuant to government Code Section 65400 and due on April 1st of each year.	lower- income RHNA, there is an unaccommodated need of 481 units. While the City does not have a specific mixed use zoning district, a Zoning Ordinance Amendment was approved to establish interim review procedures to facilitate and encourage development on mixed use sites within the City during the interim period until project-specific zoning is applied. In the 2021-2029 Housing Element Update, the City will accommodate the 481 unit 5th cycle carry over and has incorporated a rezone program (Program 10) stipulating that consistent with Government Code Section 65583(f) and 65583.2(h), the City will amend the Zoning Ordinance and Land Use Element to accommodate the unaccommodated need of 481 units from the 5th cycle RHNA within one year of adoption of the Housing Element and complete land use designation changes and establish zoning as necessary for remaining sites within 3 years of adoption of the Housing Element	
Density Increase Incentive Program	Continue to offer density bonuses and other regulatory incentives to developers of affordable housing.	The City did not receive any requests from developers of affordable housing for density bonuses in 2014 or 2015. In 2016, the City removed the density cap on its General Plan High-Density Residential Land Use Category to facilitate opportunities for affordable housing development. The City has also continued to apply incentives for affordable housing in accordance with state law.	Remove

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
Large Sites for Housing for Lower Income Households	Develop the incentive program by December 2014, identify sites by December 2014, then provide incentives throughout planning period, as projects are submitted to the Economic and Community Development Department	The City continues to evaluate options for an Incentive Program; however, in the interim, is open to working with property owners and affordable housing developers to explore potential incentives on a case-by-case basis. The City also routinely provides information (maps, aerials, etc.) regarding both large and small sites that are potentially available to all multifamily developers that approach the City looking for development opportunities.	Continue
Housing for Persons with Disabilities	Facilitate the development, maintenance and improvement of housing for persons with disabilities. Continue to publicize information about the City's reasonable accommodation procedures at public counters and on the City's website.	The City has continued to provide information about its reasonable accommodation procedures and services available in the region.	Continue
Regional Partnership for Affordable Housing	Continue to coordinate with the City of Roseville, the Roseville Housing Authority, County of Placer, and the Placer County Housing Authority through phone calls and meetings to expand affordable housing opportunities and to meet the housing and supportive service needs of the homeless. Continue to participate in regional efforts to reduce homelessness by continuing to attend Placer Consortium on Homelessness (PCOH) meetings, when appropriate. In addition, the City will continue to maintain its relationship with PCOH and Placer Collaborative Network (PCN) which conduct regular counts of the local homeless population in Placer County.	The City has maintained its relationship with Placer Consortium on Homelessness (PCOH) and Placer Collaborative Network (PCN), which conducts regular counts of the local homeless population in Placer County. In addition, CDBG funds were allocated to The Gathering Inn, from 2013–2016, to assist the homeless in Rocklin with social, health, and case management services. In addition to the CDBG funds, the City also provided an additional $20,000 in General Fund monies in 2015 to support the efforts of The Gathering Inn in 2015. $30,000 in Low- and Moderate-Income Housing Asset Funds were allocated to the Gathering Inn in 2017 and $50,000 in Low- and Moderate-Income Housing Asset Funds were allocated to the Gathering Inn each year in 2018 and 2019. CDBG funds were allocated to the Salvation Army in 2019 to assist individuals with an	Continue

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
		eviction notice with one-time rental assistance or deposit assistance. Rocklin City staff along with other regional stakeholders have actively participated in a series of meetings since 2015 led by Placer County Health and Human Services and the Homeless Resource Council of the Sierras analyzing the need for a 24/7 Shelter in South Placer County as well as other permanent housing solutions for the homeless. These meetings are expected to continue and result in better quantification of actual shelter needs, current gaps in services, and ultimately specific options and strategies to address issues related to homelessness.	
Fair Housing Program	Continue to promote fair housing practices by providing educational information on fair housing to the public through the distribution of brochures and flyers, maintaining fair housing service provider information on the City's website, and providing referrals to appropriate agencies for services when contacted and throughout the planning period. In addition, review and implement programs identified in the City's Analysis of Impediments to Fair Housing Choice (AI) developed as a HUD CDBG requirement based on the timeframes identified in the AI.	The City has continued to provide information about fair-housing services to City residents on the City's website, which includes referrals to various local organizations specializing in housing rights and the HUD fair-housing guidelines. City staff has also kept a record of fair-housing questions received from the public to better assist residents in the future.	Modify
Developmentally Disabled Program	Work with the Alta California Regional Center to implement an outreach program that informs families within the City on housing and services available for persons with developmental disabilities. The program could	The City routinely notifies public service agencies directly via email to local non-profit collaborations (Placer Collaborative Network and Placer Consortium on Homelessness) regarding all local funding opportunities. These groups were also contacted throughout preparation of the Regional Analysis	Continue

Review of the 2013 – 2021 Housing Element Programs			
Name of Program	**Objective**	**Status of Program Implementation**	**Program Action**
	include the development of an informational brochure, including information on services on the City's website and providing housing-related training for individuals/families through workshops	of Impediments for input. These organizations primarily serve minorities, non-English speaking persons and persons with disabilities. Staff encourages the agencies to share Draft documents and notices of public hearing opportunities with their clients and other organizations who may be interested in both funding and Housing related activities and topics. The City participated in local public workshops and outreach conducted during the Regional AI process as well. The City has also recently prepared outreach material to groups specializing in services to the developmentally disabled highlighting housing and services available in Placer County and Rocklin. The City encourages housing developers to include more than the minimum number of accessible units required by Building Codes when proposing residential development projects. The City also participates annually in the Placer County Transportation and Planning Agency's (PCTPA's) Unmet Transit Needs process and considers modifications to address transportation needs that are found reasonable to meet. In 2018 a request was made from individuals residing in Lincoln who were in need of ADA compliant transportation from that City to Sierra College located on Rocklin Road in Rocklin. Prior to this request, Dial-A-Ride/Paratransit services in Lincoln and Rocklin operated only within the jurisdiction of each City. As a result of the Unmet Transit Needs process the Cities of Rocklin and Lincoln, as well as, Transit Operator (Placer County Transit) created a program that would allow ADA clients book the necessary inter-jurisdictional services.	

APPENDIX A: PUBLIC PARTICIPATION

INTERVIEW OF SERVICE AGENCIES AND COMMUNITY LEADERS

The following agencies responded to the interview for housing needs and gaps of services in the City of Rocklin, conducted in September and October 2020. A summary of some of their feedback is included below.

St. Vincent de Paul

139 Riverside Avenue

Roseville, CA 95678

(916) 781-3303

St. Vincent de Paul provides a food locker for eligible households who are able to obtain groceries once every 30 days and the BAGS Program (home delivery of groceries); two thrift stores, used furniture store and a general merchandise thrift sore, plus a medical clinic that provides urgent and triage medical care for uninsured patients.

The main issue they see is affordability; lots of people come in and ask for rental assistance. There's no specific type of housing that clients tend to seek out. More affordable rentals are needed, though not exclusively for low-income residents. Most clients live in mobile homes. If they could move into better housing in Rocklin, they would. Most clients at Saint Vincent de Paul are seniors on a fixed income. Residents access the food locker, which is their main source of groceries. COVID has forced many of these food recipients to shelter in place, which means they can't come pick up groceries and new clients are coming in.

Acres of Hope

PO Box 238

Auburn, CA 95604

(530)878-8030

Acres of Hope provides transitional housing and case management to women experiencing homelessness and their families. The program includes job training and social emotional education, and typically lasts 14 to 16 months. The program has space for 11 families. Acres of Hope is funded entirely by private donations and through proceeds from a thrift store.

The program's clients are typically lower-income single moms, and so have a difficult time finding affordable housing within Rocklin. What's considered affordable rent by statewide rent standards is not actually affordable to their clients, who are on the lower end of the wage range. There are also not enough affordable housing units either as rentals or owned housing, so there's competition to be able to live in them. Their clients don't always have great credit scores, so this ends up being a barrier when their clients are competing for units. Physical quality of housing isn't as much of a concern. The program has a good relationship with property managers, so they've had good luck placing graduates recently.

Developers and the City should take into consideration the nearby resources such as schools and jobs when considering the placement of affordable housing. Clients want to be able to stay in the community

they've been living in so as not to uproot themselves, which can challenge their recovery and stability. COVID has not had the negative impact on housing that they expected and might have actually freed up some units.

Placer People of Faith Together

6440 King Rd

Loomis, CA 95650

(530) 401-3768

Placer People of Faith Together is a faith-based organizing group that operates in communities across Placer County that provides assistance to undocumented residents and advocates on issues related to environmental and economic justice as well as criminal justice reform.

The group cited a lot of vacant land along railroad rights-of-way that could be used to develop housing, as it has been in other communities. For example, there's a large parcel on Sierra College Blvd that could be developed. Additionally, converting commercial properties to housing is a really viable alternative to building new housing, particularly in areas with underutilized strip malls that no longer fit the community. There are also a number of non-profits and churches that would be interested inworking with the City to find ways to develop the land they own into affordable housing. Several organizations have more than ten acres each. Placer People of Faith Together supports SB 899, which gives churches and non-profits the ability to construct affordable housing by-right.

There aren't enough rental units, and many aren't accessible to seniors and those with mobility disabilities. There is also a need to build housing for people who work in the city, and to explore creative development types such as co-housing. Some of the older private residential properties are run-down and could use upgrades.

There is an opportunity to develop housing in the Old Rocklin area, and near Quarry Park. People come to that area from all over, so it would be nice to see walking trails and small-scale commercial or mixed-use development. There might also be more community acceptance of affordable housing if it had a quasi-historic aesthetic that could blend in with the older area. In Roseville, a lot of millennials are moving to the older parts because they love walkability and older houses with character, love being near the parks; this could be the future of Rocklin as well. There could also be more community resources for activities, which would encourage people to spend more time in the community rather than in their house.

There needs to be an effort to build community consciousness around affordable housing and the City's obligations to provide the opportunity and permit certain types of housing. There's no awareness of the negative legal and financial repercussions of inaction. There could also be more coordination between cities, rather than competition. Through urbanization, cities that had previously been geographically distinct have blended together.

Sierra College

5100 Sierra College Blvd

Rocklin, CA 95677

(916) 624-3333

Sierra College has campuses in Rocklin, Roseville, Grass Valley, and Truckee. The College offers Associates degrees and certificate programs in addition to lifelong learning opportunities. Sierra College serves more than 18,000 students per year across all campuses. The College employs more than 1,300 people and is one of Rocklin's major employers.

The biggest concern for both students and staff is the rising cost of housing. Maintaining the quality of housing is a secondary priority. There has also been a big push from people moving out of the Bay Area because of the affordability issues there, which adds pressure to the housing stock. Rocklin has done a good job building big homes on smaller lots, but hose homes are expensive. The city is mostly built out, so the City will need to look for opportunities to provide housing in non-traditional ways or ways that are new to the city.

The City is well-known for having good educational opportunities both in higher education and K-12 education.

There's been little low to moderate-income housing development, so there's an opportunity. The City can embrace this type of development proactively. It's also important to maximize outdoor space, and the City can think about how they can design neighborhoods in that way. Well-designed density hasn't been done in Rocklin before, but it's a big opportunity. They would like to be able to use well-designed, affordable housing as an enticement for employees.

Student housing is really difficult to find, and the few available apartments fill really quickly. The College is contemplating the construction of more dorms because of the challenges students face finding housing. Lots of students at Sierra College are older than in other colleges; the average age is 27, so a lot of their students have children and work, which is challenging to do.

The College is currently working on a low-income housing project that's going through the entitlement process. The project will provide affordability and will be constructed without public funds. The entitlement process has taken a lot of time and money, which felt like a waste. It was hard to know what to do, and to get answers to their questions.

Lighthouse Counseling and Family Resource Center

110 Gateway Drive, Suite 210

Lincoln, CA 95648

(916) 645-3300

Lighthouse provides counseling, education, and case management services to families across Placer County.

There's a lot of opportunity for creative thinking around housing in Rocklin. Cohousing is a big opportunity, particularly for seniors. It could also potentially help homeless populations, but that could be riskier for

some people and security could be an issue in that situation. There's a lot of vacant land available near the railroad tracks or other "non-buildable" places that could provide a lot of housing opportunity. There could also be more interesting infill housing developed if it were easier to get variances for things like setbacks. For example, there's a beautiful triangular house in San Diego that was built on a corner lot. There could also be incentives for creative, high-density infill to create affordable housing that would encourage it to be built in Rocklin.

Inclusionary housing will be easier to implement if it's easier for builders to make affordable housing profitable. Fees make that challenging. It would also be easier to get community buy-in if the public sees the residents as members of their community, and if affordable housing projects are visually integrated into the community. Integration can be achieved by using similar styles to other buildings in the area, including them within market-rate projects, or included in mixed-use projects.

COVID has affected people who come into the Lighthouse for services; families are being evicted, and don't necessarily know about the moratorium. They come in for rent assistance, but Lighthouse has already run out.

Placer County Veterans Services

1000 Sunset Blvd # 115

Rocklin, CA 95765

(916) 780-3290

The Placer County Veterans Service Office provides case management services to help connect veterans with their benefits and other services they may need.

The availability of senior housing, particularly those with disability issues, is an issue for their clients. There's an opportunity to serve these veterans using programs like VASH. The primary barrier for veterans is that the cost of housing has increased substantially. They love the area and want to stay but can't afford it. Particularly for veterans who rely on disability payments, they can't afford the high cost of living. A development in Roseville supplied some rooms for veterans, which was good. There is an opportunity to develop housing near the park; there's space for a resource center that can provide veterans with both housing and necessary supportive services.

Multifloor housing is a challenge for older veterans and veterans with disabilities, so access to single-floor buildings is helpful. There are also many younger veterans looking to buy single-family homes that can be purchased using the Veterans Affairs (VA) home loan program.

There aren't any noticeable issues with building quality or code enforcement. COVID has also not had a lot of impact. The number of VA loans being issued are up, and homeless veterans have been assisted by new temporary housing provided by Project Roomkey.

APPENDIX B: ADU DATA AND PROJECTIONS FOR ROCKLIN 2021-2029 HOUSING ELEMENT UPDATE

Although development of Accessory Dwelling Units (ADU's) in Rocklin has not occurred in high numbers historically, there are a number of reasons that a significant increase in ADU production is reasonable to expect in the coming years.

Prior City policies distinguishing ADU's from what was formerly considered "guest quarters", would now result in many prior guest quarter configurations complying with newer definitions of ADU's. Therefore, the former distinctions made between guest quarters and ADU's have resulted in an underrepresentation of what is now considered ADU's in the City's prior housing data. This issue is discussed further in the following paragraphs.

ADU production has increased organically in Rocklin over the last several years without any active marketing or promotion by the City. As illustrated in the following table, legislative changes which became effective in 2020 have correlated to an increase in the number of units constructed in that year and indicators from the first quarter in 2021 put the City on track for a doubling or more of 2020 numbers.

In addition, the City's sewer provider, South Placer Municipal Utility District (SPMUD) has provided data related to guest quarter units approved in the City in recent years.

CITY OF ROCKLIN BUILDING PERMIT DATA FOR ADU'S AND SPMUD DATA FOR GUEST QUARTERS

City of Rocklin ADU Building Permit Data						**Combined Total**
Year	**2017**	**2018**	**2019**	**2020**	**2021***	
City Permit Data						
ADU Permits Issued/Finaled	3	2	2	6	3	
ADU Permits Pending	1	1	-	1	-	
ADU Permits Withdrawn	1	1	-	-	-	
Total ADU Activity City Building Permits Issued	**4**	**3**	**2**	**7**	**3***	**19**
SPMUD Guest Quarters Data						
City Building Permits Issued/Finaled for Units with Guest Quarters	**11**	**10**	**0**	**8**	**1**	**45****
COMBINED TOTAL - CITY AND SPMUD DATA – (does not include withdrawn Applications)	**15**	**13**	**2**	**15**	**16****	**61**

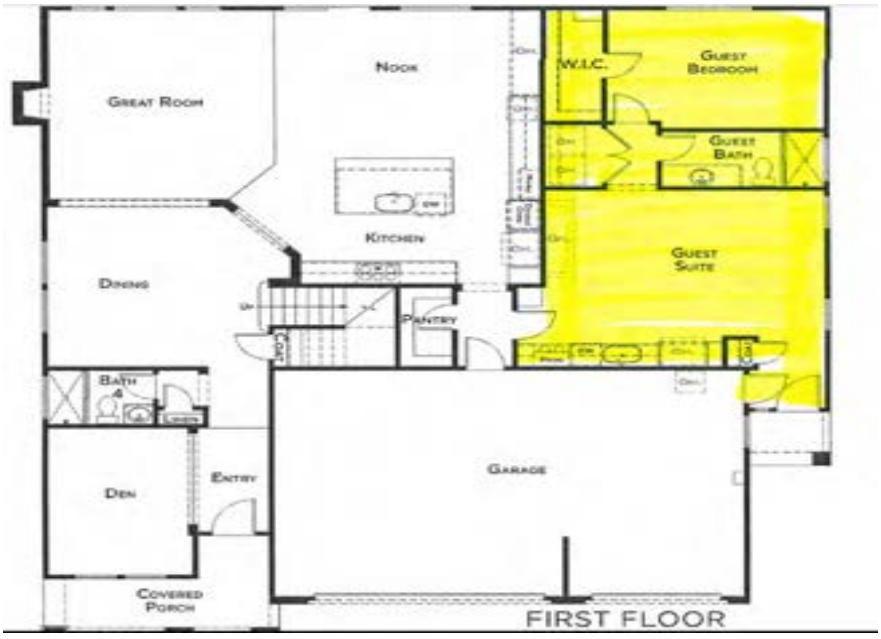
Notes:

**2021 ADU activity from January 1, 2021 through April 28, 2021 only.*

*** Includes an additional 12 ADU's estimated to be permitted in 2021.*

The City's historic average ADU Data and Guest Quarter permits identified in the South Placer Municipal Utility District (SPMUD) Data combined (*assuming 2021 first quarter numbers are repeated each quarter – total 2021 estimate is 16 ADU's) = 61 total units / 5 years = Yearly Average of 12.2 units per year with no active marketing of ADU's by the City. The City assumes that these numbers will increase moving forward with active marketing efforts and by discontinuing use of a prior "guest quarters" interpretation that was originally implemented by the City to reduce the costs of development of those units. The sample floor plan that follows shows that the units formerly referred to as guest quarters do in fact meet the census definition of a unit and conform to what today are being called Accessory Dwelling Units. Recent legislation which now limits utility connection fees, impact fees and parking requirements applicable to ADU's have now replaced the original objective of the guest quarters interpretation and it is no longer considered necessary. As a result, all future units will be recognized and documented as ADU's when Building Permits are issued. With active marketing and promotion of ADU development a doubling of the historic combined ADU and Guest Quarters average is considered a reasonable assumption. **24 ADU's per year x 8 years = A minimum of 192 projected ADU's within the timeframe of the 6th Cycle 2021-2029 Housing Element**.

Sample Guest Quarters Floor Plan



Housing Unit (Census Definition from www.census.gov/housing/hvs/definitions.pdf)

Housing Unit. A housing unit is a house, an apartment, a group of rooms, or a single room occupied or intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants do not live and eat with other persons in the structure and which have direct access from the outside of the building or through a common hall. For vacant units, the criteria of separateness and direct access are applied to the intended occupants whenever possible. If the information cannot be obtained, the criteria are applied to the previous occupants. Tents and boats are excluded if vacant, used for business, or used for extra sleeping space or vacations. Vacant seasonal/migratory mobile homes are included in the count of vacant seasonal / migratory housing units. Living quarters of the following types

are excluded from the housing unit inventory: Dormitories, bunkhouses, and barracks; quarters in predominantly transient hotels, motels, and the like, except those occupied by persons who consider the hotel their usual place of residence; quarters in institutions, general hospitals, and military installations except those occupied by staff members or resident employees who have separate living arrangements.

In addition to the City's policy change that will no longer classify what now would be considered accessory units as guest quarters, recent legislation has effectively streamlined the review process, removed or reduced previous parking requirements, modified the applicability of typical development standards (i.e., traditional setbacks, lot coverage, etc.), and reduced or eliminated the amount of utility connection and impact fees that can be charged. All of these changes, along with anticipated active marketing, education, and promotional efforts from the City, will help make development of ADU's more viable and attractive to homeowners in the years to come.

Banks and other lending institutions have seen the value of providing financial support for ADU's development at terms homeowners can more easily afford. Pre-prepared designs can be found on several websites and be used to reduce the overall design costs to the homeowner as well and help them better visualize how various products might be incorporated on their property.

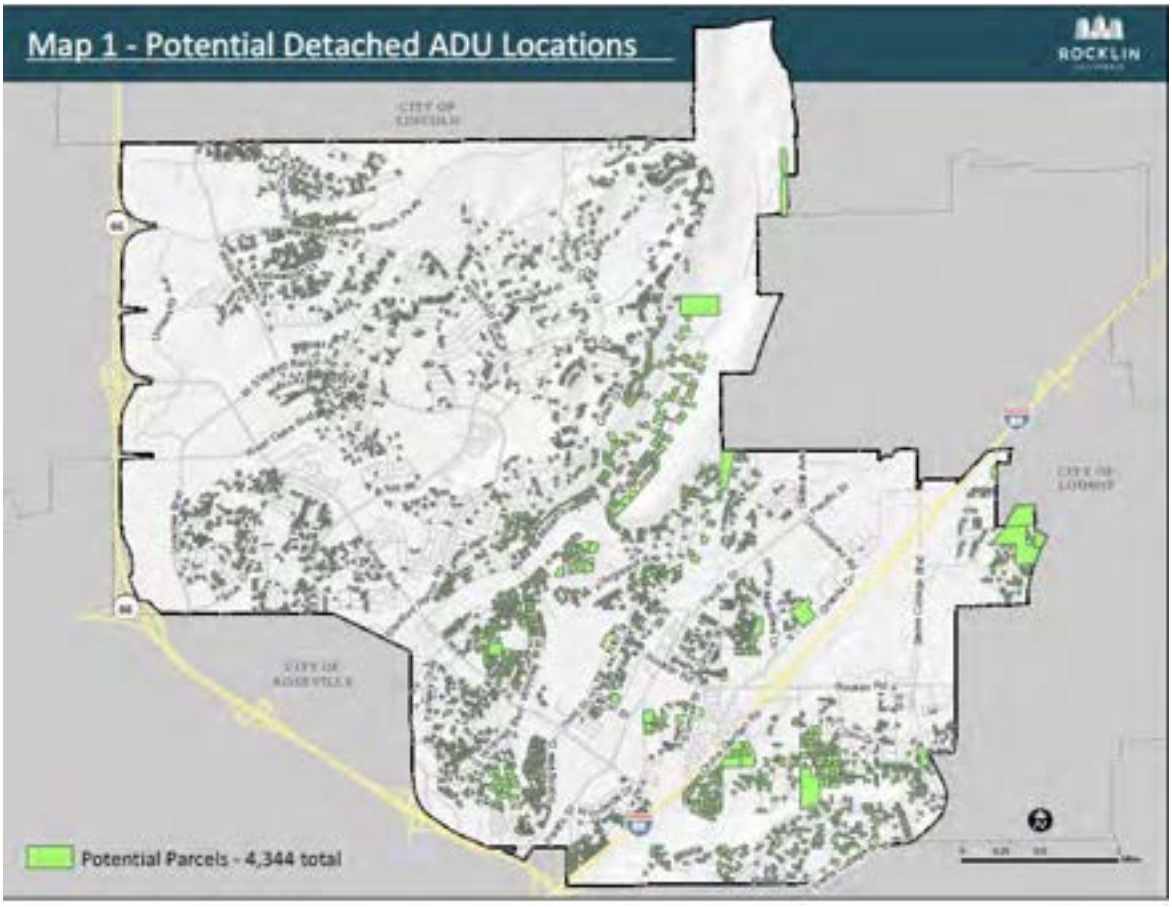
New home builders are also beginning to offer designs with ADU's already incorporated which can be appealing to buyers with college age students, those that are interested in the ability to generate income from their residential property, or who would like to accommodate multi-generational households. The recent coronavirus pandemic has also led to adult children moving back home or elderly family members moving in with their adult children. Due to global uncertainty regarding the ultimate outcome this pandemic or any others in the future, the desirability of ADU's, which can provide separate living spaces for family members on one property, will undoubtedly remain an attractive option for many.

In 2019, the City of Rocklin's GIS division conducted an analysis of the existing parcels within the City of Rocklin that would have the theoretical capability of accommodating a detached ADU.

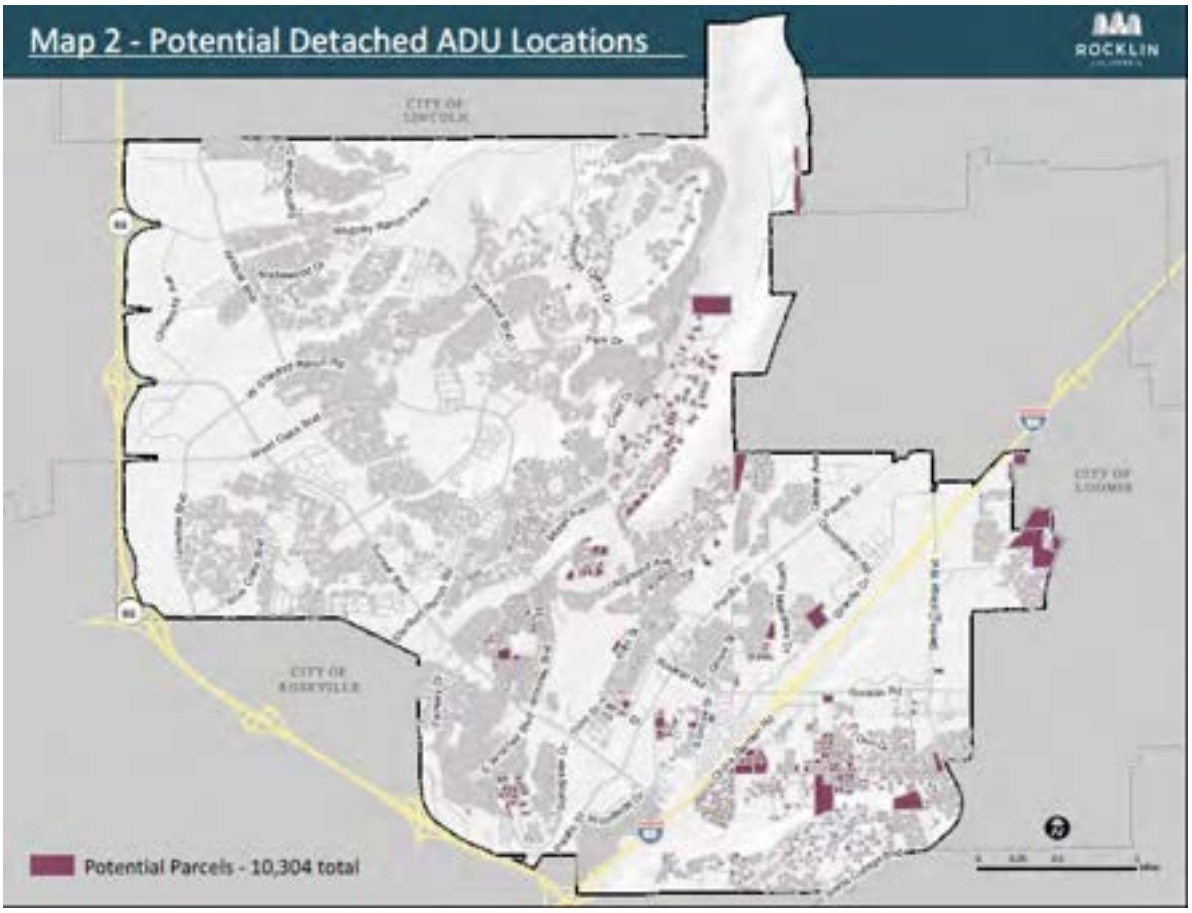
Specific parameters applied to the analysis are as follows:

- Included only developed sites with SF Residential Land Use and Zoning.
- Removed lots that were vacant or consisted of landscape only parcels
- Removed lots that were less than 6,000 square feet in size.
- Altered sites with floodplain or environmental easements to only include developable land.
- Removed sites where pool permits have already been issued.

The first map generated (Map 1) shows sites with potential for a 660 square foot detached ADU assuming standard lot coverage limits. The map shows that approximately 4,344 parcels in the City met these parameters.



The second map generated (Map 2) shows all sites greater than 6,000 square feet that met the initial criteria, but then lot coverage was removed as a limiting factor. Map 2 shows that approximately 10,304 parcels in the City met these parameters.



These figures do not include the even larger potential pool of attached ADU's, and Junior ADU's that could be internal to existing structures or ADU garage conversions that could theoretically be developed in compliance with state law and the City's ADU ordinance.

The following figures illustrate potential types of detached ADU locations identified in the City's GIS analysis in more visual detail. This information is presented for illustration purposes only and does not represent any interest expressed from specific landowners.

Potential Detached ADU Locations
ROCKLIN
Boarding House Ln
Boarding House Ct
Flatiron Ln
Potential ADU Parcel
Not likely for ADU

Potential Detached ADU Locations
ROCKLIN
Potential ADU Parcel
Not Likely for ADU

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PARKS AND RECREATION

ABOUT

The Parks and Recreation Department promotes quality recreational, cultural, and outdoor experiences for the Rocklin community and its visitors.

ACTIVE ADULTS

ACTIVE ADULT INFO

The Active Adults Monthly Newsletter provides information on our programs and activities designed for adults who want to remain active and engage in activities with others in the community.

ARTS IN ROCKLIN

The City of Rocklin's mission is to become a city that provides its citizens with exceptional quality of life. The arts are but one of the avenues used to achieve this goal. The arts are known to enrich our lives, communities and culture, producing more well-rounded individuals. See the many ways that you can get involved with the arts in Rocklin.

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AQUATICS

VENUE RENTALS

Whether hosting a wedding reception, conference, birthday party, or family reunion, the City of Rocklin offers a variety of rental venues to suit your event needs.

Rocklin offers three community park locations with pavilions available to rent including Johnson-Springview Park, Margaret Azevedo Park, and Whitney Park. Information for park rentals is located here.

PARKS AND RECREATION COMMISSION

The Parks and Recreation Commission consists of five commissioners appointed to alternating four-year erms and one youth non-voting commissioner who serves a one-year term. The Parks and Recreation Commission is responsible for the promotion and preservation of community recreation, open space, park lands, public art, and cultural initiatives. The Commission advises and makes recommendations to the City Council on matters regarding the long-term planning, acquisition and/or development of parks, open space and trail systems and on works of art considered for acquisition by the City.

PARKS

ABOUT

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- Facility Rental Inquiry

Following are the PDF version for the Parks & Recreation Department.

- Rocklin Parks and Trails Master Plan
- Trail Strategy Action Plan

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OFFICE OF THE CHIEF

The Office of the Chief is administered by the Chief of Police, who also has command oversight and responsibility for the entire Police Department, all of its Divisions, Units, personnel and resources. The Chief of Police is an appointed position with the responsibility of hiring, directing and leading all police personnel and resources. The Chief of Police is appointed by and answers to the City Manager.

Chief Rustin Banks joined the department in 2021.

A little about our Chief...

Chief Rustin Banks is a longtime Placer County resident, moving here from the east bay during high school. After graduating from Del Oro High School in Loomis, he enlisted in the United States Marine Corps where he received numerous awards and decorations for his participation in Operation Iraqi Freedom. After being honorably discharged from the Marines, he moved back to Placer County where he has lived with his wife Melanie and their three kids for almost 20 years.

Chief Banks began his law enforcement career in January of 2005 with the Solano County Sheriff's Office. Since that time, he has been promoted through the ranks and served in numerous assignments including Patrol, Narcotics Detective, Professional Standards Supervisor and Watch Commander. Chief Banks also spent a total of 12 years on the Special Weapons and Tactics Team (SWAT) in various roles.

Chief Banks was promoted to the rank of Captain in 2019 where he commanded the Field Operations Division. While working as a Captain for the Solano County Sheriff's Office, he was loaned out to Rio Vista Police Department and served as their Interim Chief of Police from September 2019 through February 2020.

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PROFESSIONAL STANDARDS

The **Professional Standards Unit's (PSU)** primary responsibility is protecting the INTEGRITY and REPUTATION of the police department. The PSU's duties range from managing the agency's accreditation process to overseeing the complaint and commendation processes of police personnel. The PSU oversees planning, coordination, maintenance and adherence to nationally recognized standards and best practices, new legislation and case law. The PSU acts as a liaison between police administration, other department employees and outside agencies to ensure compliance with all the Department's policies, procedures and practices. The PSU also processes and investigates citizen commendations and complaints.

The PSU works closely with the Rocklin Human Resources Department to coordinate testing, interviewing, and background investigations to recruit the best possible candidates when job openings occur. Recruitment of quality people begins with good community relations. To provide outreach to the community, the PSU oversees a Public Relations (PR) Team, with the goal of providing positive interaction between law enforcement and the people we serve.

Neil Costa is the Professional Standards Lieutenant overseeing the unit. He has been with the Rocklin Police Department since 2008.

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PUBLIC TRANSIT

Placer County Transit

Rocklin is served by the Placer County Transit Agency (PCTA) which offers bus service to and from Sacramento.

The PCTA also connects with Regional Transit (RT) which is the major public passenger rail transit system serving the Sacramento Metro Area.

The Placer Commuter Express is a commuter bus that travels along the I-80 corridor from Colfax to downtown Sacramento.

Dial-A-Ride Service is available by calling (916) 745-7560 twenty-four hours in advance of your desired trip time. All Dial-A-Ride vehicles are wheel-chair accessible.

Health Express

- Lincoln Transit
- Roseville Transit
- Sacramento Regional Transit
- Tahoe Area Regional Transit (TART)

Questions?

Contact the Office of the City Manager – Economic Development at (916) 625-5582 or by email at Access Rocklin.

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FIRE OPERATIONS AND STATION LOCATIONS

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MESSAGE FROM THE DEPUTY FIRE CHIEF OF OPERATIONS

The Fire Department provides emergency response services within our community from three strategically located fire stations. Housed within each station are fire apparatus precisely placed to provide the optimum, most efficient response model for all incident types throughout the City.

FIRE STATION 23

Fire Station 23 is home to the Fire Administration office. The station houses a Type 1 Structure Engine, a Type 3 Wildland Engine, a Breathing Support Unit, and the Fire Department's first piece of motorized apparatus, a 1936 Dodge VanPelt Pumper.

4060 Rocklin Rd
Rocklin, CA 95677
View map

FIRE STATION 24

Fire Station 24 houses a 62 foot Tractor Drawn Tiller Truck with a 107 foot Aerial Ladder, a Type 3 Wildland Engine, and a reserve Ladder Truck.

3401 Crest Dr
Rocklin, CA 95765
View map

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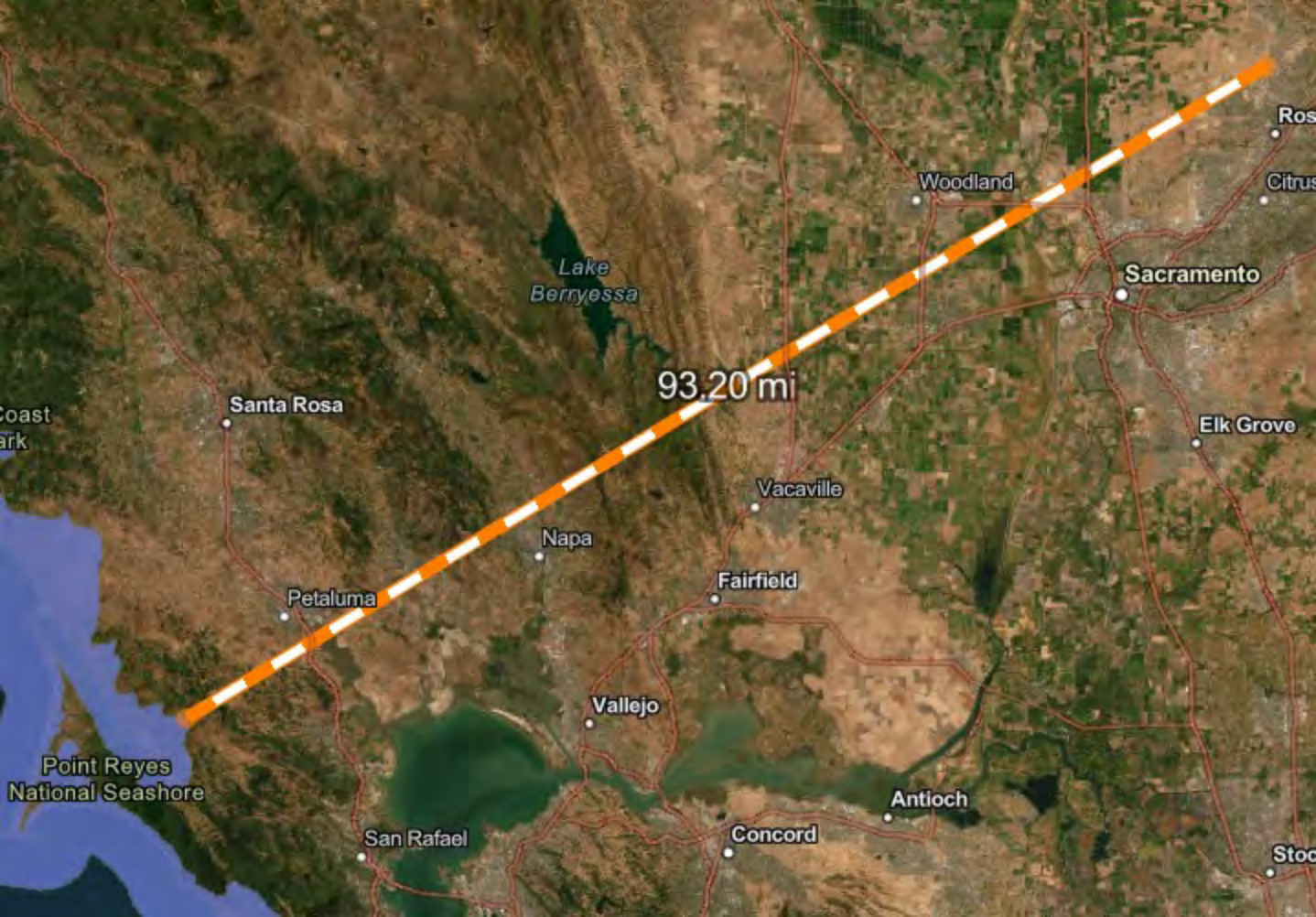

93.20 mi
Lake Berryessa
Woodland
Sacramento
Santa Rosa
Elk Grove
Vacaville
Napa
Fairfield
Petaluma
Vallejo
Point Reyes National Seashore
Antioch
San Rafael
Concord

Search By Keyword

38 sites found

Aboveground Petroleum Storage ×

Chemical Storage Facilities ×

H&S Energy Products,LLC # 3023
1050 SUNSET BLVD
ROCKLIN CA 95765

CPC Scientific
3880 ATHERTON RD
ROCKLIN CA 95765

SCP DISTRIBUTORS, LLC
3830 CINCINNATI AVE STE 140
ROCKLIN CA 95765

Maverik-Rocklin #641

What is a HEPA filter?

HEPA is a type of pleated mechanical air filter. It is an acronym for "**high efficiency particulate air** [filter]" (as officially defined by the U.S. Dept. of Energy). This type of air filter can theoretically remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (µm). The diameter specification of 0.3 microns corresponds to the worst case; the most penetrating particle size (MPPS). Particles that are larger or smaller are trapped with even higher efficiency. Using the worst case particle size results in the worst case efficiency rating (i.e. 99.97% or better for all particle sizes).

All air cleaners require periodic cleaning and filter replacement to function properly. Follow manufacturer's recommendations on maintenance and replacement.

Minimum Efficiency Reporting Values, or MERVs, report a filter's ability to capture larger particles between 0.3 and 10 microns (µm).

- This value is helpful in comparing the performance of different filters
- The rating is derived from a test method developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) [see www.ashrae.org <http://www.ashrae.org/>].
- The higher the MERV rating the better the filter is at trapping specific types of particles.

MERV Rating	Average Particle Size Efficiency in Microns
1-4	3.0 - 10.0 less then 20%
6	3.0 - 10.0 49.9%

MERV Rating	Average Particle Size Efficiency in Microns
8	3.0 - 10.0 84.9%
10	1.0 - 3.0 50% - 64.9%, 3.0 - 10.0 85% or greater
12	1.0 - 3.0 80% - 89.9%, 3.0 - 10.0 90% or greater
14	0.3 - 1.0 75% - 84%, 1.0 - 3.0 90% or greater
16	0.3 - 10.0 95% or greater

Related Questions

- What is a MERV rating? <https://epa.gov/indoor-air-quality-iaq/what-merv-rating>
- What guidelines are available to compare air cleaners? <https://epa.gov/indoor-air-quality-iaq/what-guidelines-are-available-compare-air-cleaners>
- Will air cleaners reduce health risks? <https://epa.gov/indoor-air-quality-iaq/will-air-cleaners-reduce-health-risks>
- What are ionizers and other ozone generating air cleaners? <https://epa.gov/indoor-air-quality-iaq/what-are-ionizers-and-other-ozone-generating-air-cleaners>
- Should you use an air cleaner? <https://epa.gov/indoor-air-quality-iaq/should-you-use-air-cleaner>
- Does EPA certify/register or provide lists of acceptable air cleaners or manufacturers/sellers? <https://epa.gov/indoor-air-quality-iaq/does-epa-certifyregister-or-provide-lists-acceptable-air-cleaners-or>

Last updated on August 15, 2025

National Flood Hazard Layer FIRMette

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/12/2025 at 6:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

2024
AB2588 Air Toxics "Hot Spots" Report

Placer County
AIR POLLUTION CONTROL DISTRICT

Introduction

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) is a State of California public right-to-know law requiring local air quality management and air pollution control districts to collect information about the location, type, and quantity of toxic compounds emitted into the air from specified local businesses and industry. The enabling statutes (California Health & Safety Code (H&S Code) Sections 44300-44394) require the California Air Resources Board (CARB) and local air districts to implement the "Hot Spots" Program. This AB 2588 Annual Report describes the current evaluation, reporting, and program fee status for facilities being tracked under this program and is published to provide the public with information regarding the overall status of the Placer County Air Pollution Control District's (District) AB2588 "Hot Spots" Program, pursuant to California HSC Section 44363.

The goals of the AB 2588 Air Toxics "Hot Spots" Program are to:

1) Collect emission data from facilities that are subject to the program,
2) Identify facilities which have the potential for localized impacts in the community,
3) Determine potential health risks associated from subject facilities, and
4) Notify nearby residents of significant risks using public notifications.

AB 2588 further requires the District to prepare an annual report summarizing the status of the program. H&S Code Section 44363 requires that the District Board of Directors conduct a public hearing concerning the report which must include information on the following:

1) The prioritization of facilities for the purpose of performing a health risk assessment and a description of the program categories designated pursuant to H&S Code Section 44360;
2) The ranking and identification of facilities according to the degree of cancer risk posed to surrounding receptors;
3) The identification of facilities which expose surrounding receptors to any noncancer health risks; and
4) The status of development of control measures to reduce emissions of toxic air contaminants, if any.

This report addresses the statutory requirements H&S Code 44363 in that it summarizes the AB2588 program elements, the status of the AB2588 "Hot Spots" Program in the District, summarized results of facility prioritization scores and health risk assessments (HRA) conducted on subject facilities, the current status of public notifications published pursuant to the program, and any relevant conclusions drawn from administration of the program.

In compiling the information presented in this report, the most recently available facility data was used. For many facility prioritization and health risk screening scores, the

Introduction

data presented comes from calendar year 2022 or 2023. For compiled health risk screening and HRA results, the information may come from earlier data years based on when a subject facility was required to complete the emissions inventory. For certain facilities, maximum permitted, or "potential to emit," emissions data was used in lieu of actual emissions data for the purpose of screening out the facility with regards to program applicability.

This report does not seek to address other toxics-related programs administered by the District. For example, the District evaluates air toxics exposures during the permitting of new and modified sources of air pollutants as part of the District's permit review program. The permitting process may also require issuance of a public notice if the proposed source releases hazardous air emissions within 1,000 feet of a school. The District also implements State Airborne Toxic Control Measures (ATCMs) and federal National Emission Standards for Hazardous Air Pollutants (NESHAPs).

Toxics Emissions Inventory Criteria and Guidelines

AB 2588 established a process to compile an inventory of air toxics emissions from specified facility categories in California and to assess the potential risks to public health as a result of exposure to those emissions. The AB 2588 Air Toxics "Hot Spots" Emissions Inventory Criteria and Guidelines Regulation (EICG Regulation) provides direction and criteria to facilities on how to compile and submit air toxics emission data required by the "Hot Spots" Program. Under the AB 2588 Program, larger facilities are subject to individual reporting requirements while facilities that are generally small businesses are grouped into industrywide source categories.

In 2022, CARB amended the EICG Regulation to ensure continued protection of public health by collecting more comprehensive emission data. The 2022 amendments are designed to support community-focused efforts at the state and District level by identifying and, if necessary, reducing criteria pollutant and air toxic emissions from affected communities. Some of the changes brought about by the recent amendments include the addition of numerous new compounds into "Appendix A – List of Substances" of the EICG Regulation, which will require many years and iterations of the program to fully implement due to the broad reaching scope of the identified pollutants. District staff are currently in the process of evaluating and implementing these changes through a phase-in schedule which was adopted as part of the recent amendments to the regulation.

Facility Categorization, Risk Assessment, and Public Notification

Facilities are initially categorized based on their reporting status in the program. Unless the District is performing an industry-wide survey for a facility category, larger facilities subject to the AB 2588 Program (core facilities) are required to file an emissions inventory plan and report with the District. The District reviews and approves the plan and reports, and based on the reported emissions, performs a prioritization evaluation (develops a prioritization score for the facility). The table below summarizes the District's AB 2588 Air Toxics "Hot Spots" Program prioritization score thresholds.

Prioritization Score (TS)	Priority	Follow-Up Action
TS ≤ 1.0	Low	No additional action required. May be eligible for program exemption
1.0 < TS ≤ 10.0	Intermediate	No additional risk screening or risk assessment required. Periodic toxics inventory reporting.
TS ≥ 10.0	High	Health risk screening or health risk analysis is required

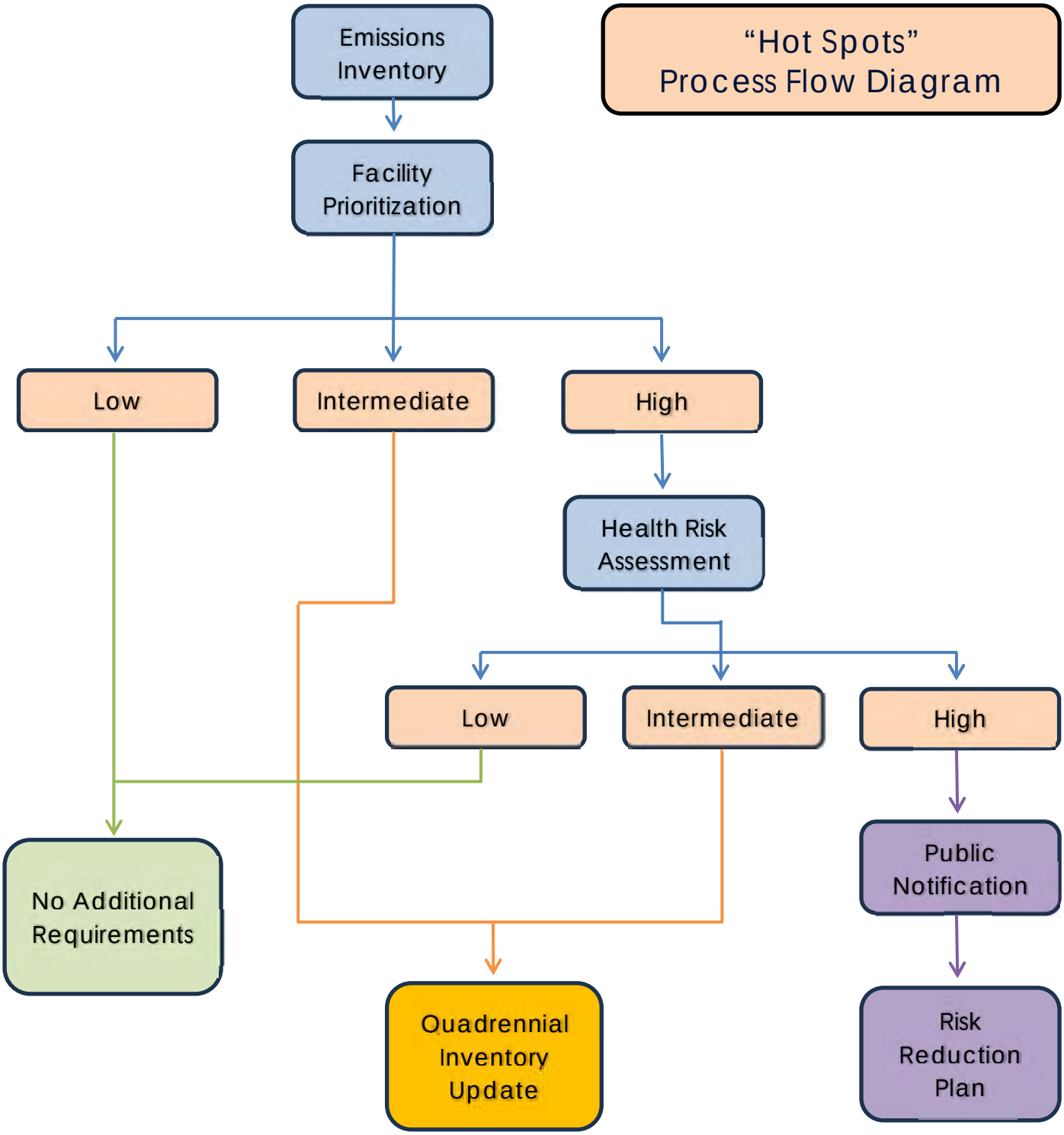
If the resulting prioritization score indicates further evaluation is necessary, the facility is required to perform a health risk screening (if a screening tool is available) or a complete HRA. The District's AB 2588 Air Toxics "Hot Spots" Program health risk thresholds for cancer and non-cancer (chronic and acute) health impacts are summarized below.

Risk Value / Health Hazard Index (HHI)	Risk Assessment Type	AB 2588 District Threshold
Risk ≤ 1.0	Cancer	Low
1.0 < Risk ≤ 10.0	Cancer	Intermediate
Risk ≥ 10.0	Cancer	High
HHI ≤ 0.1	Non-Cancer	Low
0.1 < HHI ≤ 1.0	Non-Cancer	Intermediate
HHI ≥ 1.0	Non-Cancer	High

As an alternative to this process, the facility or the District can conduct a risk assessment as part of a new permitting action, provided the results identify any significant risk to the public if a permit is issued and actual emissions from the facility result in a risk value greater than the established thresholds. As part of the District's Risk Management Policy for Permitting New and Modified Sources, a new Authority to Construct / Permit to Operate generally cannot be issued if the estimated health risk, based on potential to emit (PTE) or maximum permitted limits, exceeds the District's risk thresholds established in the policy. The thresholds in the District's permitting policy are in-line with the thresholds in the District's AB 2588 "Hot Spots" Program.

After complying with the initial reporting requirements and based on the prioritization scores and/or final risk assessment results, facilities may qualify for an exemption from future participation in the program if the analysis results in the facility being a "low risk" facility. If the analysis results in a facility being an "intermediate risk", the facility will be required to submit a quadrennial update report every four years to re-evaluate actual emissions and potential risk and track the status of the facility within the program. If the results from the risk assessment indicate that there is potential risk to the public which exceeds the District's "high risk" thresholds, the facility is required to notify the public exposed to the emissions. A facility subject to the public notification requirement may then need to develop a risk reduction plan to lower the emissions below the District's significance levels within a designated time frame.

At this time, there are no facilities identified as "high risk" in the District which pose a significant risk to the public or which require a public notification. The following process flow diagram provides a graphic representation of the District's AB 2588 Program.


"Hot Spots"
Process Flow Diagram
Emissions Inventory
Facility Prioritization
Low
Intermediate
High
Health Risk Assessment
Low
Intermediate
High
No Additional Requirements
Quadrennial Inventory Update
Public Notification
Risk Reduction Plan

Core Facilities

As of the most recent data reporting period, the District has fifteen (15) facilities that are in the "Core Facility" category. These are facilities that are generally subject to quadrennial reporting requirements due to having either a prioritization score category of "intermediate" or a health risk assessment category of "intermediate". While these facilities are generally not inclusive of Industrywide Facility categories, certain industry-wide facilities may end up on the Core Facility list due to the relatively large scale of operations or emissions. The facilities that make up this list span across multiple industries and include petroleum products storage operations, natural gas-powered electrical generation, biomass-powered electrical generation, large medical facilities, and various industrial manufacturing operations.

The District's Core Facility list is presented in Appendix A of this report. The list contains the facility name, the emissions year, and the prioritization score and/or the HRA value for both cancer and non-cancer health effects from the facility. As mentioned in the previous section, none of the facilities listed in the Core Facilities list are ranked in the "high risk" facility category requiring public notification or risk reduction.

Industrywide Facilities

Industrywide facilities are generally smaller operations which meet a specific set of requirements outlined in AB 2588 statute which allows them to be candidates for broader industrywide assessment. The requirements are focused on small businesses that are from the same industrial class where individual compliance could impose severe economic hardships, and where emissions may be more easily and more generically characterized. Industrywide categories in the District's AB 2588 Program may include:

- Retail Gasoline Dispensing Facilities (GDFs)
- Dry Cleaning Operations
- Graphic Arts Facilities
- Automotive Refinishing Operations (auto body shops)
- Emergency Compression Ignition Engine-Only Facilities

Since the implementation of the District's AB 2588 program, many of the industrywide facilities have been found to be exempt from the program due to de minimis emissions levels and/or prioritization scores that are less than 1.0. Specifically, the District's graphic arts facilities and automotive refinishing facilities were exempted from the program in 2016 due to evolving District regulations which generally reduced the allowable volatile organic compound (VOC) content of the inks, coatings, and solvents used in those industries. At the time, District staff found a correlation between lower VOC contents and lower toxic pollutant emissions which resulted in the exemption of those industrywide categories. Similarly, with the phasing out of

perchloroethylene from dry cleaning operations throughout California due to the broader Airborne Toxic Control Measure for Emissions of Perc from Dry Cleaning Operations, the District's dry-cleaning facilities have been removed from the AB 2588 Program.

For the retail gasoline dispensing operations in the District, District staff have comprehensively evaluated all facilities from either an actual emissions or potential emissions approach and have determined that there are no high-risk facilities operating within the County. Detailed information on the GDF facilities subject to the District's AB 2588 program can be found in Appendix B of this report.

For the emergency compression ignition engine-only facilities, District staff have continued to evaluate all new permit applications received for potential health risk, based on permitted emissions since 2018, and through those reviews have determined that there are no high-risk facilities operating within the County that have been recently permitted. Detailed information on permitted emergency compression ignition engine facilities subject to the District's AB 2588 program can be found in Appendix C of this report. For existing facilities permitted prior to the implementation of the District's Risk Management Policy for Permitting New and Modified Sources, District staff have most recently been in a holding pattern for the completion of the Diesel Engine Industrywide Risk Assessment Guidelines which is in the process of being developed by staff from CARB and from the San Joaquin Valley Air Pollution Control District. District staff have compiled preliminary data for the permitted existing diesel engine facilities; however, approximately twenty (20) facilities require additional health risk screening or a refined health risk assessment based on the most recent data collected by the District in the 2023 reporting year. Once the guidelines are approved, District staff will continue the review of existing permitted engines throughout the County and update the existing toxics inventory.

Moving forward, District staff will continue to evaluate graphic arts facilities, dry-cleaning operations, and automotive refinishing facilities considering the recent changes to the EICG Regulation and the associated "Appendix A – List of Substances." The recent changes to the EICG have drastically increased the quantity of toxics substances subject to review and assessment under the AB 2588 program across most regulated industries. The transition to cover these recent changes will take a considerable amount of time and resources; however, the District is committed to evaluating and closely working with all impacted sources in an efficient and thorough manner.

State and District Fees

AB 2588 specifies activities that CARB, the Office of Environmental Health Hazard Assessment (OEHHA), and the District must carry out with regards to implementing the Act. As part of the program, CARB is required to adopt a fee recovery regulation to

assess fees on facilities subject to the requirements to ensure that costs to implement and administer the AB 2588 Program on the State level are recovered (H&S Section 44380). At the local level, District Rule 610, Air Toxics Hot Spots Fees, establishes the District's fees with regards to implementing the program. As part of Rule 610, the District collects the State's portion of the fees as pass-through charges which are then forward to CARB. Detailed information regarding the AB 2588 program fees collected by the District in the most recent reporting year can be found in Appendix D of this report.

Control Measure Development

During this reporting period, the District has not developed, nor is in the process of developing, control measures that are in addition to those required by existing ATCM or NESHAP regulations. The District continuously reviews and evaluates developing air toxics regulations at the State and federal levels for applicability with local permitted facilities. Where appropriate, the District implements these control measures in local permitting requirements through operating conditions, recordkeeping and reporting conditions, and emissions limitations.

-- End of Report Body --

Cover Photo: Placer County, Erik Bergen

Appendix A

AB 2588 “Hot Spots” Core Facilities – FY 23-24

Facility	Emissions Year	Prioritization Score			Health Risk Value		
		Cancer	Acute	Chronic	Cancer	Acute	Chronic
Kaiser Permanent Hospital	2020	92.9	0.89	0.68	3.9	0.1	0.01
Gladding McBean	2020	3.6	0.08	0.91	--	--	--
Rio Bravo Rocklin	2020	43	1.15	2.85	2.8	0.12	0.01
SFPP	2020	9.35	0.25	0.23	--	--	--
SPI – Lincoln	2020	146.76	2.2	5.5	*8.94*	*0.04*	*0.01*
Sutter Aubern Hospital	2020	46.4	0	0.07	5.7	0.16	0.01
Robert Bosch Semiconductors	2020	3.68	0.01	0.01	--	--	--
Sutter Roseville Hospital	2020	34	0.32	0.31	0.91	0.4	0.01
Industrial Container Solutions	2018	0.02	1.38	1.86	--	--	--
H.B. Fuller	2018	1.4	0.47	0.39	--	--	--
Liberty Utilities – Kings Beach	2018	5.69	0	0.01	--	--	--
Cal Mat Co. - Roseville	2018	10.29	1.68	0.68	4.39	0.16	0.16
Costco Gasoline - Roseville	2019	--	--	--	1.6	0.34	0.09
Energy 2001	2020	8.4	0.36	0.5	--	--	--
GenPower	2020	8.6	0.42	0.51	--	--	--

Notes: - Only facilities with Prioritization Scores > 10.0 will have a Health Risk Value
- Italicized HRA values have been linearly adjusted based on previous HRA results and the corresponding PR Score from the HRA inventory year

Appendix B

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
BP ARCO AM/PM #7170	PTE	2024	3,600,000	5.59	4.10	No
ARCO AM/PM STERLING POINTE	PTE	2024	4,000,000	2.5	-	No
7-ELEVEN STORE #35290 - RIVERSIDE	PTE	2023	1,000,000	3.15	-	No
PENRYN TOSCO 76	PTE	2023	2,200,000	2.77	-	No
7-ELEVEN #42032	PTE	2023	2,000,000	3.95	-	No
SAFEWAY EXPRESS FUEL STATION	PTE	2023	5,200,000	9.06	0.50	No
SAM'S CLUB # 6621	PTE	2023	12,000,000	7.56	-	No
CITY OF ROSEVILL - HILLTOP CIRCLE	PTE	2023	600,000	1.89	-	No
SPEEDWAY #1969	PTE	2023	3,000,000	9.46	-	No
SPEEDWAY #1464	PTE	2023	3,000,000	9.46	-	No
SPEEDWAY #1463	PTE	2023	3,000,000	9.46	-	No
SPEEDWAY #1462	PTE	2023	3,000,000	9.46	-	No
7-ELEVEN #42033	PTE	2023	2,000,000	3.15	-	No
SPEEDWAY #1969	PTE	2023	3,000,000	9.46	-	No
7-ELEVEN - ROCKLIN	PTE	2023	1,000,000	3.15	-	No
BP ARCO AM/PM - ROSEVILLE	PTE	2023	6,000,000	9.44	-	No
FIVE STAR ROSEVILLE INC	PTE	2023	600,000	0.94	-	No
ROCKET #5432	PTE	2023	1,000,000	3.15	-	No
AERY'S GAS & LIQUOR	PTE	2023	600,000	1.89	-	No
APPLEGATE STATION	PTE	2022	950,000	3	-	No
CHEVRON - ROSEVILLE AUTOMALL	PTE	2022	3,000,000	9.46	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
WHITNEY RANCH CHEVERON	PTE	2022	4,800,000	7.55	-	No
ROSE LIQUOR FOOD AND GAS/RIVERSIDE	PTE	2022	600,000	1.89	-	No
SAFEWAY EXPRESS FUEL STATION	PTE	2022	4,000,000	6.29	-	No
SAFEWAY, INC #1617/ROSE.- DOUGLAS	PTE	2022	5,400,000	8.49	-	No
SAFEWAY, INC #1899/ROSE.- CIRBY	PTE	2022	3,800,000	1.4	1.40	No
SAFEWAY, INC #1866/ROCKLIN - SUNSET	PTE	2022	36,000,000	17.86	3.10	No
ARCO 7171	PTE	2022	12,000,000	18.63	0.06	No
H&S ENERGY PRODUCTS, LLC #3021	PTE	2022	17,000,000	21.32	-	No
HASSAN #1010	PTE	2022	3,500,000	5.43	-	No
ARCO 7168	PTE	2022	4,000,000	6.29	-	No
DAWSON OIL CARDLOCK - BOWMAN	PTE	2021	1,500,000	2.61	-	No
MAIDU MARKET	PTE	2021	2,000,000	3.15	-	No
CIRCLE K - BASELINE	PTE	2021	5,000,000	7.87	-	No
SAFEWAY, INC #1617/ROSE.- DOUGLAS	PTE	2021	4,000,000	6.29	-	No
ROCKET #5432	PTE	2021	2,000,000	3.15	-	No
QUIK STOP #103	PTE	2021	1,500,000	2.36	-	No
7-ELEVEN #42086	PTE	2021	4,800,000	7.55	-	No
AUBURN GAS & DIESEL	PTE	2021	2,000,000	6.31	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
SHAAN PETROLEUM	PTE	2021	600,000	0.94	-	No
PENRYN GAS & LIQUOR	PTE	2021	2,000,000	3.15	-	No
BAINS OIL, INC	PTE	2021	3,560,000	5.6	-	No
MAVERIK STORE #641	PTE	2021	3,600,000	5.66	-	No
PROPEL FUELS, INC ROSEVILLE	PTE	2020	600,000	0.94	-	No
ROCKET #5432	PTE	2020	2,000,000	3.15	-	No
SAFEWAY, INC #1761/LINCOLN (FUEL STA)	PTE	2020	7,000,000	7.79	-	No
TAHOE STATION, INC	PTE	2020	600,000	1.89	-	No
SAFEWAY, INC #2620/ROSE.-WOODCREEK	PTE	2020	5,000,000	9.88	-	No
AUBURN FOOD AND GAS	PTE	2020	600,000	0.94	-	No
SHELL - NYACK	PTE	2020	1,000,000	2.27	-	No
COSTCO GASOLINE - ROSEVILLE	PTE	2020	20,000,000	4.68	4.05	No
AUBURN GAS AND SHOP	PTE	2020	3,000,000	4.72	-	No
ARCO AM/PM - FOOTHILLS	PTE	2020	5,000,000	9.88	-	No
7-ELEVEN #41816	PTE	2020	600,000	1.19	-	No
PALISADES TAHOE - VEHICLE MAINTENANCE YARD	PTE	2020	600,000	8.79	-	No
KWIK SERV ROSEVILLE	PTE	2020	1,500,000	4.73	-	No
ARCO AM/PM - AUBURN LINCOLN WAY	PTE	2020	4,500,000	8.89	-	No
CHEVRON - LINCOLN WAY - #9-9375	PTE	2020	3,000,000	9.46	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

SAFEWAY, INC #1899/ROSE.- CIRBY	PTE	2020	5,400,000	4.4	-	No
Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
SAM'S CLUB # 6621	PTE	2020	12,000,000	7.5	-	No
SHELL - GOLD COUNTRY	PTE	2020	1,200,000	3.78	-	No
GAWFCO USA/CIRCLE K	PTE	2020	2,500,000	7.89	-	No
LUCKY TRAVEL PLAZA LLC	PTE	2020	1,250,000	3.94	-	No
SIERRA MINI MART	PTE	2020	600,000	1.89	-	No
ARCO AM/PM - DRY CREEK	PTE	2020	5,400,000	4.5	4.50	No
SHELL - KINGVALE	PTE	2020	600,000	0.85	0.85	No
ARCO AM/PM - SUNSET	PTE	2020	3,000,000	6.82	-	No
SAFEWAY, INC #1866/ROCKLIN - SUNSET	PTE	2020	3,800,000	1.4	1.40	No
ROSEVILLE ARCO AM/PM	PTE	2020	2,500,000	7.89	-	No
ARCO AM/PM - ROCKLIN	PTE	2020	4,000,000	9.1	-	No
H&S ENERGY PRODUCTS, LLC #3020	PTE	2020	15,760,000	9.85	-	No
ARCO AM/PM - WOODCREEK OAKS	PTE	2020	5,000,000	9.88	-	No
SIERRA FOOD MART	PTE	2019	1,000,000	3.15	-	No
CHEVRON - BELL ROAD	PTE	2019	1,500,000	2.36	-	No
AUBURN BEACON VALERO	PTE	2019	1,250,000	3.94	-	No
CHEVRON - KIRBY	PTE	2019	1,500,000	4.73	-	No
CHEVRON - ROSEVILLE AUTOMALL	PTE	2019	3,000,000	9.46	-	No
AUBURN GAS & DIESEL	PTE	2019	2,000,000	6.31	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

COSTCO GASOLINE (LOC. NO. 29)	PTE	2019	36,000,000	17.86	3.10	No
Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
DAWSON OIL CARDLOCK - ROCKLIN	PTE	2019	1,500,000	3.41	-	No
DAWSON OIL CARDLOCK - BOWMAN	PTE	2019	1,500,000	2.61	-	No
ARCO AM/PM - RIVERSIDE ROAD	PTE	2019	3,700,000	7.31	-	No
CHEVRON - WASHINGTON - #20-8398	PTE	2019	3,000,000	9.46	-	No
COX FAMILY STORE - KINGS BEACH	PTE	2019	1,500,000	4.73	-	No
NEWCASTLE VALERO	PTE	2019	1,500,000	2.96	-	No
H&S ENERGY PRODUCTS, LLC #3022	PTE	2019	3,200,000	5.03	-	No
SHELL / 7-ELEVEN	PTE	2019	1,500,000	0.94	-	No
ARCO AM/PM - MAIDU VILLAGE	PTE	2019	8,000,000	25.23	0.38	No
CHEVRON - TAHOE CITY	PTE	2019	2,000,000	3.15	-	No
WASHINGTON MINIMART	PTE	2019	1,700,000	1.89	-	No
COX FAMILY STORE - KINGS BEACH	PTE	2019	3,200,000	5.03	-	No
H&S ENERGY PRODUCTS, LLC #3066	PTE	2019	2,500,000	3.93	-	No
H&S ENERGY PRODUCTS, LLC #3067	PTE	2019	2,500,000	3.93	-	No
ARCO AM/PM - GRANITE BAY #82359	PTE	2019	3,500,000	5.51	-	No
COSTCO GASOLINE (LOC. NO. 29)	PTE	2019	36,000,000	17.86	3.10	No
COLFAX VALERO	PTE	2019	1,200,000	3.78	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
CHEVRON - 10291 FAIRWAY - #21-0283	PTE	2019	3,200,000	5.06	-	No
CHEVRON - TWELVE BRIDGES - #21-0284	PTE	2019	3,200,000	5.06	-	No
FIVE STAR ROSEVILLE INC	PTE	2019	600,000	0.94	-	No
ROSE FOOD AND LIQUOR/HARDING	PTE	2018	1,500,000	2.36	-	No
COLFAX FOOD & GAS	PTE	2018	600,000	1.89	-	No
ARCO AM/PM - FOOTHILLS	PTE	2018	5,000,000	3.13	-	No
WASHINGTON MINIMART	PTE	2018	1,700,000	1.89	-	No
TAHOE CITY STORE	PTE	2018	3,000,000	3.34	-	No
COSTCO GASOLINE (LOC. NO. 29)	PTE	2018	24,000,000	11.91	1.38	No
KINGS BEACH STARS	PTE	2018	1,800,000	5.68	-	No
7-ELEVEN STORE #32867 - SUNSET	PTE	2018	2,000,000	8.76	-	No
MEADOW VISTA EXPRESS MART INC.	PTE	2018	1,000,000	3.15	-	No
AUBURN GAS & DIESEL	PTE	2018	1,020,000	5.3	-	No
DHILLON AND SONS ENTERPRISES	PTE	2018	1,010,000	5.24	1.20	No
SPEEDWAY #1969	PTE	2018	2,250,000	9.85	-	No
7-ELEVEN #42032	PTE	2017	1,000,000	3.26	-	No
UNITED PACIFIC #0603	PTE	2017	2,000,000	6.51	-	No
AST - Lincoln Regional Airport (48-01)	PTE	2023	50,000	0.31	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

AST - Nevada Irrig. Dist. (NID) - Long	PTE	2023	60,000	0.26	-	No
AST - North Tahoe Marina	PTE	2023	300,000	4.4	-	No
Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
AST - Carvana - Rocklin Inspection Center	PTE	2022	500,000	2.16	-	No
AST - Obexer's Boat Co.	PTE	2022	150,000	1.04	-	No
AST - Palisades Tahoe - Vehicle Maint. Yard	PTE	2022	60,000	4.27	-	No
AST - Auburn Airport	PTE	2021	175,000	5.79	-	No
AST - Ramos Oil Company, Inc.	PTE	2021	1,500,000	0.79	-	No
AST - Sugar Bowl Corporation	PTE	2021	60,000	0.88	-	No
AST - Booster Fuels (48-01, 48-02)	PTE	2019	930,000	2.54	-	No
AST - Booster Fuels (48-03, 04, 05, 06, 07, 08)	PTE	2019	930,000	4.14	-	No
AST - City of Roseville - Fire Station 5	PTE	2019	80,000	0.24	-	No
AST - Lincoln Regional Airport (47-01)	PTE	2019	200,000	1.25	-	No
AST - Traquil Mart	PTE	2019	600,000	2.05	-	No
AST - Bear Creek Assoc Maint Facility	PTE	2018	60,000	0.41	-	No
AST - California Conserv. Corp-Placer Ctr.	PTE	2018	60,000	0.26	-	No
AST - Dawson Oil Cardlock - Blocker Road	PTE	2018	600,000	0.47	-	No

AB 2588 “Hot Spots” Industrywide GDF Facilities - FY 23-24

Facility	Actual Emissions or Potential to Emit (PTE)	Year Evaluated	Facility Throughput	Cancer Health Risk Screening Value	Cancer Health Risk Assessment Value	High Risk Facility
AST - Fleur Du Lac Estates	PTE	2018	600,000	0.41	-	No
AST - Meadow Vista Express Mart, Inc.	PTE	2018	1,000,000	3.15	-	No
AST - Pick-N-Pull	PTE	2018	60,000	0.03	-	No
AST - Sierra Boat Properties, LLC.	PTE	2018	400,000	2.68	-	No
AST - South Placer FPD #17	PTE	2018	60,000	0.26	-	No
AST - Squaw Valley PSD - Fire Station	PTE	2018	60,000	0.41	-	No

AB 2588 “Hot Spots” Industrywide Diesel Engine Facilities - FY 23-24

Facility	Actual Emissions or Potential to Emit (PTE)	Data Year	Prioritization Score	Additional Screening Required
ACE HARDWARE RETAIL SUPPORT CENTER	Actual Emissions	2023	1.25	No
ALPINE MEADOWS SKI RESORT	Actual Emissions	2023	0.24	No
AMERICAN TOWER (370503 - SIGNATURE PROPERTIES)	Actual Emissions	2023	1.49	No
AMERICAN TOWER (370509 - CROWDER LANE)	Actual Emissions	2023	0.81	No
AMERICAN TOWER - 274454 NELSON	Actual Emissions	2023	0.93	No
AMIR DEVELOPMENT COMPANY	Actual Emissions	2023	5.35	No
AT&T - AUBURN (CA9572)	Actual Emissions	2023	13.31	Yes
AT&T - AUBURN (TB005)	Actual Emissions	2023	3.53	No
AT&T - BROCKWAY (TB010)	Actual Emissions	2023	2.66	No
AT&T - CARNELIAN BAY (TB011)	Actual Emissions	2023	7.48	No
AT&T - DUTCH FLAT (TB121)	Actual Emissions	2023	66.70	Yes
AT&T - DUTCH FLAT (TB521)	Actual Emissions	2023	13.94	Yes
AT&T - HOMEWOOD (TB038)	Actual Emissions	2023	7.70	No
AT&T - LINCOLN (TB040)	Actual Emissions	2023	16.87	Yes
AT&T - LOOMIS (TB043)	Actual Emissions	2023	8.88	No
AT&T - MARTIS PEAK (TB519)	Actual Emissions	2023	0.99	No
AT&T - MEADOW VISTA (TB120)	Actual Emissions	2023	9.28	No
AT&T - NEWCASTLE (TB058)	Actual Emissions	2023	3.57	No
AT&T - ROCKLIN (TB068)	Actual Emissions	2023	17.71	Yes
AT&T - ROCKLIN (TB1NV)	Actual Emissions	2023	10.88	Yes
AT&T - TAHOE CITY (TB079)	Actual Emissions	2023	14.71	Yes
AT&T - TRUCKEE (TB303)	Actual Emissions	2023	0.69	No
AT&T MOBILITY - COLFAX	Actual Emissions	2023	0.15	No
AUBURN RAVINE TERRACE	Actual Emissions	2023	0.16	No
AUBURN RIDGE ALZHEIMER	Actual Emissions	2023	0.02	No
AUBURN VALLEY COMM SERVICE DISTRICT	Actual Emissions	2023	2.48	No
AUDACY SACRAMENTO	Actual Emissions	2023	0.33	No
BASS PRO SHOPS OUTDOOR WORLD	Actual Emissions	2023	2.56	No
BEALE AIR FORCE BASE	Actual Emissions	2023	4.30	No
BIG CHIEF PUMP HOUSE	Actual Emissions	2023	1.82	No
CAL FIRE/PLACER CO. FIRE - STATION 70	Actual Emissions	2023	0.82	No

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CALIFORNIA INDEP. SYSTEM OPERATOR	Actual Emissions	2023	10.40	Yes
CALIFORNIA-AMERICAN WATER - WALERGA	Actual Emissions	2023	2.28	No
CALTRANS - AUBURN MAINT. FACILITY	Actual Emissions	2023	1.00	No
CALTRANS - DOUGLAS TUNNEL	Actual Emissions	2023	1.79	No
CALTRANS - TAHOE MAINT. STATION	Actual Emissions	2023	2.20	No
CALTRANS - WHITMORE (CALW SERIES)	Actual Emissions	2023	7.11	No
CARMAX #7147	Actual Emissions	2023	2.32	No
CINGULAR WIRELESS - NEWCASTLE	Actual Emissions	2023	1.18	No
CITY OF AUBURN - AUB. OAKS LIFT STA.	Actual Emissions	2023	0.24	No
CITY OF AUBURN - CANYON COURT	Actual Emissions	2023	0.80	No
CITY OF AUBURN - FALCONS POINT	Actual Emissions	2023	0.14	No
CITY OF AUBURN - LOWER VINTAGE OAKS	Actual Emissions	2023	0.42	No
CITY OF AUBURN - MAIDU LIFT STATION	Actual Emissions	2023	1.75	No
CITY OF AUBURN - POLICE DEPARTMENT	Actual Emissions	2023	8.10	No
CITY OF AUBURN - WWTP	Actual Emissions	2023	3.31	No
CITY OF COLFAX - LIFT STATION 2	Actual Emissions	2023	2.63	No
CITY OF COLFAX - LIFT STATION 5	Actual Emissions	2023	2.97	No
CITY OF COLFAX - WWTP	Actual Emissions	2023	1.41	No
CITY OF LINCOLN - INDEPENDENCE LIFT STAT.	Actual Emissions	2023	0.00	No
CITY OF LINCOLN - UNIT #203	Actual Emissions	2023	0.00	No
CITY OF LINCOLN - UNIT #303	Actual Emissions	2023	0.00	No
CITY OF LINCOLN - UNIT #304	Actual Emissions	2023	0.06	No
CITY OF LINCOLN - UNIT #305	Actual Emissions	2023	0.03	No
CITY OF LINCOLN - UNIT #880	Actual Emissions	2023	0.62	No
CITY OF LINCOLN - UNIT #882	Actual Emissions	2023	0.02	No
CITY OF LINCOLN - UNIT #885	Actual Emissions	2023	0.00	No
CITY OF LINCOLN - UNIT #886	Actual Emissions	2023	0.11	No
CITY OF LINCOLN - UNIT #887	Actual Emissions	2023	0.03	No
CITY OF LINCOLN - UNIT #890	Actual Emissions	2023	0.08	No
CITY OF LINCOLN - UNIT #894	Actual Emissions	2023	0.98	No
CITY OF LINCOLN - WWTP	Actual Emissions	2023	1.42	No
CITY OF ROCKLIN - POLICE DEPARTMENT	Actual Emissions	2023	2.90	No
CITY OF ROSEVILLE - 1800 BOOTH RD	Actual Emissions	2023	7.36	No

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CITY OF ROSEVILLE - CIVIC CTR. GARAGE	Actual Emissions	2023	0.60	No
CITY OF ROSEVILLE - CREEKVIEW SEWER LIFT STATION	Actual Emissions	2023	0.30	No
CITY OF ROSEVILLE - ELEC. SVC. CENTER	Actual Emissions	2023	3.30	No
CITY OF ROSEVILLE - ELECTRIC UTILITY OPERATIONS CENTER	Actual Emissions	2023	0.44	No
CITY OF ROSEVILLE - ENVIRO. UTIL. DEPT	Actual Emissions	2023	2.84	No
CITY OF ROSEVILLE - EUD	Actual Emissions	2023	9.35	No
CITY OF ROSEVILLE - NEW FIRE STATION #1	Actual Emissions	2023	0.48	No
CITY OF ROSEVILLE - PGWWTP	Actual Emissions	2023	4.82	No
CITY OF ROSEVILLE - POLICE DEPARTMENT	Actual Emissions	2023	3.25	No
CITY OF ROSEVILLE - VERNON ST	Actual Emissions	2023	1.36	No
COLFAX HIGH SCHOOL	Actual Emissions	2023	1.88	No
CONSOLIDATED PHONE OFFICE	Actual Emissions	2023	1.27	No
CONSOLIDATION COMM. - INDUSTRIAL	Actual Emissions	2023	0.55	No
DC ROSEVILLE OPERATOR, LLC	Actual Emissions	2023	2.16	No
EDUCATIONAL MEDIA FOUNDATION	Actual Emissions	2023	13.60	Yes
EVERGREEN S.R. 1011 L.P.	Actual Emissions	2023	2.56	No
FEDERAL AVIATION ADMINISTRATION	Actual Emissions	2023	1.26	No
FEDEX GROUND	Actual Emissions	2023	0.78	No
FIRST TECH FEDERAL CREDIT UNION	Actual Emissions	2023	0.00	No
FLEUR DU LAC ESTATES	Actual Emissions	2023	53.47	Yes
FRONTIER COMMUNICATIONS - COLFAX	Actual Emissions	2023	2.12	No
FRONTIER COMMUNICATIONS - WEIMAR	Actual Emissions	2023	1.04	No
GALLERIA @ WESTFIELD	Actual Emissions	2023	7.73	No
GREGORY M. BRICCA M.D., INC.	Actual Emissions	2023	0.48	No
HIGHLANDS RESORT CONDO ASSOC	Actual Emissions	2023	1.61	No
HOMEWOOD MOUNTAIN RESORT	Actual Emissions	2023	16.74	Yes
HYATT PLACE ROSEVILLE	Actual Emissions	2023	1.12	No
JC PENNY CO. - GALLERIA	Actual Emissions	2023	0.60	No
KEYSIGHT TECHNOLOGIES	Actual Emissions	2023	6.59	No
LINCOLN HIGH SCHOOL FARM	Actual Emissions	2023	5.63	No
LIVING SPACES	Actual Emissions	2023	1.63	No
LOWE'S HOME IMPROVEMENT	Actual Emissions	2023	1.93	No

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LOWE'S OF NORTH LINCOLN	Actual Emissions	2023	4.92	No
MACY'S FURNITURE	Actual Emissions	2023	0.22	No
MACY'S ROSEVILLE	Actual Emissions	2023	2.18	No
MCI WORLDCOM - AUBURN	Actual Emissions	2023	7.48	No
MCKESSON MEDICAL SURGICAL	Actual Emissions	2023	5.68	No
MEADOW VISTA COUNTY WATER DISTRICT	Actual Emissions	2023	5.54	No
MEADOW VISTA WATER TREATMENT PLANT	Actual Emissions	2023	12.46	Yes
MILTENYI BIOTEC, INC.	Actual Emissions	2023	9.41	No
NCPA DISPATCH CENTER	Actual Emissions	2023	0.45	No
NEVADA IRRIG. DIST. (NID) - COLFAX	Actual Emissions	2023	7.17	No
NORDSTROM #434	Actual Emissions	2023	3.34	No
NORTH TAHOE FPD - NEW STATION 51	Actual Emissions	2023	5.34	No
NORTH TAHOE FPD - STATION 55	Actual Emissions	2023	9.64	No
NORTH TAHOE PUD	Actual Emissions	2023	0.21	No
NORTH TAHOE PUD - UNIT #989	Actual Emissions	2023	0.72	No
NORTH TAHOE PUD - UNIT #996	Actual Emissions	2023	1.29	No
NORTHSTAR @ TAHOE	Actual Emissions	2023	4.27	No
NORTHSTAR C.S.D. - ADMIN BLDG	Actual Emissions	2023	0.90	No
NORTHSTAR C.S.D. - CORPORATE YARD	Actual Emissions	2023	3.18	No
NORTHSTAR C.S.D. - HWY267 SEWER LIFT STATION	Actual Emissions	2023	3.58	No
NORTHSTAR C.S.D. - LAHONTAN WELLS	Actual Emissions	2023	3.68	No
NORTHSTAR C.S.D. - NEWHALL PUMP STA.	Actual Emissions	2023	3.49	No
NORTHSTAR C.S.D. - OLANA PUMP STATION	Actual Emissions	2023	1.81	No
NORTHSTAR C.S.D. - RES. D PUMP STA.	Actual Emissions	2023	5.53	No
NORTHSTAR C.S.D. - RETREAT LIFT STA.	Actual Emissions	2023	2.07	No
NORTHSTAR C.S.D. - SCHAFFER MILL PUMP	Actual Emissions	2023	2.10	No
NORTHSTAR C.S.D. - STATION 31	Actual Emissions	2023	1.91	No
NORTHSTAR C.S.D. - STATION 32	Actual Emissions	2023	2.64	No
NORTHSTAR C.S.D. - WELL #3	Actual Emissions	2023	0.89	No
NORTHSTAR C.S.D. - WTP	Actual Emissions	2023	3.97	No
O.K. & B. - LINCOLN AIR CENTER	Actual Emissions	2023	2.72	No
OATES INVESTMENTS, INC	Actual Emissions	2023	0.03	No
OLD REPUBLIC TITLE	Actual Emissions	2023	5.55	No
ORACLE ROCK I	Actual Emissions	2023	0.66	No

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PACIFIC GAS & ELEC (PG&E) - ALTA	Actual Emissions	2023	3.39	No
PACIFIC GAS & ELEC (PG&E) - ARC	Actual Emissions	2023	9.55	No
PACIFIC GAS & ELEC (PG&E)-ROCKLIN	Actual Emissions	2023	5.22	No
PCWA - ALTA WTP	Actual Emissions	2023	0.28	No
PCWA - AMERICAN RIVER PUMP STATION	Actual Emissions	2023	2.07	No
PCWA - APPLEGATE	Actual Emissions	2023	7.11	No
PCWA - BICKFORD RANCH PUMP ST & TANK NO. 1	Actual Emissions	2023	0.00	No
PCWA - BOWMAN	Actual Emissions	2023	1.47	No
PCWA - COLFAX	Actual Emissions	2023	4.49	No
PCWA - FERGUSON	Actual Emissions	2023	6.04	No
PCWA - FRENCH MEADOWS	Actual Emissions	2023	0.88	No
PCWA - MIDAS BOOSTER PUMP STATION	Actual Emissions	2023	1.58	No
PCWA - NEWCASTLE	Actual Emissions	2023	8.27	No
PCWA - STONERIDGE	Actual Emissions	2023	3.72	No
PCWA - SUNSET TOWER	Actual Emissions	2023	0.26	No
PCWA - SUNSET WTP	Actual Emissions	2023	1.64	No
PCWA - TINKER RD.	Actual Emissions	2023	4.17	No
PCWA - WEIMAR WATER TREATMENT PLANT	Actual Emissions	2023	0.00	No
PCWA - WHITNEY RESERV	Actual Emissions	2023	0.98	No
PLACER CENTER FOR HEALTH	Actual Emissions	2023	0.00	No
PLACER CO. - ANIMAL SERVICES CENTER	Actual Emissions	2023	0.70	No
PLACER CO. - AUBURN HIST. COURT.	Actual Emissions	2023	0.49	No
PLACER CO. - AUBURN JUSTICE CTR.	Actual Emissions	2023	8.90	No
PLACER CO. - BURTON CREEK DPW	Actual Emissions	2023	5.61	No
PLACER CO. - BURTON CREEK SHERIFF	Actual Emissions	2023	3.12	No
PLACER CO. - CHILD. EMERG. SHELTER	Actual Emissions	2023	0.31	No
PLACER CO. - CIRBY HILLS	Actual Emissions	2023	2.62	No
PLACER CO. - CORONER'S FACILITY	Actual Emissions	2023	4.28	No
PLACER CO. - DPW FLEET	Actual Emissions	2023	0.05	No
PLACER CO. - DRY CREEK/BLUE GRASS	Actual Emissions	2023	0.78	No
PLACER CO. - FAB	Actual Emissions	2023	7.81	No
PLACER CO. - HEALTH & HUMAN SERVICES BLDG	Actual Emissions	2023	0.00	No
PLACER CO. - JAIL	Actual Emissions	2023	8.31	No

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PLACER CO. - JUV. DETENTION CTR	Actual Emissions	2023	2.22	No
PLACER CO. - PUBLIC WORKS	Actual Emissions	2023	1.85	No
PLACER CO. - SHERIDAN	Actual Emissions	2023	0.43	No
PLACER CO. - SMD #1 - JOEGER	Actual Emissions	2023	3.40	No
PLACER CO. - SMD3 WWTP	Actual Emissions	2023	1.43	No
PLACER CO. - SPACF (MAIN JAIL)	Actual Emissions	2023	5.70	No
PLACER CO. - TART	Actual Emissions	2023	6.23	No
PLACER CO. COMM/IT - BUILDING 501	Actual Emissions	2023	0.96	No
PLACER CO. UTIL. - APPLEGATE LIFT STA	Actual Emissions	2023	4.76	No
PLACER CO. UTIL. - ATWOOD	Actual Emissions	2023	0.55	No
PLACER CO. UTIL. - AUB. RAVINE SEWER	Actual Emissions	2023	1.13	No
PLACER CO. UTIL. - CHILD. EMERGENCY	Actual Emissions	2023	0.25	No
PLACER CO. UTIL. - RIOLO VINEYARD LIFT STA	Actual Emissions	2023	2.00	No
PLACER CO. UTIL. - SHERIDAN SEWER	Actual Emissions	2023	0.56	No
PLACER CO. UTIL. - WEDGEWOOD SEWER	Actual Emissions	2023	3.51	No
PW FUND B, LP	Actual Emissions	2023	0.17	No
QIP ROSEVILLE	Actual Emissions	2023	0.76	No
QUEST	Actual Emissions	2023	6.69	No
R.C. WILLEY	Actual Emissions	2023	1.45	No
R10 FOOTHILL LLC	Actual Emissions	2023	6.56	No
RANCHO DEL ORO SEWER LIFT ST	Actual Emissions	2023	0.00	No
RESORT AT SQUAW CREEK	Actual Emissions	2023	3.83	No
ROCKLIN SENIOR LIVING	Actual Emissions	2023	2.54	No
ROGERS FAMILY COMPANY	Actual Emissions	2023	10.92	Yes
ROSEVILLE DEVELOPMENT I	Actual Emissions	2023	9.48	No
ROSEVILLE ENERGY PARK	Actual Emissions	2023	0.63	No
ROSEVILLE FIRE STATION 7	Actual Emissions	2023	0.79	No
SAGORA SENIOR LIVING	Actual Emissions	2023	2.14	No
SAN JUAN WATER DISTRICT	Actual Emissions	2023	1.66	No
SAVE MART DISTRIBUTION CENTER - ROSEVILLE	Actual Emissions	2023	3.77	No
SIENA SKILLED NURSING AND REHABILITATION CENTER	Actual Emissions	2023	3.25	No
SIERRA JT. COMM. COLLEGE DIST.	Actual Emissions	2023	0.35	No
SIERRA LAKES CO. WATER-SHORT WTP	Actual Emissions	2023	11.67	Yes

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SIERRA LAKES COUNTY WATER- BALES	Actual Emissions	2023	28.75	Yes
SIERRA LAKES COUNTY WATER-HEMLOCK	Actual Emissions	2023	23.43	Yes
SOUTH PLACER FPD #19	Actual Emissions	2023	2.29	No
SOUTH PLACER JUSTICE CENTER BUILD. B	Actual Emissions	2023	1.04	No
SOUTH PLACER JUSTICE CTR. JCC/AOC	Actual Emissions	2023	1.82	No
SOUTH PLACER M.U.D.-LIFT STATION #11	Actual Emissions	2023	1.88	No
SOUTH PLACER M.U.D.-LIFT STATION #5	Actual Emissions	2023	5.96	No
SOUTH PLACER MUD-SIERRA COLLEGE #14	Actual Emissions	2023	1.32	No
SQUAW VALLEY PSD - FIRE STATION	Actual Emissions	2023	1.17	No
SQUAW VALLEY PSD - WELL HOUSE	Actual Emissions	2023	0.35	No
SQUAW VALLEY RESORT, LLC	Actual Emissions	2023	12.00	Yes
STALLANT HEALTH	Actual Emissions	2023	1.74	No
SUGAR BOWL CORPORATION	Actual Emissions	2023	4.56	No
SUMMERFIELD OF ROSEVILLE	Actual Emissions	2023	0.00	No
SUNRISE ASSISTED LIVING	Actual Emissions	2023	0.87	No
SUREWEST TELEPHONE - BARTON RD	Actual Emissions	2023	106.76	Yes
SUREWEST TELEPHONE - VERNON	Actual Emissions	2023	16.46	Yes
SUTTER AUBURN FAITH HOSPITAL	Actual Emissions	2023	61.12	Core Facility
SUTTER AUBURN SURGERY CENTER	Actual Emissions	2023	11.64	Yes
SUTTER ROSEVILLE MEDICAL CENTER	Actual Emissions	2023	32.57	Core Facility
T MOBILE - BARTON RD	Actual Emissions	2023	0.27	No
T MOBILE - LAKE ARTHUR	Actual Emissions	2023	1.26	No
T MOBILE - SHERIDAN SN162 SC09162A	Actual Emissions	2023	0.05	No
T MOBILE - SN076 RAINBOW LODGE	Actual Emissions	2023	1.10	No
TAHOE CITY PUD - ADMIN. BUILD.	Actual Emissions	2023	4.14	No
TAHOE CITY PUD - BLACKWOOD SEWER	Actual Emissions	2023	1.31	No
TAHOE CITY PUD - COAST GUARD SEWER	Actual Emissions	2023	0.32	No
TAHOE CITY PUD - DOLLAR 2	Actual Emissions	2023	1.17	No
TAHOE CITY PUD - HARBORMASTER SEWER	Actual Emissions	2023	0.16	No
TAHOE CITY PUD - HIGHLANDS WELLS	Actual Emissions	2023	3.52	No
TAHOE CITY PUD - HWY 89 LOWER YARD	Actual Emissions	2023	3.95	No
TAHOE CITY PUD - LOWER HIGHLANDS	Actual Emissions	2023	0.33	No

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TAHOE CITY PUD - MADDEN SEWER	Actual Emissions	2023	1.29	No
TAHOE CITY PUD - MCKINNEY SEWER STA.	Actual Emissions	2023	0.00	No
TAHOE CITY PUD - SUNNYSIDE SEWER	Actual Emissions	2023	19.13	Yes
TAHOE CITY PUD - TAHOE CITY WELLS	Actual Emissions	2023	2.54	No
TAHOE CITY PUD - TAHOE TAVERN BOOSTER	Actual Emissions	2023	5.40	No
TAHOE CITY PUD - UPPER HIGHLAND	Actual Emissions	2023	0.18	No
TAHOE CITY PUD - WATERS EDGE SEWER	Actual Emissions	2023	1.14	No
TAHOE TRUCKEE SIERRA DISP. CO INC	Actual Emissions	2023	3.40	No
THE HOME DEPOT #0636 N. SUNRISE	Actual Emissions	2023	1.72	No
THE HOME DEPOT #6688	Actual Emissions	2023	2.23	No
THE HOME DEPOT #8571	Actual Emissions	2023	1.31	No
THE HOME DEPOT #8597	Actual Emissions	2023	2.24	No
THUNDER VALLEY CASINO RESORT	Actual Emissions	2023	0.80	No
TRUCKEE DONNER PUD-RED MOUNTAIN	Actual Emissions	2023	5.05	No
TRUCKEE SANITARY DIST. LAHONTAN 3	Actual Emissions	2023	0.39	No
TRUCKEE SANITARY DIST. LAHONTAN 4	Actual Emissions	2023	0.59	No
UNION PACIFIC / ROSEVILLE	Actual Emissions	2023	9.37	No
UNION PACIFIC R.R. - EMIGRANT GAP	Actual Emissions	2023	3.10	No
UNION PACIFIC R.R. - GOLD RUN	Actual Emissions	2023	1.07	No
UNION PACIFIC RAILROAD SHED 10	Actual Emissions	2023	0.48	No
UNION PACIFIC RAILROAD SHED 47	Actual Emissions	2023	0.74	No
UNION PACIFIC RAILROAD SWITCH 9	Actual Emissions	2023	2.78	No
UNION PACIFIC RAILROAD TUNNEL 41	Actual Emissions	2023	0.64	No
UNITED AUBURN INDIAN COMMUNITY	Actual Emissions	2023	0.24	No
UNITED NATURAL FOODS	Actual Emissions	2023	3.21	No
VERIFONE - STANFORD RANCH	Actual Emissions	2023	0.44	No
VERIZON WIRELESS - ALPINE MEADOWS	Actual Emissions	2023	0.34	No
VERIZON WIRELESS - AUBURN RANCHERIA	Actual Emissions	2023	0.00	No
VERIZON WIRELESS - AUBURN RELO	Actual Emissions	2023	0.71	No
VERIZON WIRELESS - BLUE OAKS	Actual Emissions	2023	0.03	No
VERIZON WIRELESS - BOWMAN	Actual Emissions	2023	0.46	No
VERIZON WIRELESS - COLFAX	Actual Emissions	2023	0.31	No
VERIZON WIRELESS - DOUGLAS	Actual Emissions	2023	0.03	No
VERIZON WIRELESS - DRUM FOREBAY	Actual Emissions	2023	8.83	No
VERIZON WIRELESS - DRY CREEK	Actual Emissions	2023	1.43	No

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VERIZON WIRELESS - ELDERS CORNER	Actual Emissions	2023	0.32	No
VERIZON WIRELESS - EMIGRANT GAP	Actual Emissions	2023	0.18	No
VERIZON WIRELESS - FIDDYMENT	Actual Emissions	2023	0.20	No
VERIZON WIRELESS - FOOTHILL BASELINE	Actual Emissions	2023	0.23	No
VERIZON WIRELESS - GOLD RUN	Actual Emissions	2023	4.95	No
VERIZON WIRELESS - HEATHER GLEN	Actual Emissions	2023	0.02	No
VERIZON WIRELESS - KINGS BEACH	Actual Emissions	2023	0.20	No
VERIZON WIRELESS - LEAD HILL	Actual Emissions	2023	0.45	No
VERIZON WIRELESS - LINCOLN	Actual Emissions	2023	0.80	No
VERIZON WIRELESS - LOCUST ROAD	Actual Emissions	2023	1.74	No
VERIZON WIRELESS - LONE TREE PARK	Actual Emissions	2023	0.36	No
VERIZON WIRELESS - LOOMIS	Actual Emissions	2023	0.45	No
VERIZON WIRELESS - NEWCASTLE	Actual Emissions	2023	0.18	No
VERIZON WIRELESS - NORTHSTAR	Actual Emissions	2023	0.00	No
VERIZON WIRELESS - PENRYN	Actual Emissions	2023	0.00	No
VERIZON WIRELESS - ROCKLIN	Actual Emissions	2023	0.14	No
VERIZON WIRELESS - ROCKLIN MTSO	Actual Emissions	2023	35.74	Yes
VERIZON WIRELESS - ROCKLIN MTSO1	Actual Emissions	2023	23.16	Yes
VERIZON WIRELESS - ROCKLIN NORTH	Actual Emissions	2023	0.25	No
VERIZON WIRELESS - ROLLINS LAKE	Actual Emissions	2023	0.96	No
VERIZON WIRELESS - ROSEROCK	Actual Emissions	2023	0.03	No
VERIZON WIRELESS - ROSEVILLE RTE 65	Actual Emissions	2023	0.24	No
VERIZON WIRELESS - ROSEVILLE WATER	Actual Emissions	2023	0.33	No
VERIZON WIRELESS - SHERIDAN	Actual Emissions	2023	0.27	No
VERIZON WIRELESS - SQUAW VALLEY	Actual Emissions	2023	0.78	No
VERIZON WIRELESS - STANFORD & SUNSET	Actual Emissions	2023	0.16	No
VERIZON WIRELESS - STANFORD RANCH	Actual Emissions	2023	14.50	Yes
VERIZON WIRELESS - TRUCKEE AIRPORT	Actual Emissions	2023	0.22	No
VERIZON WIRELESS - TUTTLE LAKE	Actual Emissions	2023	0.28	No
VERIZON WIRELESS - VICTORY LN	Actual Emissions	2023	0.22	No
VERIZON WIRELESS - WEST LINCOLN	Actual Emissions	2023	0.25	No
VERIZON WIRELESS - WHISKEY BAR	Actual Emissions	2023	0.44	No
VERIZON WIRELESS - WHITNEY	Actual Emissions	2023	0.35	No
WAVE BROADBAND - ROCKLIN	Actual Emissions	2023	1.56	No
WESCO AIRCRAFT (DBA INCORA)	Actual Emissions	2023	0.00	No

AB 2588 “Hot Spots” Industrywide Diesel Engine Facilities - FY 23-24

WEST. PLACER UNIFD SCH DIST- BUS TRANS	Actual Emissions	2023	0.16	No
WESTERN SIERRA COLLEGIATE ACADEMY	Actual Emissions	2023	2.73	No
WESTVIEW HEALTHCARE CENTER	Actual Emissions	2023	1.67	No
WILLIAMS-SONOMA, INC - DATA CENTER	Actual Emissions	2023	6.25	No
XO COMMUNICATIONS	Actual Emissions	2023	2.76	No

Appendix D

AB 2588 “Hot Spots” Program Fees – FY 23-24

Facility	Billing Category	Complexity	District Fee	State Fee
Kaiser Permanent Hospital	Tracking Facility	Intermediate	$410.36	$100.00
Gladding McBean	Update Facility	Complex	$125.00	$0.00
Rio Bravo Rocklin	Tracking Facility	Simple	$375.46	$67.00
SFPP	Update Facility	Simple	$125.00	$0.00
SPI – Lincoln	Tracking Facility	Complex	$443.86	$134.00
Sutter Aubern Hospital	Tracking Facility	Simple	$375.46	$67.00
Robert Bosch Semiconductors	Update Facility	Intermediate	$125.00	$0.00
Sutter Roseville Hospital	Tracking Facility	Simple	$375.46	$67.00
Industrial Container Solutions	Update Facility	Intermediate	$125.00	$0.00
H.B. Fuller	Update Facility	Intermediate	$125.00	$0.00
Liberty Utilities – Kings Beach	Update Facility	Simple	$125.00	$0.00
Cal Mat Co. - Roseville	Tracking Facility	Intermediate	$410.36	$100.00
Costco Gasoline - Roseville	Tracking Facility	Simple	$375.46	$67.00
Energy 2001	Update Facility	Simple	$125.00	$0.00
GenPower	Update Facility	Simple	$125.00	$0.00

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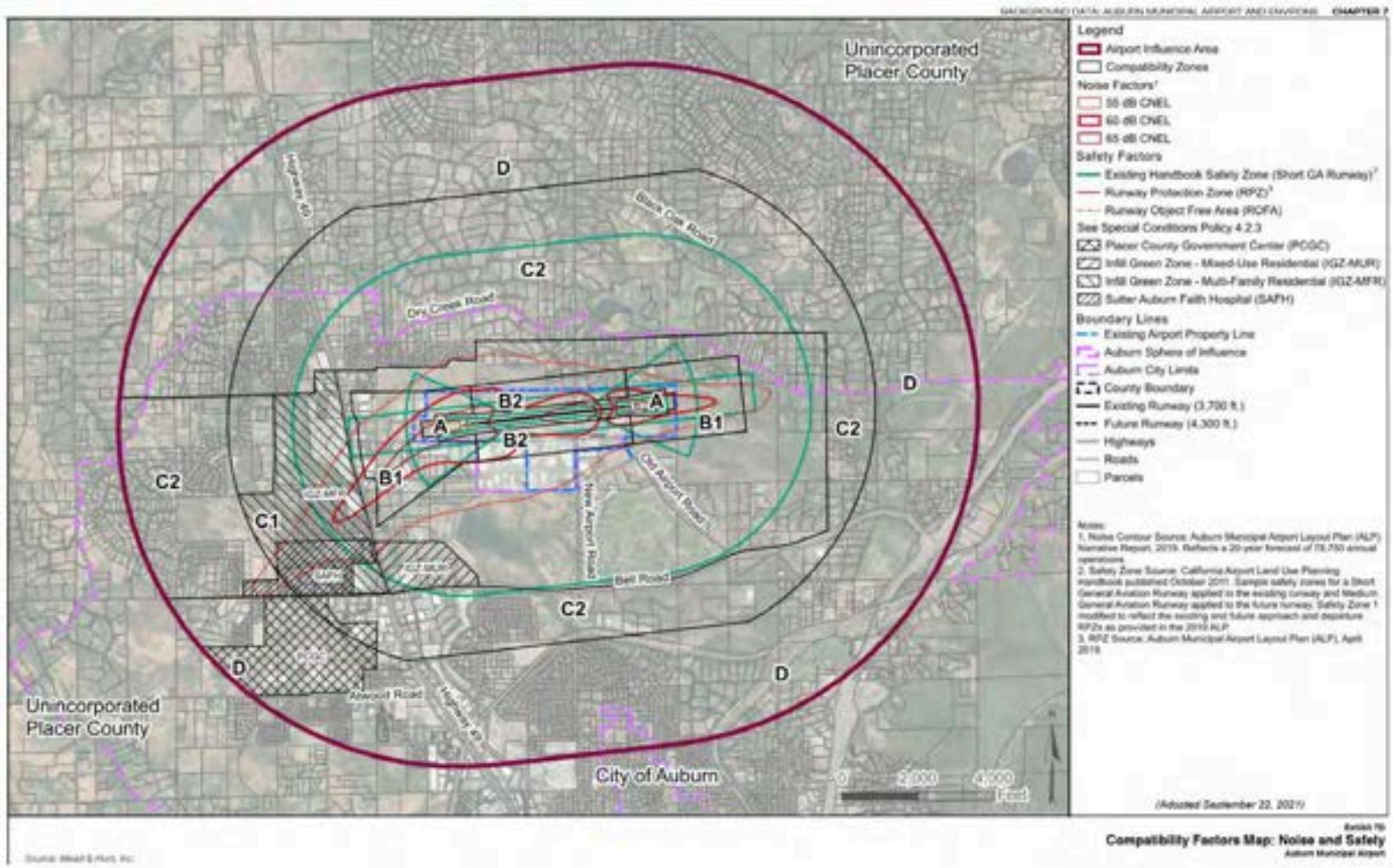

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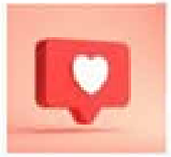

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Additional info...

National Family Caregivers Month: New caregiver survey and free dementia training

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Costco Wholesale

Sunrise of Roc

GALLERIA

Granite Bay

DIAMOND OAKS

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Thresholds of Significance

Thresholds of Significance

2.1. Significance Thresholds for CEQA Projects

Thresholds of Significance are used to determine if a land use project's construction and/or operational emissions would result in potential air quality impacts. CEQA encourages each public agency to develop and publish thresholds of significance to use in the determination of significance of environmental effects. The development of the thresholds of significance should be supported by substantial scientific evidence.

Factors to Consider

- Direct effects
- Reasonably foreseeable indirect effects
- Expert disagreement
- "Considerable" contribution to cumulative effects
- Special thresholds for historical and archaeological resources

On October 13, 2016, the District's Board of Directors adopted the Review of Land Use Projects under CEQA Policy (Policy). The Policy established the thresholds of significance for criteria pollutants as well as greenhouse gases (GHG). In setting these thresholds, the District considered the health-based air quality standards, strategies for attaining air quality standards, historical CEQA project review data in Placer County, statewide regulations to achieve emission reduction targets for GHG, and Placer County's special geographic and land use features.

The District recommends that lead agencies, within Placer County, consider using the District's adopted thresholds for determining the significance of criteria pollutants and GHG impacts from new projects subject to CEQA. The lead agency can adopt its own significance thresholds pursuant to CEQA Section 15064.7 (b)(c) and the District will recognize and use them in the CEQA review process.

2.2. District Adopted Significance Thresholds for Criteria Pollutants

Placer County is located within the Sacramento Federal Ozone Nonattainment Area (SFONA) -- an area where the air quality does not currently meet the federal 8-hour ozone standard. This standard was established by U.S. EPA, as a requirement of the federal Clean Air Act, to adopt standards for pollutants harmful to public health and the environment.

It is the District's position that any "nonattainment designation" based on the federal or state air quality standards is a significant air quality environmental issue since all sources in the area, including direct and indirect sources, contribute emissions that result in air quality deterioration. Therefore, the nonattainment status should be addressed in environmental documents within the CEQA process as a basis to establish thresholds of significance. The questions which evaluate air quality impacts on the CEQA Guideline's "Environmental Checklist Form"[15] affirms this position.

The District has concluded that there is a direct nexus between "direct" emissions from stationary sources and "indirect" emissions associated with land use sources, where the emissions from a stationary source are no different than the emissions from a land use project. It is indistinguishable if the pollution is emitted by a stationary facility, or land use project vehicle activities. The impacts from either one or both sources influences the region's ability to attain health-based air quality standards.

Historically, the District has applied its new source review (NSR) rule requirement as the recommend significance thresholds for criteria pollutants under the CEQA review program. The NSR rule requires stationary sources to offset emissions when they emit pollutants in excess of the

15 CEQA Guideline Appendix G "Environmental Checklist Form", Section III-Air Quality question (c). http://resources.ca.gov/ceqa/guidelines/Appendix_G.html

identified emission offset threshold requirements which are based on the nonattainment classification for the air quality standards. The current emission offset thresholds of 10 tons per year (or 55 pounds per day) for ROG and NOx and 15 tons per year (or 82 pounds per day) for PM10 are required by District Rule 502[16]. These offset requirements are the most stringent of both the federal and state regulations. This is the foundation of the criteria pollutant's significance thresholds for CEQA projects within Placer County. Please note that the unit of pounds per day will be referred to as lbs/day in the following discussion.

The District evaluated the current regional goal to attain the federal and state ambient air quality standards, the CEQA projects reviewed by the District over the last thirteen years (2003-2015), and the CEQA significance thresholds adopted by other air districts in the Sacramento area. District staff was able to demonstrate that the NSR emission offset requirements are appropriate in addressing the potential air quality impacts from new land use projects in Placer County.

The detailed analyses and justification report can be found at http://www.placerair.org/landuseandceqa/ceqathresholdsandreviewprinciples. Table 2-1 shows the construction phase project-level, and cumulative-level significance thresholds, adopted by the District, related to the air quality impacts of construction and operational emissions associated with land use projects.

Table 2-1: PCAPCD Significance Thresholds for Criteria Pollutants

Construction Phase Project-Level			Operational Phase Project-Level			Operational Phase Cumulative-Level		
ROG	**NOx**	**PM10**	**ROG**	**NOx**	**PM10**	**ROG**	**NOx**	**PM10**
(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)
82	**82**	**82**	**55**	**55**	**82**	**55**	**55**	**82**

Table 2-2 presents the approximate size of a project for selected land use categories which would result in NOx operational emissions equal to the threshold of 55 lbs/day. The detailed modeling scenario assumptions, settings, and modeling outputs are presented in the PCAPCD Threshold Justification Report Appendix B. This table serves as the preliminary screening methodology and it does not include ROG operational emissions. It may be used in place of an air quality analysis with appropriate discussion to determine the level of significance for a project's air quality impacts. Please note that, depending on the location of the project as well as the project's proposed land use categories, design features, and buildout year, different conclusions may be reached other than the ones shown in Table 2-2.

Table 2-2: Corresponding Size of a Project for 55 lbs/day of NOx Emissions

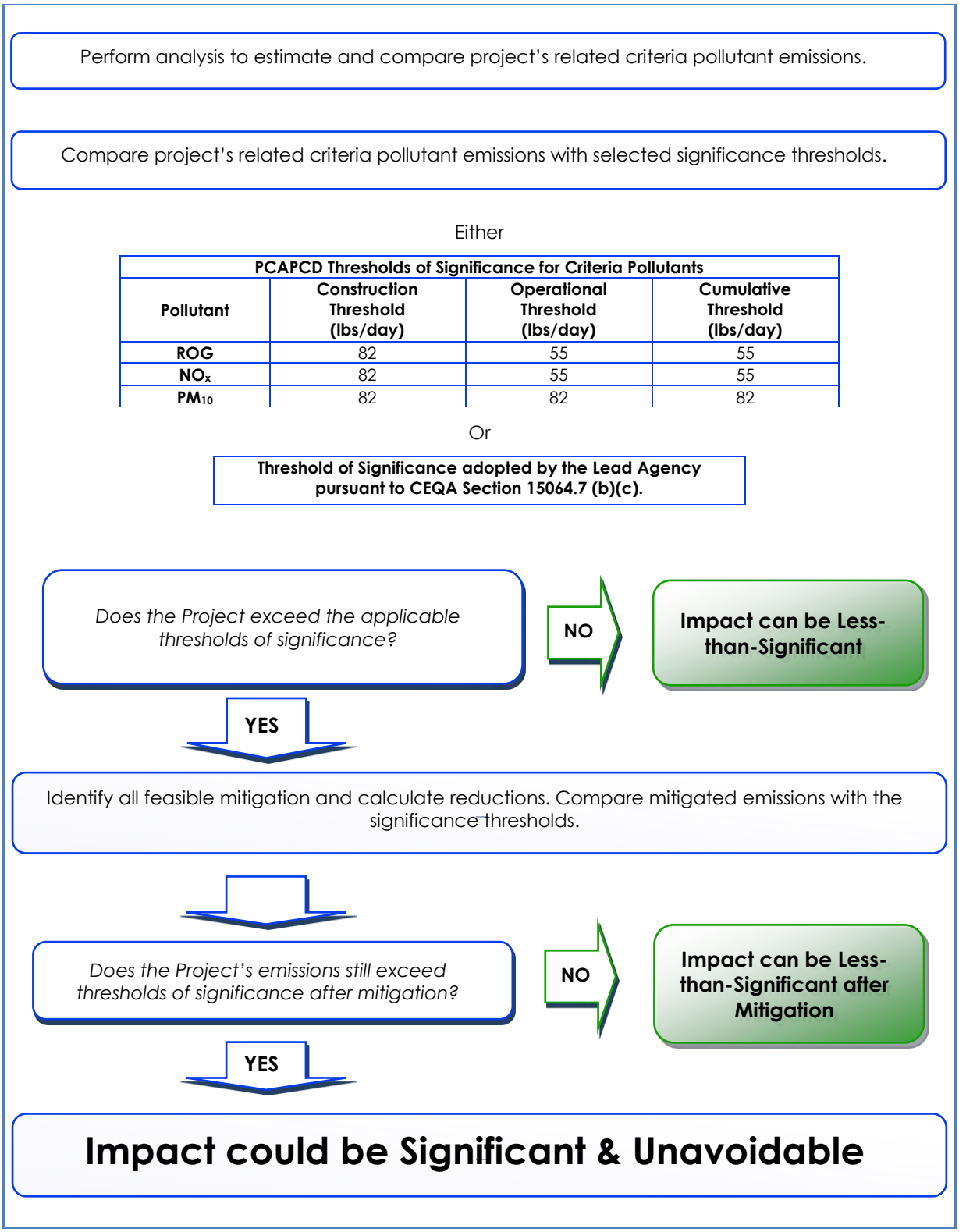
Residential (# of units)			Commercial/Industrial (sf)		
Single Family	**Condo**	**Apartment**	**General Commercial**	**General Office**	**General Industrial**
617	868	911	249,099	648,661	894,262

16 PCAPCD Rule 502 New Source Review Section 303.1 Emission Offset Requirements http://www.placerair.org/~/media/apc/documents/rules/reg%205/rule502newsourcereview.pdf?la=en

2.3. Significance Determination for Criteria Pollutant Impacts

Figure 2-1 represents the general steps for evaluating and determining the level of significance for a project's related air quality impacts.

Figure 2-1: Significance Determination Flowchart for Criteria Pollutants



2.4. District Adopted Significance Thresholds for Greenhouse Gases

On June 1, 2005, Governor Arnold Schwarzenegger issued Executive Order S-3-05[17]. Although it was not included in state law, Executive Order S-3-05 set an ultimate goal for California to reduce GHG emissions to 80 percent below 1990 levels by 2050.

The California Global Warming Solutions Act (AB32) signed into law in September 2006, required statewide GHG emissions to be reduced to 1990 levels by 2020[18]. AB32 established regulatory, reporting, and market mechanisms to achieve this goal and provide guidance to help attain quantifiable reductions in emissions efficiently, without limiting population and economic growth. CARB is the state agency primarily responsible for implementing AB32. In order to implement AB32, CARB adopted a Scoping Plan in 2008[19] that outlined actions necessary to reduce statewide GHG emissions. The Scoping Plan estimated that California would need to reduce emissions by 29 percent from a "business as usual" scenario to achieve AB32 emission reduction goals.

With the enactment of Senate Bill (SB) 97, California's lawmakers identified the need to analyze greenhouse gas emissions as a part of the CEQA process. The Office of Planning and Research (OPR) amended the CEQA Guidelines to include the analysis and mitigation of GHG emissions, which became effective on March 18, 2010[20]. Even in the absence of adopted CEQA thresholds for GHG emissions, lead agencies are required to analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.

Senate Bill (SB) 32 was signed by Governor Jerry Brown, on September 8, 2016, to establish a California GHG reduction target of 40 percent below 1990 levels by 2030[21]. California is on track to meet or exceed this current target, as established in the California Global Warming Solutions Act of 2006 (AB 32). This new emission reduction target will make it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050.

To develop the GHG significance thresholds, the District considered the following factors: 1) the significance thresholds adopted by the other air districts, 2) the CEQA projects reviewed by the District over the last 13 years, 3) the applicable statewide regulatory requirements required by 2030, and 4) the special geographic features in Placer County. The District's adopted GHG significance thresholds include three components: 1) Bright-line Thresholds of 10,000 metric tons (MT) of carbon dioxide equivalent per year (CO_2e/yr), 2) Efficiency Matrix for residential and non-residential development, and 3) De Minimis Level for the operational phase of 1,100 MT CO_2e/yr).

Table 2-3 shows the District's adopted Bright-line thresholds for different projects' construction phase and the stationary source projects' operational phase GHG emissions. The Bright-line threshold is the point at which a project would be deemed to have a cumulatively considerable[22] contribution to global climate change. Table 2-4 shows the adopted 3-tier significance thresholds for the land use operational phase GHG emissions. Detailed technical analyses for the GHG significance threshold development can be found at http://www.placerair.org/landuseandceqa/ceqathresholdsandreviewprinciples.

[17] California Executive Order S-3-05, (June 2005) https://www.gov.ca.gov/news.php?id=1861
[18] California Assembly Bill No. 32 https://www.arb.ca.gov/cc/docs/ab32text.pdf
[19] AB32 required CARB to adopt a Scoping Plan to describe the approach that California will take to reduce statewide GHG emissions to 1990 levels by 2020. http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf
[20] https://www.opr.ca.gov/s_ceqaandclimatechange.php
[21] California Senate Bill No. 32 https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32
[22] CEQA Guidelines §15064 (h)(1)

Table 2-3: PCAPCD GHG Significance Thresholds for Different Construction and Stationary Source Operational Phases

All Construction Project-Level	Stationary Source Operational Project-Level
10,000 MT CO_2e/yr	

Table 2-4: PCAPCD GHG Significance Thresholds for Land Use Operational Phase Only

Bright-Line Thresholds 10,000 MT CO_2e/yr			
Efficiency Matrix			
Residential		Non-Residential	
urban	rural	urban	rural
(MT CO_2e/capita)		(MT CO_2e/1,000 sf)	
4.5	5.5	26.5	27.3
De Minimis Level 1,100 MT CO_2e/yr			

The District's Bright-line GHG Threshold of 10,000 MT CO_2e/yr is applied to land use projects' construction phase and stationary source projects' construction and operational phases. In general, GHG emissions from a project (either the construction or operational phase) that exceed 10,000 MT CO_2e/yr would be deemed to have a cumulatively considerable contribution to global climate change.

The Efficiency Matrix and De Minimis Level are only applied to a land use project's operational phase. For a land use project, it can be considered as less than cumulatively considerable and be excluded from future GHG impact analysis if its operational phase GHG emissions are equal to or less than 1,100 MT CO_2e/yr. A land use project with GHG operational emissions between 1,100 MT and 10,000 MT CO_2e/yr can still be found less than cumulatively considerable when the results of the project's related efficiency analysis meets one of conditions in the efficiency matrix for that applicable land use setting and land use type. The detailed discussion of GHG efficiency matrix development in Placer County is presented in the PCAPCD Threshold Justification Report Appendix C.

Tables 2-5 and 2-6 presents the approximate size of a project for some of the land use categories which would result in GHG operational emissions equal to the Bright-line threshold of 10,000 MT CO_2e/yr and the De Minimis Level of 1,100 MT CO_2e/yr. The detailed modeling scenario assumptions, settings, and modeling outputs are presented in the PCAPCD Threshold Justification Report Appendix D. These two tables serve as a preliminary screening methodology and should not be used in place of an analysis to determine the level of significance for a project's related GHG impact. Please note that, depending on the location of the project as well as the project's proposed land use categories and design features, different conclusions may be reached other than the ones shown in Tables 2-5 and 2-6.

Table 2-5: Corresponding Size of a Project for Bright-Line Thresholds of 10,000 MT CO_2e/yr

Residential (# of units)			Commercial/Industrial (sf)		
Single Family	Condo	Apartment	General Commercial	General Office	General Industrial
646	957	1,044	323,955	756,170	901,709

Table 2-6: Corresponding Size of a Project for De Minimis Level of 1,100 MT CO_2e/yr

Residential (# of units)			Commercial/Industrial (sf)		
Single Family	Condo	Apartment	General Commercial	General Office	General Industrial
71	105	115	35,635	83,180	99,189

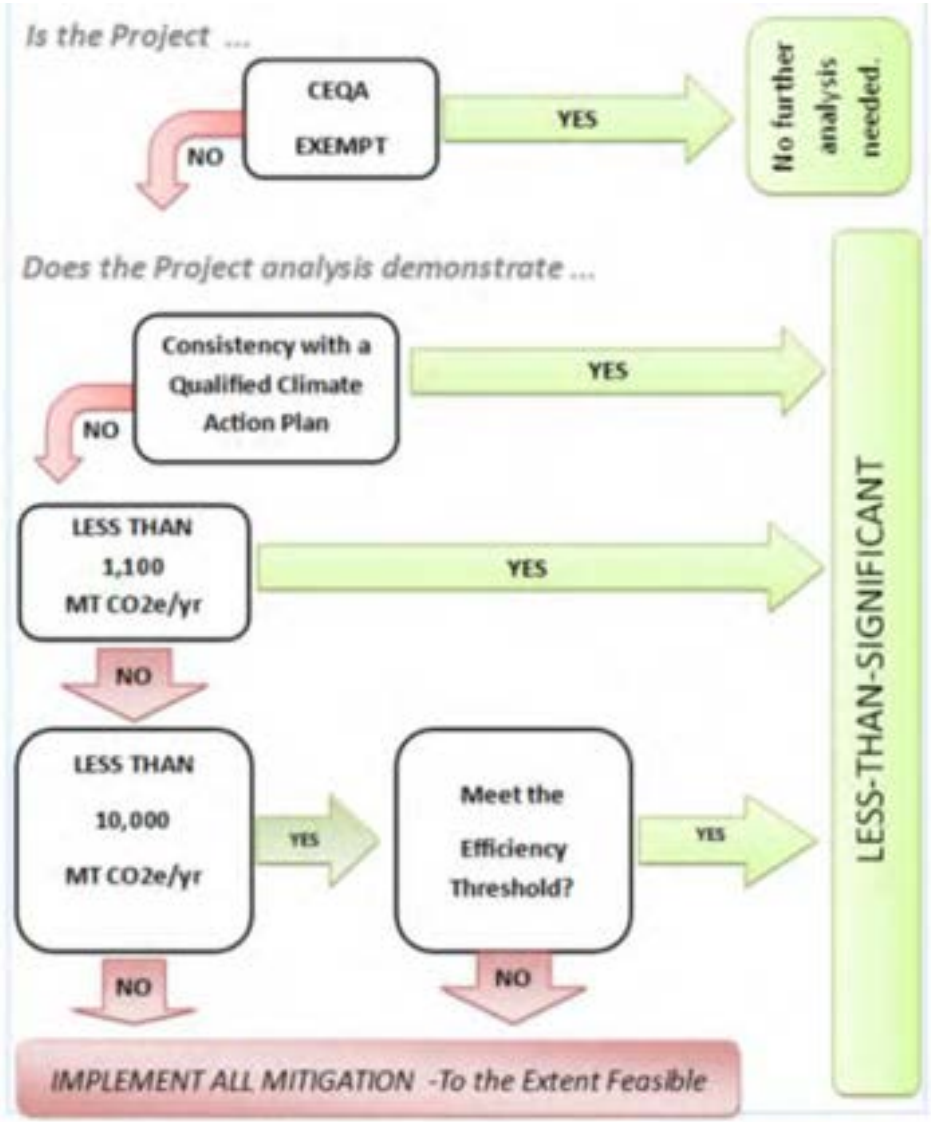
The District believes that the adopted GHG thresholds which were developed based on Placer County's special conditions can facilitate a uniform process for local jurisdictions in Placer County to analyze and identify potentially significant GHG impacts from land use projects. This uniform process will assist local jurisdictions in demonstrating a balance between the future growth in Placer County and the assumed responsibility in assisting California to achieve its GHG reduction goals.

2.5. Qualified Climate Action Plan

Alternatively, in lieu of applying the District's adopted GHG significance thresholds, local jurisdictions in Placer County can develop their own climate action plans pursuant to the CEQA requirement. If a jurisdiction has a qualified climate action plan (CAP) or greenhouse gas reduction plan (GHGRP) that meets all the criteria stated in CEQA Guidelines Section 15183.5 (b), the qualified plan can be used to determine the project's GHG impact in lieu of applying the District's adopted GHG significance thresholds. If a land use project can demonstrate consistency with the mitigation strategies identified in that jurisdiction's qualified CAP or GHGRP, the project can be deemed as less than cumulatively considerable for its associated GHG impacts.

Figure 2-2 represents the general steps for evaluating and determining the level of significance for a project's related GHG impacts

Figure 2-2: Significance Determination Flowchart for GHGs



THIS ITEM APPEARS ON

AIRPORT LAND USE COMMISSION (/AIRPORT-LAND-USE-COMMISSION)

Final ALUCP

State aviation law requires Compatibility Plans be updated regularly. The ALUC last adopted its ALUCP in 2014. The ALUC retained Mead + Hunt to assist staff with the 2021 ALUCP update. Both the Auburn Municipal and Lincoln Regional Airports recently updated their airport layout plans, which have implications for future land use compatibility, triggering a need to update the county-wide ALUCP.

Another key focus of the 2021 update was to clarify and enhance ALUCP policies to improve implementation of the plan by local jurisdictions. Also, as required by state law, the California Airport Land Use Planning Handbook provided guidance in updating compatibility policies, criteria, and

procedures in the ALUCP.

The 2021 update was adopted on September 22, 2021. The ALUCP was amended in May 24, 2023.

2021 Airport Land Use Compatibility Plan (ALUCP) (Amended May 24, 2023, October 23, 2024 and June 25, 2025)

Full Final ALUCP (https://www.pctpa.net/files/292cfd737/PLC+ALUCP+2021+Amended+2025.pdf)

Chapter 1: Introduction (https://pctpa.specialdistrict.org/files/27224f990/PLC+ALUCP+2021+-+Chapter+1.pdf)

Chapter 2: Procedural Policies (https://www.pctpa.net/files/1bc04b839/PLC+ALUCP+2021+Amended+2025+Chapter+2.pdf)

Chapter 3: Countywide Compatibility Policies (https://pctpa.specialdistrict.org/files/e435384b5/PLC+ALUCP+2021+-+Chapter+3.pdf)

Chapter 4: Auburn Municipal Airport Compatibility Policies (https://www.pctpa.net/files/6ce24c69f/PLC+ALUCP+2021+Amended+2025+Chapter+4.pdf)

Chapter 5: Blue Canyon Airport Compatibility Policies and Maps (https://pctpa.specialdistrict.org/files/8f7ffdb39/PLC+ALUCP+2021+-+Chapter+5.pdf)

Chapter 6: Lincoln Regional Airport Compatibility Policies and Maps (https://pctpa.specialdistrict.org/files/2dadf7626/PLC+ALUCP+2021+-+Chapter+6.pdf)

Chapter 7: Background Data - Auburn Municipal Airport and Environs (https://pctpa.specialdistrict.org/files/e8a099d99/PLC+ALUCP+2021+-+Chapter+7.pdf)

Chapter 8: Background Data - Blue Canyon Airport and Environs (https://pctpa.specialdistrict.org/files/a12193611/PLC+ALUCP+2021+-+Chapter+8.pdf)

Chapter 9: Background Data - Lincoln Regional Airport and Environs (https://pctpa.specialdistrict.org/files/14287ae56/PLC+ALUCP+2021+-+Chapter+9.pdf)

Appendices (https://pctpa.specialdistrict.org/files/d59b1b2f2/PLC+ALUCP+2021+-+Appendices.pdf)

Attachment A: Adoption Resolution No. 21-30 - CEQA Documentation (https://pctpa.specialdistrict.org/files/153302437/PLC+ALUCP+2021+-+Attachment+A.pdf)

Attachment B: Adoption Resolution No. 21-31 - Airport Land Use Compatibility Plan (https://pctpa.specialdistrict.org/files/2f5b58354/PLC+ALUCP+2021+-+Attachment+B.pdf)

*Documents may make reference to the ALUCP's environmental documents. Drafts of those documents can be viewed here (https://www.pctpa.net/final-environmental-documents).

2021 ALUCP Basic Compatibility Criteria Table: Amendments to Clarify Airspace Review Requirements (May 24, 2023)

2021 ALUCP Basic Compatibility Criteria Table: Amendments to Clarify Airspace Review Requirements (https://www.pctpa.net/files/fe98fc417/H.+ALUC+Consent+Calendar.pdf)

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Costco Whole

Blue Oaks Blvd

Sunset Blvd

Topaz Ave

Whitney Blvd

5th St

Pacific St

Sierra College

Rocklin

STANFORD

HIGHLAND RESERVE

Costco Wholesale

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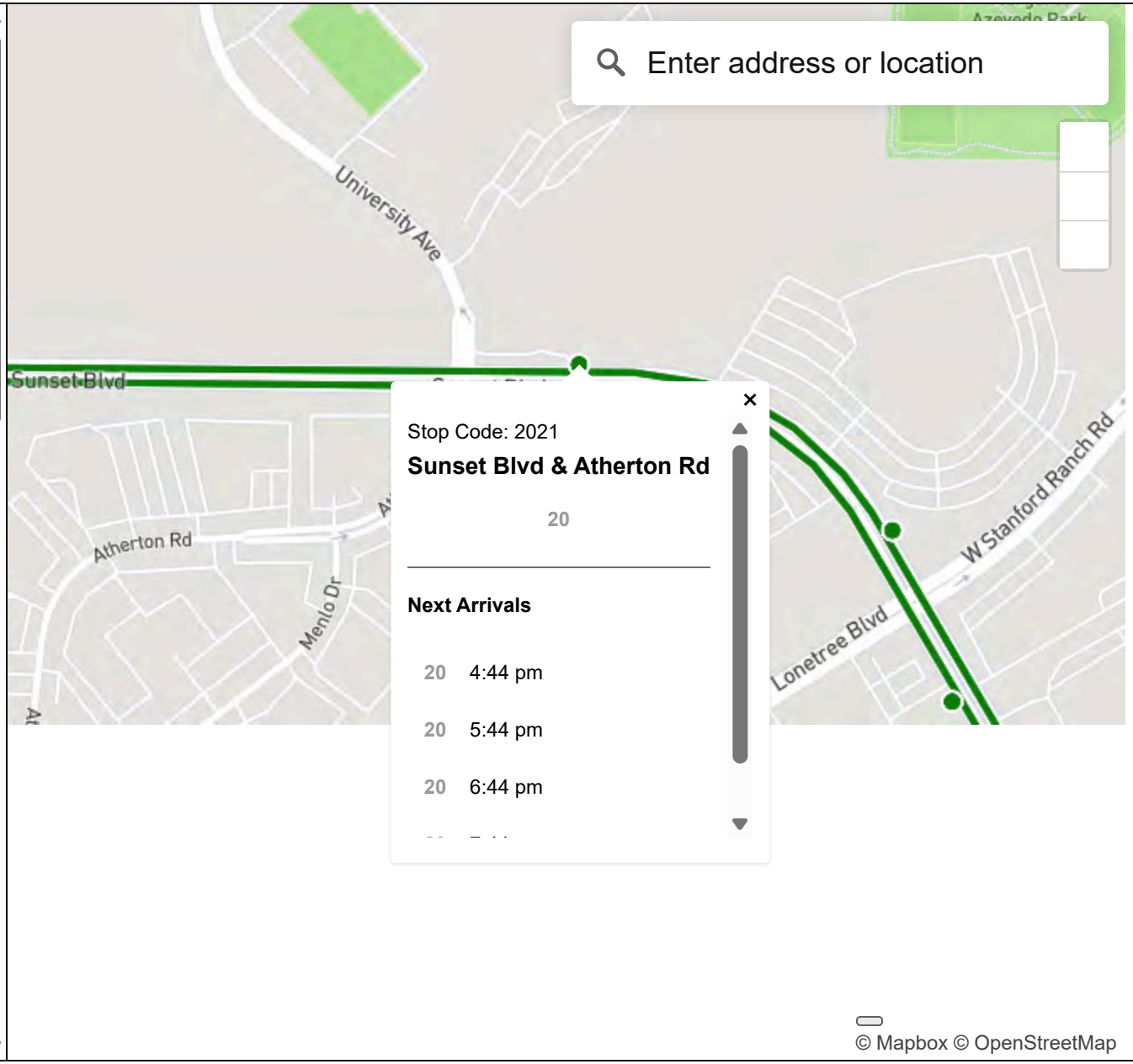

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pct@placer.ca.gov

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Auburn, Ca. 95603

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7.1.3.3 Five-Consecutive Year Drought

During a five-consecutive year drought, PCWA anticipates supplies to reduce as follows:

- **PG&E:** Based on historical five-year periods, it is assumed PG&E supply will not be reduced.
- **MFP:** Due to the ability to store and deliver supplies under this permit, MFP supply will not see a reduction.
- **CVP:** CVP supply is assumed to reduce by 25% for all five years.
- **Pre-1914:** The pre-1914 appropriative right supply is assumed to reduce by 50% for all five years.
- **Recycled water:** It is assumed recycled water supplies will not be reduced.
- **Groundwater:** Any potential shortfall in supply that may occur in Zone 1 in dry years will be addressed through groundwater production. Groundwater may be produced by overlying users and/or appropriators to meet demands, consistent with the GMP discussed in **Section 6.1.1.3**. It is assumed groundwater supplies will not be reduced.

Table 7-4 summarizes the available supplies under five-consecutive years drought conditions from 2025-2040 and buildout conditions. The supply reduction will be the same for each of the five years.

Table 7-4. Five Consecutive Year Drought

WATER SUPPLY SOURCES	2025	2030	2035	2040	BUILDOUT	% REDUCTION
PG&E	125,400	125,400	125,400	125,400	125,400	0%
MFP	120,000	120,000	120,000	120,000	120,000	0%
CVP	0	26,250	26,250	26,250	26,250	25%
Pre-1914 Appropriative Rights	1,700	1,700	1,700	1,700	1,700	50%
Recycled Water	0	2,500	5,000	7,000	9,000	0%
Groundwater	2,000	4,000	4,000	5,000	5,000	0%
TOTAL SUPPLY	**249,100**	**279,850**	**282,350**	**285,350**	**287,350**	

7.1.4 Water Service Reliability

This section compares projected supplies and demands for an average year, single-dry year, and five-year consecutive drought for the entire PCWA system.

7.1.4.1 Average Year

Under an average year, PCWA anticipates receiving full supplies as described in **Section 7.1.3.1**. Demands during an average year conditions are assumed as projected in **Table 4-10**. The supply and demand comparison for the average year is presented in **Table 7-5**.

Table 7-5. Average Year Supply and Demand Comparison

	2025	2030	2035	2040	BUILDOUT
Supply Totals	250,800	290,300	292,800	295,800	297,800
Demand Totals	174,725	184,171	197,460	226,988	253,416
DIFFERENCE	**76,075**	**106,129**	**95,340**	**68,812**	**44,384**

7.1.4.2 Single Dry Year

For a single dry year, PCWA anticipates receiving reduced supplies as described in **Section 7.1.3.2**. Demands presented in **Table 4-10** were used; however, the untreated wholesale demands were updated to reflect PCWA's supply available during a single dry year per wholesale contracts, as presented in **Table 4-3**. The supply and demand comparison for the single-dry year is presented in **Table 7-6**.

Table 7-6. Single Dry Year Supply and Demand Comparison

	2025	2030	2035	2040	BUILDOUT
Supply Totals	185,550	207,550	210,050	213,050	215,050
Demand Totals	141,078	148,926	160,380	188,488	214,916
DIFFERENCE	**44,472**	**58,624**	**49,670**	**24,562**	**134**

7.1.4.3 Five-Consecutive Year Drought

For purposes of this UMWP, PCWA has assessed a five-year series of dry conditions that mimic supply conditions from 1988 through 1992. The supplies available during this series of multiple dry years were not as constrained as during the representative single dry year condition. Although, as experienced with the 2012-2016 drought period, actual water supply availability over multiple years is dependent on many factors that will require flexibility for PCWA to manage supplies and implementation of its WSCP stages accordingly.

The supply assumptions for the five-consecutive year drought condition are described in **Section 7.1.3.3**. Demands presented in **Table 4-10** were used; however, the untreated wholesale demands were updated to reflect PCWA's supply available during a five-consecutive year drought per wholesale contracts, as presented in **Table 4-3**. The supply and demand comparison for the five-consecutive year drought is presented in **Table 7-7**.

Table 7-7. Multiple Dry Years Supply and Demand Comparison

		2025	2030	2035	2040	BUILDOUT
First Year	Supply Totals	249,100	279,850	282,350	285,350	287,350
	Demand Totals	145,725	155,170	168,460	197,988	224,416
DIFFERENCE		**103,375**	**124,680**	**113,890**	**87,362**	**62,934**
Second Year	Supply Totals	249,100	279,850	282,350	285,350	287,350
	Demand Totals	145,725	155,170	168,460	197,988	224,416
DIFFERENCE		**103,375**	**124,680**	**113,890**	**87,362**	**62,934**
Third Year	Supply Totals	249,100	279,850	282,350	285,350	287,350
	Demand Totals	145,725	155,170	168,460	197,988	224,416
DIFFERENCE		**103,375**	**124,680**	**113,890**	**87,362**	**62,934**
Fourth Year	Supply Totals	249,100	279,850	282,350	285,350	287,350
	Demand Totals	145,725	155,170	168,460	197,988	224,416
DIFFERENCE		**103,375**	**124,680**	**113,890**	**87,362**	**62,934**
Fifth Year	Supply Totals	249,100	279,850	282,350	285,350	287,350
	Demand Totals	145,725	155,170	168,460	197,988	224,416
DIFFERENCE		**103,375**	**124,680**	**113,890**	**87,362**	**62,934**

7.2 Drought Risk Assessment

A new provision of the Water Code directs Suppliers to prepare a DRA. The DRA considers a drought period lasting five consecutive years, starting from the year following the when the assessment is conducted. For this UWMP, the DRA considers five consecutive dry years from 2021 through 2025. PCWA may conduct an interim update or updates to this DRA within the five-year cycle of its UWMP update.

The DRA analysis allows PCWA to examine the management of its supplies during stressed hydrologic conditions and an opportunity to evaluate if PCWA may need to enact its WSCP during the next drought period lasting at least five years.

The projected gross water use for the five-year DRA is based on unconstrained demand.

The reliability of supplies over a five-consecutive year drought is described in **Section 7.1.3.3**. Demands presented in **Table 4-10** were used; however, the untreated wholesale demands were updated to reflect PCWA's supply available during a five-consecutive year drought per wholesale contracts, as presented in **Table 4-3**. **Table 7-8** compares the total projected supply and demand for the 5-year DRA for 2021 through 2025. As shown, PCWA does not expect to enact its WSCP for a 5-year consecutive year drought based on the 2021-2025 unrestricted potable demand projections and the current supply portfolio and reliability.

BUSINESS WITH PCWA

New Development Process

This section is for Developers and Contractors and provides information that you will need for your project.

If your residential, commercial, or industrial project requires constructing new or modifying public water facilities including service connections, PCWA has specific requirements. Please refer to the following documents:

Facilities Agreement Process - Describes the current development agreement process.

Improvement Standards, Standard Specifications, and Standard Drawings - The Agency's standard specifications for water system design.

The Water Connection Charge (WCC) for Residential services is assessed based on lot size. Non-residential services WCCs are assessed based on maximum day demand and flowrate. Refer to one of the the following schedules depending on your project's location:

Current Schedule:

- Lower Zone 6 – From Rocklin to Auburn
- Upper Zone 6 – Applegate, Colfax, Monte Vista, & Alta

Wholesale (reference only):

These WCC rate charts are for reference only and is intended to show fees as described in the PCWA supply contracts. Please contact the City of Lincoln or California American Water Company for all development fees and processes.

- Zone 6 California American Water Company – South of Roseville
- Zone 6 Lincoln – City of Lincoln

Project Submittal Requirements

- Project Application – A required application for project submittal to be completed and signed by the Applicant, and local fire protection district.
- Supplemental Service Information Forms - For projects with residential services, please fill out one Supplemental Information for Residential Services Form summarizing the lot sizes. For projects with commercial/industrial or landscape services, please fill out the Supplemental Information for Non-residential Services Form. One Non-residential form is required for each size and type of meter to provide information about the meter(s) requested. This is be completed and signed by the Applicant.
- $165 Application Fee to open a project account and $2,500 initial deposit for plan checking, a total of $2,665.
- Three (3) sets of plans including landscaping plans, if applicable.
- Approved Tentative Map or Preliminary Final/Parcel Map.

Should you have questions regarding new development projects, please contact the Engineering Division at (530) 823-4886 or engineering@pcwa.net.

Right – Of – Way/Easement Information

the Agency to ensure the ability to access, maintain, repair, and replace those facilities. The Right-of-Way Requirements Checklist provides information on what you will be required to submit so that staff may ensure all facilities are in an acceptable right-of-way and additional requirements should fee title or dedicated easements be required.

When a grant of easement or fee title is necessary, the Signing Authority Checklist provides helpful guidance on the documentation required for submission so staff can verify the person or persons signing the grant have the authority to transfer title or encumber the project property. This signing authority documentation will be in addition to the requirement of providing a current preliminary title report and lien-holder consent.

Should you have questions regarding right-of-way matters pertaining to your project you can contact the Real Property Program Manager at (530) 823-4886.

Distribution Maps and As-Built Drawings

For more information or to obtain distribution maps and as-built drawings, please contact the Agency's GIS Department at (530) 823-4886 or email at gis-dept@pcwa.net.

Fire Flow Data Request

Fill out the Fire Flow Data Request to obtain fire flow data. For more information, please contact the Engineering Division at (530) 823-4886 during business hours.

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ADOPTED CYCLE 6 (2021-2029) RHNA METHODOLOGY SUMMARY TABLE

Jurisdiction	Lower Income Units				Higher Income Units		Total RHNA
	Very Low	Low	Very Low + Low	% of Total RHNA (VL+L)	Moderate	Above Moderate	
Placerville	56	34	90	34.7%	50	119	259
El Dorado County Uninc Tahoe Basin	91	55	146	40.7%	63	150	359
El Dorado County Unincorporated	1,350	813	2,163	43.3%	840	1,991	4,994
Auburn	68	41	109	35.2%	60	141	310
Colfax	17	11	28	28.9%	21	48	97
Lincoln	1,496	902	2,398	46.8%	807	1,915	5,120
Loomis	117	71	188	53.4%	49	115	352
Rocklin	1,911	1,151	3,062	54.1%	771	1,828	5,661
Roseville	3,855	2,323	6,178	51.2%	1,746	4,142	12,066
Placer County Uninc Tahoe Basin	110	67	177	40.7%	77	181	435
Placer County Unincorporated	2,017	1,215	3,232	43.6%	1,242	2,945	7,419
Citrus Heights	132	79	211	30.3%	144	342	697
Elk Grove	2,661	1,604	4,265	51.6%	1,186	2,812	8,263
Folsom	2,226	1,341	3,567	56.1%	829	1,967	6,363
Galt	404	243	647	33.6%	379	900	1,926
Isleton	5	3	8	28.6%	6	14	28
Rancho Cordova	2,115	1,274	3,389	37.4%	1,684	3,994	9,067
Sacramento	10,463	6,306	16,769	36.8%	8,545	20,266	45,580
Sacramento County Unincorporated	4,466	2,692	7,158	33.6%	4,186	9,928	21,272
Live Oak	73	44	117	28.4%	87	208	412
Yuba City	756	455	1,211	36.6%	622	1,475	3,308
Sutter County Unincorporated	177	107	284	39.0%	132	313	729
Davis	580	350	930	44.8%	340	805	2,075
West Sacramento	2,287	1,378	3,665	38.7%	1,722	4,084	9,471
Winters	125	75	200	36.2%	104	248	552
Woodland	663	399	1,062	34.4%	601	1,424	3,087
Yolo County Unincorporated	14	9	23	40.4%	10	24	57
Marysville	38	23	61	36.5%	31	75	167
Wheatland	105	64	169	33.9%	98	232	499
Yuba County Unincorporated	621	374	995	34.5%	561	1,331	2,887
Total	38,999	23,503	62,502	40.7%	26,993	64,017	153,512

Capacity Charge FAQs

What is a Capacity Charge?

A Capacity Charge, also called a Connection Fee or Participation Fee, is paid to the District for the privilege of connecting to the District's sewer facilities. The District's facilities include local collection systems, trunk lines, treatment plants, and capacity. The Capacity Charge consists of two components: a Local Capacity Charge and a Regional Capacity Charge.

How is the Local Capacity Charge Different from the Regional Capacity

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Charge?

The Local Capacity Charge funds required enlargements and expansion of the sewer collection system. The Regional Capacity Charge is collected by the District and paid to the City of Roseville, which oversees the operations and financing of the two regional treatment plants by the South Placer Wastewater Authority (SPWA). The Regional Charge funds the SPWA debt service; maintains a Rate Stabilization Fund; and provides monies for additional expansions, modifications, or improvements to the Regional Wastewater Facilities.

How are Capacity Charges Determined?

California Government Code §66013 requires that capacity fees be based on the "reasonable cost" to accommodate additional demand from new development or the expansion of existing development. Fees must comply with Propositions 26 and 218.

How are the District's Capacity Charges Determined?

The basis for the Monthly Service Charge and the Capacity Charge is the Equivalent Dwelling Unit (EDU). An EDU is used to determine design and fee requirements based on the typical average flow and strength of wastewater generated from a single-family residential (SFR) home. Charges for wastewater generated from non-residential, commercial, or industrial uses are calculated using factors found in Chapter 2.03.03 of the Sewer Code. All residential units including multi-family units are assessed at the rate of 1 EDU per unit.

The District's Local Capacity Charge is a capacity fee calculated based on an incremental-cost approach whereby new customers pay for the incremental investment necessary for system expansion. The District has a detailed listing of capital improvements needed to serve new

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developments identified within its System Evaluation and Capacity Assurance Plan (SECAP). The SECAP identifies the upsizing of existing sewer trunk lines and new sewer trunk lines to convey flow from future developments within the service area to the regional treatment plants. Under this approach, the cost of these growth-related future facilities is allocated to the new developments they serve.

What are the District's Current Capacity Charges?

The current Capacity Charge is $14,812 per EDU. This charge is comprised of a $4,954 Local Capacity Charge and a $9,858 Regional Capacity Charge. The Capacity Charge is reviewed regularly to ensure that the District collects the appropriate revenue to pay for necessary system expansions and enlargements due to development. The Capacity Charbe is adjusted annually to keep up with construction costs.

The District does not collect a Capacity Charge for Accessory Dwelling Units (ADU) as defined in the District Sewer Code, Chapter 2.03.05 and California Government Code Section 65852.2. Dwelling units that do not meet the ADU definition in the Sewer Code and are created for individual home ownership are required to pay a Capacity Charge.

Are there Other Funding Sources to Offset Capacity Charges for Specific Uses?

The District has limited sources of revenue which include monthly service charges, fees to recover for services rendered, and property tax revenues. Due to external requests, the District has examined using a portion of its property tax revenues to reduce the Local Capacity Charge for proposed low-income housing units. State and local government may expend public funds to achieve goals such as facilitating affordable housing solutions, so long as the expenditure is rationally related to a legitimate government interest, does not constitute a gift of public funds, and complies with Propositions 218 and 26.

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There have been proposals to expend public funds to assist in the development of affordable housing supply, even if it incidentally benefits a private developer. However, it cannot constitute a gift of public funds and must be a legitimate expenditure. The issue faced by the District is the availability of discretionary funds. The District's financial resources are exclusively dedicated to the enterprise of providing sewer collection and treatment to ratepayers within its service area. Property taxes collected for the District are deposited into the Operating Fund to supplement revenues and offset the Monthly Service Charge. The current rate structure subjects these charges to Proposition 218. Shifting already dedicated funds to enable a subsidy would run afoul of Proposition 218's prohibition of rates and charges exceeding the reasonable cost of providing service and be considered an impermissible tax without voter approval as required by Proposition 26. The District would need to submit a special tax for voter approval to use property tax revenues for this purpose.

Why are the District's Capacity Charges Higher than Other Local Agencies?

Fee structures and the factors influencing them can vary significantly due to infrastructure requirements, financial situations, and local regulations. In California, municipalities, such as Cities and Counties have the authority to establish their own regulations and guidelines for development projects, including sewer infrastructure. Therefore, the process and requirements can differ depending on the local jurisdiction. Independent sewer districts are financially self-sufficient entities that operate independently from local municipal governments. They rely on their own revenue sources, including capacity charges, to fund their costs. Municipal governments have access to a broader range of revenue streams which can be used as subsidies.

In addition, jurisdictional agencies with authority over land use can mandate development to make improvements through Development Agreements. Development Agreements are a tool to facilitate the construction of infrastructure, including sewer facilities. When it comes to sewer facilities, municipalities typically require developers to provide adequate sewage infrastructure to accommodate the increased capacity resulting from their development. A benefit of this is that cities and counties do not have to impose a separate development impact fee, or Sewer Capacity

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Charge, to pay for sewer trunk facilities. City and County governments have the ability to include the District in a development agreement for a proposed development project so that sewer infrastructure can be provided to the District to offset the Local Capacity Charge.

Has the District Considered Varying Rates for Residential Uses?

The South Placer Wastewater Authority partners (the City of Roseville, Placer County, and the District) are in the process of conducting an EDU analysis of the various residential sewer uses and their impacts on the sewer system to establish a nexus for the usage of various residential housing types. The study will review alternate assessment methods such as square footage of the unit, fixture unit analysis, and the number of persons per household (PPH). Rate structures must establish a nexus between the use and the charge imposed, comply with existing bond covenants, be administratively feasible, and be properly noticed and heard before the public.

Item 7.1 Board Report Sewer Participation Charge Analysis.pdf (/files/ac37f068d/Item+7.1+Board+Report+Sewer+Participation+Charge+Analysis.pdf)

Item 7.1 Presentation Local Participation Fee 2024-0104.pdf (/files/b0f0be506/Item+7.1+Presentation+Local+Participation+Fee+2024-0104.pdf)

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development plans, it is difficult to definitively determine the eventual loading onto the system from these parcels.

The modeled system assumed that rural agricultural parcels that currently contain residences or businesses will not develop (e.g., subdivide) in the future. Those residences/businesses will abandon their individual septic systems and connect to the District collection system when the District expands service into those areas. Currently vacant or undeveloped parcels were assumed to develop according to the Placer County zoning requirements regarding minimum parcel size to determine the future hydraulic loading.

The total EDUs for each scenario and its associated average dry weather flow are shown in Table 2.

Table 2. Summary of EDUs and Flows from Modeled Growth Scenarios

Scenario	Total EDUs	Additional EDUS from Previous Scenario	ADWF (mgd)	AWWF (mgd)
Existing (2020)	34,530	-	4.62	8.67
Near-Term (2025)	37,315	2,785	5.15	9.70
Long-Term (2060)	46,850	9,535	6.95	15.99

The City of Rocklin is quickly approaching buildout. Infill development will likely continue to occur, but much of the large properties within the City have been developed. Consequently, the rate of new connections to the sewer system is likely to slow as the District approaches the long-term scenario. Figure 1 shows the historic rate of growth of the District in the cumulative increase of EDUs over time. The figure also shows a projection of future EDUs based on the estimates provided in Table 2 (i.e., two points that show the estimated number of EDUs in the years 2025 and 2060). The District anticipates that growth between the years of 2020-2025 and from 2025-2060 will generally follow the straight lines connecting those points shown in Figure 1 although actual growth rates will vary. The cumulative total of historic and estimated future EDUs shows a typical "s-curve" pattern. The rate of growth was relatively slow when the District was first established. During the 2000's the rate of growth peaked. The rate of growth has slowed some since then and it is reasonable to expect that it will continue to slow as the amount of large developable land decreases.

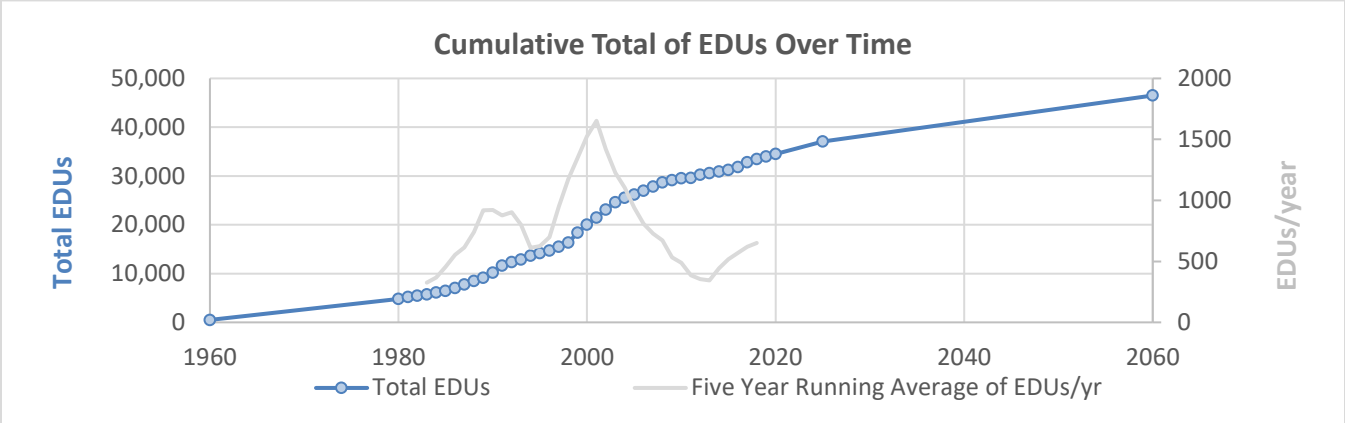
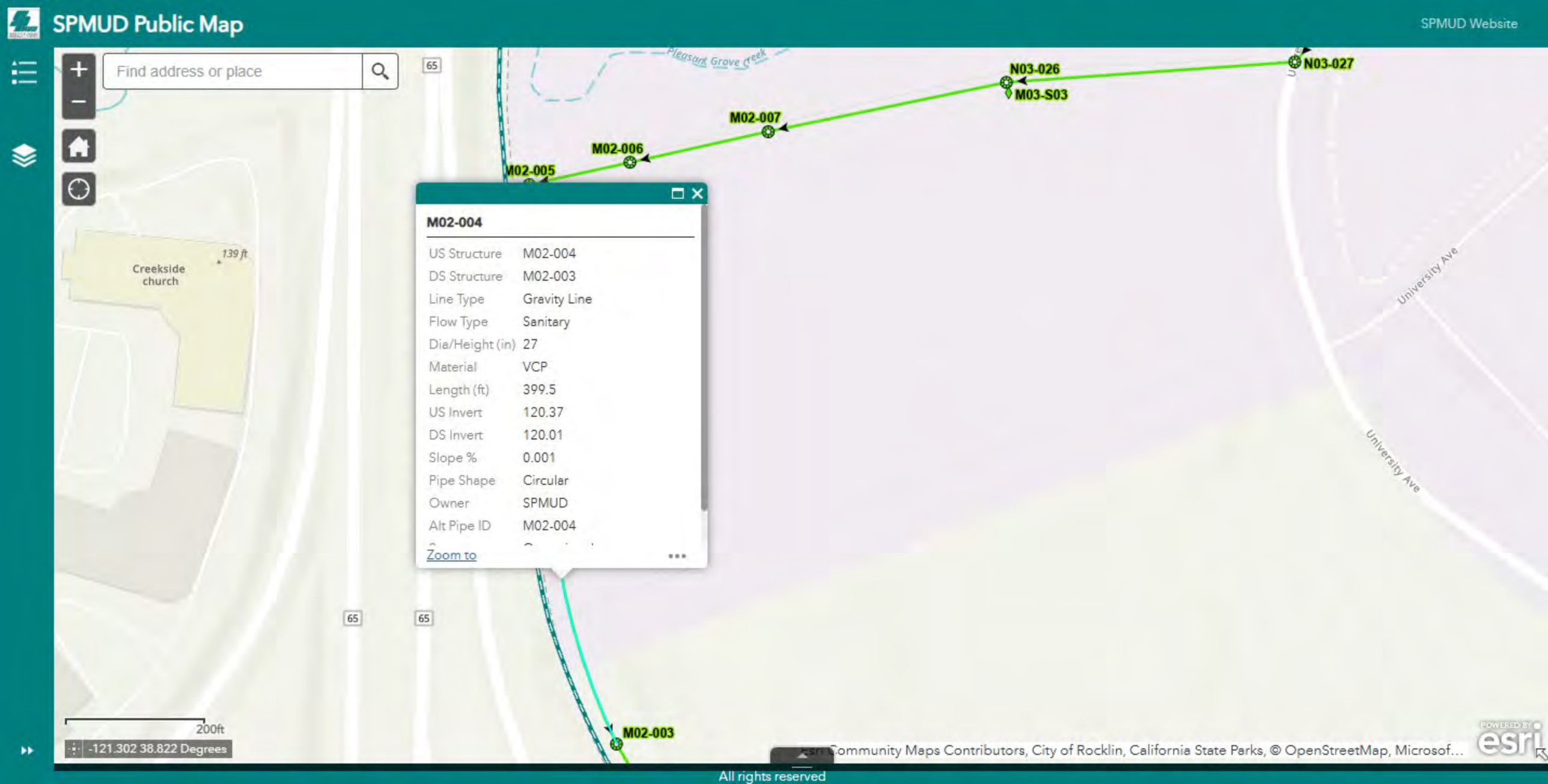


Figure 1. SPMUD Equivalent Dwelling Unit (EDU) History and Projections



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Place

Rocklin city, California

Rocklin city, California is a city, town, place equivalent, or township located in California. Rocklin city, California has a land area of 19.8 square miles.

// United States / California / Rocklin city, California

Display Sources

Populations and People
Total Population
71,601
P1 | 2020 Decennial Census

Education
Bachelor's Degree or Higher
49.5%
S1501 | 2023 American Community Survey 1-Year Estimates

Housing
Total Housing Units
28,543
B25002 | 2023 American Community Survey 1-Year Estimates

Families and Living Arrangements
Total Households
27,308
DP02 | 2023 American Community Survey 1-Year Estimates

Income and Poverty
Median Household Income
$106,408
S1901 | 2023 American Community Survey 1-Year Estimates

Employment
Employment Rate
58.3%
DP03 | 2023 American Community Survey 1-Year Estimates

Health
Without Health Care Coverage
2.2%
S2701 | 2023 American Community Survey 1-Year Estimates

Race and Ethnicity
Hispanic or Latino (of any race)
9,944
P9 | 2020 Decennial Census

Source: undefined |

Income and Poverty

Income and Earnings

$106,408 ± $13,449
Median Household Income in Rocklin city, California

$95,521 ± $611
Median Household Income in California

S1901 | 2023 American Community Survey 1-Year Estimates

Median Income by Types of Families
in Rocklin city, California

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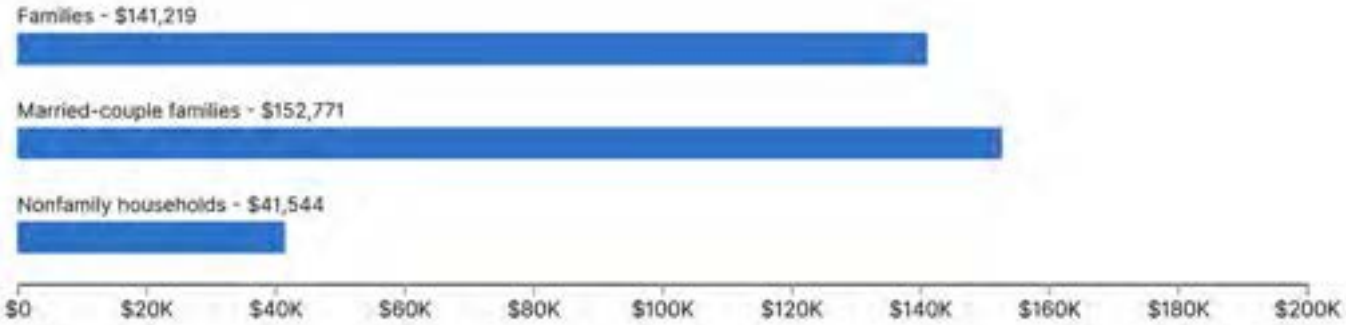

Display Margin of Error

S1901 | 2023 American Community Survey 1-Year Estimates

Poverty

6.2% ± 2.2%
Poverty, All people in Rocklin city, California

12.0% ± 0.2%
Poverty, All people in California

S1701 | 2023 American Community Survey 1-Year Estimates

Poverty by Age
in Rocklin city, California

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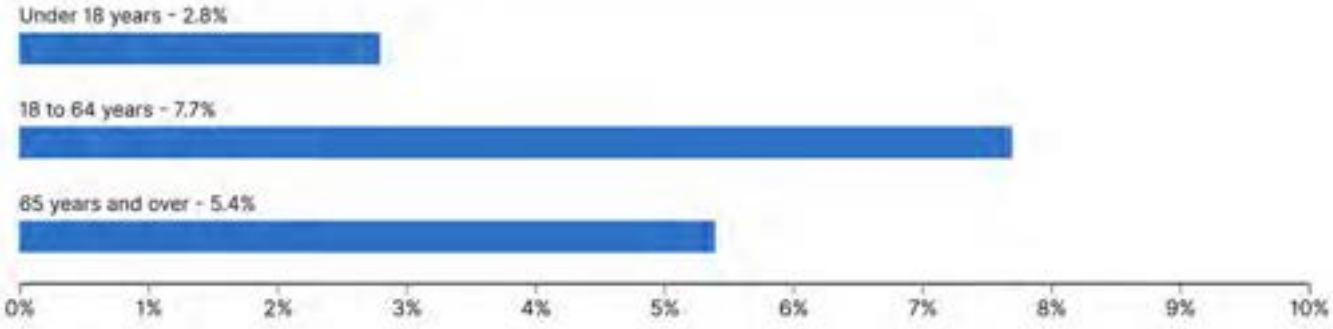

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S1701 | 2023 American Community Survey 1-Year Estimates

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Advanced Search

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Suitabilities and Limitations Ratings

Open All | Close All

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- **Land Classifications**
  - California Revised Storie Index (CA)
  - Conservation Tree and Shrub Group
  - Ecological Classification ID
  - Ecological Classification Name
  - **Farmland Classification**

View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Map — Farmland Classification

Scale (not to scale)

Warning: Soil Ratings Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:24,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting

View Options

Rating Options

Detailed Description

Advanced Options

View Description **View Rating**

- Hydric Rating by Map Unit
- Irrigated Capability Class
- Irrigated Capability Subclass
- National Commodity Crop Productivity Index
- NH Forest Soil Group
- Nonirrigated Capability Class
- Nonirrigated Capability Subclass
- NRCS Ecological Site ID
- NRCS Ecological Site Name
- Order of Soil Survey
- PFAS Attenuation in Soils
- PFAS Movement Classes
- Soil Moisture Class
- Soil Moisture Subclass
- Soil Taxonomy Classification
- Soil Taxonomy Great Group
- Soil Taxonomy Order
- Soil Taxonomy Particle Size or Substitute Class
- Soil Taxonomy Subgroup
- Soil Taxonomy Suborder
- Soil Temperature Regime

- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Soil Health
- Vegetative Productivity
- Waste Management

soils that could have been shown at a more detailed scale.

Tables — Farmland Classification — Summary By Map Unit

Summary by Map Unit — Placer County, California, Western Part (CA620)

Summary by Map Unit — Placer County, California, Western Part (CA620)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
145	Exchequer-Rock outcrop complex, 2 to 30 percent slopes	Not prime farmland	5.8	45.0%
147	Fiddyment-Kaseberg loams, 2 to 9 percent slopes	Not prime farmland	1.7	13.4%
154	Inks-Exchequer complex, 2 to 25 percent slopes	Not prime farmland	5.4	41.6%
Totals for Area of Interest			**13.0**	**100.0%**

Description — Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options — Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Water Management
Wildlife Management

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Acceptable Separation Distance (ASD) Electronic Assessment Tool

The Environmental Planning Division (EPD) has developed an electronic-based assessment tool that calculates the Acceptable Separation Distance (ASD) from stationary hazards. The ASD is the distance from above ground stationary containerized hazards of an explosive or fire prone nature, to where a HUD assisted project can be located. The ASD is consistent with the Department's standards of blast overpressure (0.5 psi-buildings) and thermal radiation (450 BTU/ft^2 - hr - people and 10,000 BTU/ft^2 - hr - buildings). Calculation of the ASD is the first step to assess site suitability for proposed HUD-assisted projects near stationary hazards. Additional guidance on ASDs is available in the Department's guidebook "Siting of HUD- Assisted Projects Near Hazardous Facilities" and the regulation 24 CFR Part 51, Subpart C, Sitting of HUD-Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature.

Note: Tool tips, containing field specific information, have been added in this tool and may be accessed by hovering over the ASD result fields with the mouse.

Acceptable Separation Distance Assessment Tool

Is the container above ground?	**Yes:** ☑ **No:** ☐
Is the container under pressure?	**Yes:** ☑ **No:** ☐
Does the container hold a cryogenic liquified gas?	**Yes:** ☐ **No:** ☑
Is the container diked?	**Yes:** ☐ **No:** ☐
What is the volume (gal) of the container?	1199

What is the volume (gal) of the container?	1499
What is the Diked Area Length (ft)?	
What is the Diked Area Width (ft)?	
Calculate Acceptable Separation Distance	
Diked Area (sqft)	
ASD for Blast Over Pressure (ASDBOP)	232.57
ASD for Thermal Radiation for People (ASDPPU)	298.29
ASD for Thermal Radiation for Buildings (ASDBPU)	54.68
ASD for Thermal Radiation for People (ASDPNPD)	
ASD for Thermal Radiation for Buildings (ASDBNPD)	

For mitigation options, please click on the following link: Mitigation Options (/resource/3846/acceptable-separation-distance-asd-hazard-mitigation-options/)

Providing Feedback & Corrections

After using the ASD Assessment Tool following the directions in this User Guide, users are encouraged to provide feedback on how the ASD Assessment Tool may be improved. Users are also encouraged to send comments or corrections for the improvement of the tool.

Please send comments or other input using the **Contact Us (https://www.hudexchange.info/contact-us/)** form.

Related Information

- ASD User Guide (/resource/3839/acceptable-separation-distance-asd-assessment-tool-user-guide/)
- ASD Flow Chart (/resource/3840/acceptable-separation-distance-asd-flowchart/)

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Acceptable Separation Distance Assessment Tool

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Is the container under pressure?	**Yes:** ☑ **No:** ☐
Does the container hold a cryogenic liquified gas?	**Yes:** ☐ **No:** ☑
Is the container diked?	**Yes:** ☐ **No:** ☐
What is the volume (gal) of the container?	999

What is the volume (gal) of the container?	999
What is the Diked Area Length (ft)?	
What is the Diked Area Width (ft)?	
Calculate Acceptable Separation Distance	
Diked Area (sqft)	
ASD for Blast Over Pressure (ASDBOP)	218.96
ASD for Thermal Radiation for People (ASDPPU)	276.45
ASD for Thermal Radiation for Buildings (ASDBPU)	50.26
ASD for Thermal Radiation for People (ASDPNPD)	
ASD for Thermal Radiation for Buildings (ASDBNPD)	

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Acceptable Separation Distance Assessment Tool

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Is the container under pressure?	**Yes:** ☑ **No:** ☐
Does the container hold a cryogenic liquified gas?	**Yes:** ☐ **No:** ☑
Is the container diked?	**Yes:** ☐ **No:** ☐
What is the volume (gal) of the container?	599

What is the volume (gal) of the container?	999
What is the Diked Area Length (ft)?	
What is the Diked Area Width (ft)?	
Calculate Acceptable Separation Distance	
Diked Area (sqft)	
ASD for Blast Over Pressure (ASDBOP)	184.89
ASD for Thermal Radiation for People (ASDPPU)	223.40
ASD for Thermal Radiation for Buildings (ASDBPU)	39.67
ASD for Thermal Radiation for People (ASDPNPD)	
ASD for Thermal Radiation for Buildings (ASDBNPD)	

For mitigation options, please click on the following link: Mitigation Options (/resource/3846/acceptable-separation-distance-asd-hazard-mitigation-options/)

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Is the container under pressure?	**Yes:** ☑ **No:** ☐
Does the container hold a cryogenic liquified gas?	**Yes:** ☐ **No:** ☑
Is the container diked?	**Yes:** ☐ **No:** ☐
What is the volume (gal) of the container?	2999

What is the volume (gal) of the container?	2999
What is the Diked Area Length (ft)?	
What is the Diked Area Width (ft)?	
Calculate Acceptable Separation Distance	
Diked Area (sqft)	
ASD for Blast Over Pressure (ASDBOP)	314.91
ASD for Thermal Radiation for People (ASDPPU)	437.03
ASD for Thermal Radiation for Buildings (ASDBPU)	83.54
ASD for Thermal Radiation for People (ASDPNPD)	
ASD for Thermal Radiation for Buildings (ASDBNPD)	

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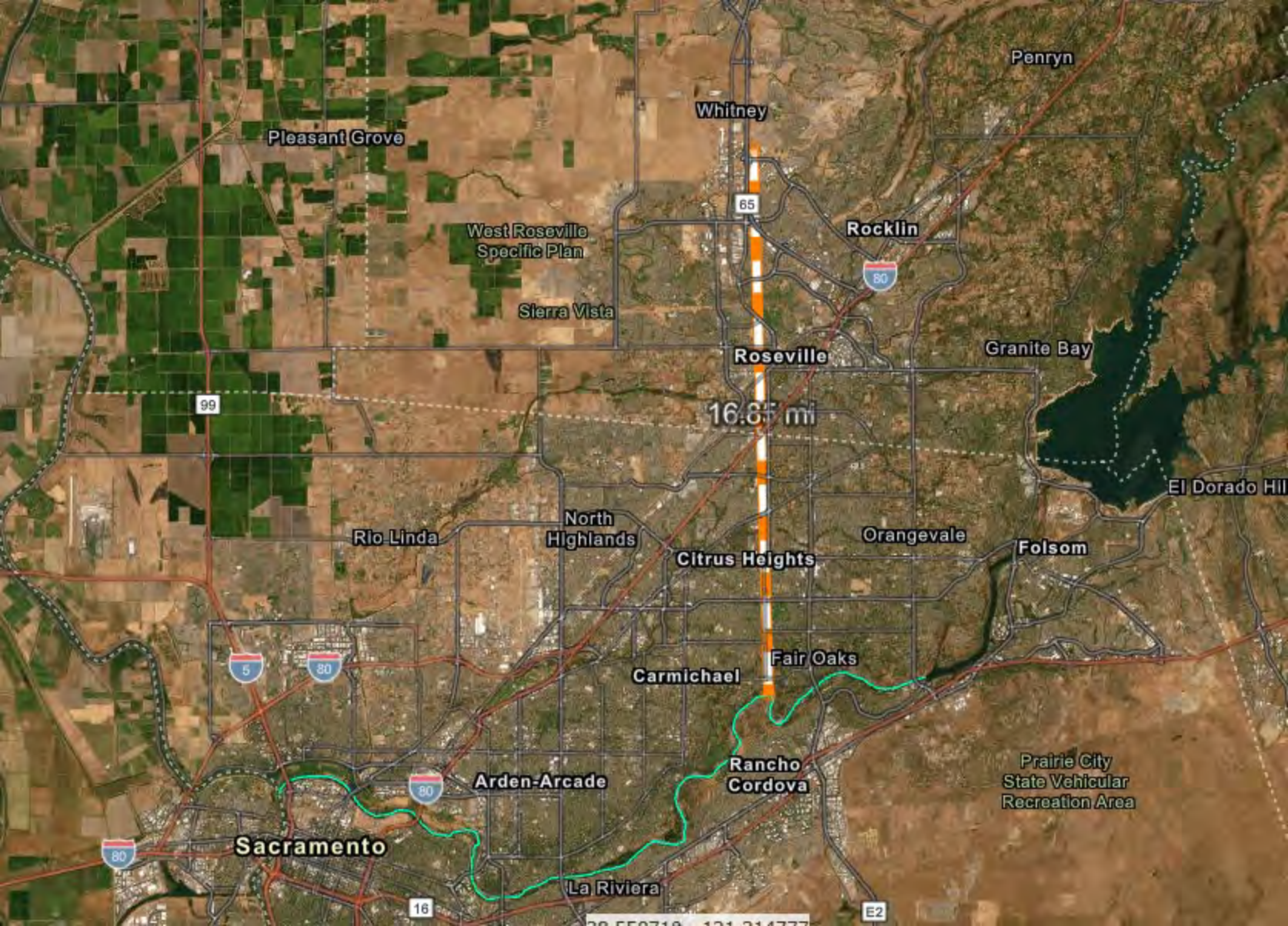
Select Map Contents
Roseville
Eldorado
National Forest
Sacramento
Toiyabe
National Forest
Elk Grove
Vacaville
Napa
Fairfield
133.98 mi
Stanislaus
National Forest
Vallejo
Tonopah
Concord
Stockton
San Francisco
Oakdale
Inyo National
Forest
Livermore
Modesto
San Mateo
Fremont
Turlock
San Jose
Merced
Sierra National
Forest
Los Banos
Santa Cruz
Kings Canyon
National Park
Fresno
Salinas
Sequoia
National Park
Death Valley
National Park
Soledad
Greenfield
Hanford
Visalia


Penryn
Whitney
Pleasant Grove
65
Rocklin
West Roseville
Specific Plan
80
Sierra Vista
Granite Bay
Roseville
99
16.8 mi
El Dorado Hil
North
Highlands
Rio Linda
Orangevale
Folsom
Citrus Heights
Fair Oaks
5
80
Carmichael
Rancho
Cordova
Prairie City
State Vehicular
Recreation Area
Arden-Arcade
80
Sacramento
La Riviera
16
E2

User's Guide for the AMS/EPA Regulatory Model (AERMOD)

EPA-454/B-24-007
November 2024

User's Guide for the AMS/EPA Regulatory Model (AERMOD)

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Assessment Division
Research Triangle Park, NC

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Preface

This User's Guide for the AMS/EPA Regulatory Model (AERMOD) provides user instructions for the AERMOD model. The technical description of the AERMOD algorithms is provided in a separate AERMOD Model Formulation document (EPA, 2024a). Additional resources provided by the USEPA that may be helpful with respect to the application of AERMOD can be accessed via the Support Center for Regulatory Atmospheric Modeling (SCRAM) website at https://www.epa.gov/scram.

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1.0 Introduction

This section provides an overall introduction to the AERMOD model and to the AERMOD user's guide. Some suggestions are offered on how various users would best benefit from using the manuals. Additionally, an overview of the model's applicability, range of options, and basic input data and hardware requirements are provided. The input file required to run the AERMOD model (commonly referred to as the control file) is based on an approach that uses descriptive keywords and allows for a flexible structure and format.

1.1 How to use the AERMOD manuals

The AERMOD model user's guide has been designed to meet the needs of various users with differing levels of experience with the model. This section describes briefly how users can benefit from using the manual.

1.1.1 Novice users

Novice users are those with limited exposure to or experience with the AERMOD model. They may be new to dispersion modeling applications in general, or new to the AERMOD model and therefore unfamiliar with the keyword/parameter approach utilized for the input file. These users should review the remainder of this Introduction to gain an overall perspective of the use of the AERMOD model, particularly for regulatory modeling applications. They should then focus their attention on Section 2.0, which provides an overview of the types of input and output files and setting up an input file that illustrates the more commonly used options of the AERMOD model. Section 2.0 provides a basic description of the input file structure and explains some of the advantages of the keyword/parameter approach to specifying modeling options and inputs. Section 3.0 then provides a more detailed and complete reference of the various options for running the model.

1.1.2 Experienced modelers

Experienced modelers have considerable experience in applying the AERMOD model in various situations. They should have basic familiarity with the overall goals and purposes of regulatory modeling and with the scope of options available in the AERMOD model. Experienced modelers who are new to the AERMOD model will benefit from first reviewing the contents of Section 2.0 of this guide, which

provides a basic orientation to the structure, organization, and philosophy of the keyword/parameter approach used for the input control file. Once they have a basic grasp of the input file structure and syntax rules, they will benefit most from using Section 3.0 of this volume as a reference to learn the overall capabilities of the model, or to understand the mechanics for implementing specific options. The information in Section 3.0 has functional organization with detailed descriptions of each of the individual keyword options by functional pathway. Once they are familiar with the keywords, they may find the functional keyword reference provided in APPENDIX A useful to quickly review the proper syntax and available options/parameters for a particular keyword.

Experienced modelers may also need to refer to the description of model formulation for AERMOD (EPA, 2024a) to gain a more complete understanding of the technical basis for the AERMOD model.

1.1.3 Management/decision makers

Those involved in a management or decision-making role for dispersion modeling applications will be especially interested in the remainder of this section, which provides an overview of the model, including its role in various regulatory programs, a brief description of the range of available options, and basic input and output data and computer hardware requirements needed to run the model. From this information, they should understand the basic capabilities of the AERMOD model well enough to judge the suitability of the model for specific applications. They may also want to review the overview provided in Section 2.0 to learn about the nature and structure of the input control file to better review the modeling results.

1.2 Overview of the AERMOD model

This section provides an overview of the AERMOD model, including a discussion of the regulatory applicability of the model, a description of the basic options available for running the model, and an explanation of the basic input data and hardware requirements needed for executing the model.

1.2.1 Regulatory applicability

The U.S. Environmental Protection Agency (EPA) maintains a *Guideline on Air Quality Models* (EPA, 2017b), hereafter, Guideline, which is published as Appendix W to 40 CFR Part 51 (as revised). The Guideline provides the agency's guidance on regulatory applicability of air quality dispersion models. In general, regulatory modeling applications should be carried out in accordance with a modeling protocol that is reviewed and approved by the appropriate agency prior to conducting the modeling. The modeling protocol should identify the specific model, modeling options, and input data (e.g., meteorology, emission source parameters, etc.) to be used for a particular application.

1.2.2 Basic input data requirements

One of the basic inputs to AERMOD is the control file which contains the selected modeling options, as well as source location and parameter data, receptor locations, meteorological data file specifications, and output options. Another type of basic input data needed to run the model is the meteorological data. AERMOD requires two types of meteorological data files that are provided by the AERMET meteorological preprocessor program (EPA, 2024e). One file consists of surface scalar parameters, and the other file consists of vertical profiles of meteorological data. These meteorological data files are briefly described later in this section, and in more detail in Sections 2.0 and 3.0. For applications involving elevated terrain effects, the receptor and terrain data will need to be processed by the AERMAP terrain preprocessing program (EPA, 2018) before input to the AERMOD model.

1.2.3 Computer hardware requirements

The current version of the AERMOD model was developed within the Microsoft Windows operating system (Windows) and has been designed to run on Windows PCs within a Command-prompt using command-line arguments to initiate a model run. The amount of storage space required on the hard disk for a particular application will depend greatly on the output options selected. Some of the optional output files of concentration data can be rather large. More information on output file products is provided in Sections 2.1 and 3.7.

The AERMOD model includes a wide range of options for modeling air quality impacts of pollution sources, making it a popular choice among the modeling community for a variety of

applications. The following sections provide a brief overview of the options available within the AERMOD model.

1.2.4 Dispersion options

Since the AERMOD model is designed to support the EPA's regulatory modeling programs, the regulatory modeling options will be the default mode of operation for the model. These options include the use of stack-tip downwash and a routine for processing averages in cases of calm winds or missing meteorological data. The model also includes various non-default options (e.g., suppress the use of stack-tip downwash, deposition modeling, NO_2 conversion, special processing for low wind conditions, and disable the date checking for non-sequential meteorological data files, to list a few). The latter option listed is needed to facilitate model evaluation. The AERMOD model also includes a non-default screening mode added specifically for integration with the AERSCREEN model interface (EPA, 2021). The user can specify several short-term averages to be calculated in a single run of the AERMOD model, as well as request the overall period (e.g., annual) averages.

1.2.5 Source options

The model is capable of handling multiple sources, including point, volume, area, open pit, and both buoyant and non–buoyant line source types. AERMOD models non-buoyant line sources as elongated area sources or a series of volume sources. If elongated area sources are used to represent a narrow non-buoyant line source, the user can specify a line source in the control file, and the input required to define the source is simplified from the typical input required for an area source.

The buoyant line source algorithm from the Buoyant Line and Point Source (BLP) model (Schulman and Scire, 1980) has been incorporated into the AERMOD model beginning with version 15181. Several source groups may be specified in a single run, with the source contributions combined for each group. This is particularly useful for PSD applications where combined impacts may be needed for a subset of the modeled background sources that consume increment, while the combined impacts from all background sources (and the permitted source) are needed to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS). The model contains algorithms for modeling the effects of aerodynamic downwash due to nearby buildings on point source emissions and depositional effects on particulate emissions.

Source emission rates can be treated as constant throughout the modeling period, or may be varied by month, season, hour-of-day, or other optional periods of variation. Variable emission rate factors may be specified for a single source or for a group of sources. The user may also specify a separate file of hourly emission rates for all source or some subset of sources that are included in a model run.

1.2.6 Receptor options

The AERMOD model has considerable flexibility in the specification of receptor locations. The user has the capability of specifying multiple receptor networks in a single run and may also mix Cartesian grid receptor networks and polar grid receptor networks in the same run. This is useful for applications where the user may need a coarse grid over the whole modeling domain, but a denser grid over the area of maximum expected impacts. There is also flexibility in specifying the location of the origin for polar receptors, other than the default origin at (0,0) in x,y, coordinates.

The user can input elevated receptor heights to model the effects of terrain above (or below) the stack base elevation and may also specify receptor elevations above ground level to model flagpole receptors. There is no distinction in AERMOD between elevated terrain below release height and terrain above release height, as is with earlier regulatory models that distinguished between simple terrain and complex terrain. For applications involving elevated terrain, the user must also input a hill height scale along with the receptor elevation. To facilitate the generation of hill height scales for AERMOD, a terrain preprocessor, called AERMAP, has been developed (EPA, 2018).

1.2.7 Meteorology options

The AERMOD model utilizes a file of surface boundary layer parameters and a file of profile variables including wind speed, wind direction, and turbulence parameters. These two types of meteorological inputs are generated by the meteorological preprocessor for AERMOD, which is called AERMET (EPA, 2024e). Both meteorological input files are sequential ASCII files, and the model automatically recognizes the format generated by AERMET as the default format. The model will process all available meteorological data in the specified input file by default, but the user can easily specify selected days or ranges of days to process.

1.2.8 Output options

The basic types of printed output available by AERMOD are:

- Summaries of high values (highest, second highest, etc.) by receptor for each different combinations of averaging period and source group;
- Summaries of overall maximum values (e.g., the maximum 50) for each averaging period and source group combination; and
- Tables of concurrent values summarized by receptor for each combination of averaging period and source group, for each day of data processed. These "raw" concentration values may also be output to unformatted (binary) files, as described below.

The summaries of high values by receptor and summaries of maximum values can be output for one or more groups of sources and individual sources in the same model simulation. In addition, when maximum values for individual sources are output, the user has the option of specifying whether the maximum source values are to be the maximum values for each source independently, the contribution of each source to the maximum group values, or both.

In addition to the tabular printed output products described above, the AERMOD model provides options for several types of file output products. One of these options for AERMOD is to output an unformatted ("binary") file of all concentration values as they are calculated. These files are often used for special postprocessing of the data. In addition to the unformatted concentration files, AERMOD provides options for several additional types of file outputs. One option is to generate a file of (X, Y) coordinates and design values (e.g., the second highest values at each receptor for a particular averaging period and source group combination) that can be easily imported into many graphic plotting packages to generate contour plots of the concentration values. Separate files can be specified for all the averaging period and source group combinations of interest to the user.

Another output file option from the AERMOD model is to generate a file of all occurrences when a concentration value equals or exceeds a user-specified threshold. Again, separate files are generated for only those combinations of averaging period and source group that are of interest to the user. These files include the date on which the threshold violation occurred, the receptor location, and the concentration value.

AERMOD includes options for two types of output files that are designed to facilitate model evaluation. One type of file lists concentrations by rank, where only one value per date is included. This file may be used to generate Q-Q (quantile) plots of results, where values from different models and/or observed data are paired by rank. The other type of output file provides arc maxima results, along with detailed information about the plume characteristics associated with the arc maximum.

Finally, there are output options specifically for comparing model results to the 24-hour PM2.5, 1-hour NO_2 and 1-hour SO_2 NAAQS. The forms of these standards are based on averages of ranked values across years which complicates their evaluation, especially the 1-hour NO_2 and SO_2 standards which are based on ranked values from the distribution of daily maximum 1-hour averages.

1.2.9 Source contribution analyses

In air quality dispersion modeling applications, the user may have a need to know the contribution that a particular source makes to an overall concentration value for a group of sources. This section provides a brief introduction to how these types of source contribution (sometimes referred to as source culpability) analyses are performed using the AERMOD model. More detailed information about exercising these options is provided in Section 3.0.

The AERMOD model provides the option of specifying source groups for which the model calculates high values independently. However, users may often have to run the model a second time selecting only specific days where the high values occurred and setting up each source in its own source group to obtain source contribution results. An EVENT processor has been incorporated into AERMOD to simplify this task when required. Also, special processing and output options, mentioned above, are included that are specific to determining source contributions with respect to the PM2.5, NO_2 and SO_2 standards.

2.0 Getting started - a brief tutorial

This section provides a brief tutorial for setting up a simple application problem with the AERMOD model, which serves as an introduction for novice users to the AERMOD model. The example illustrates the usage of the more commonly used options in the AERMOD model. A more complete description of the available options for setting up the AERMOD model is provided in Section 3.0.

The example problem presented in this section is a simple application of the AERMOD model to a single point source. The source is a hypothetical stack at a small, isolated facility in a rural setting. Since the stack is below the Good Engineering Practice (GEP) stack height, the emissions from the source are subject to the influence of aerodynamic downwash due to the presence of nearby buildings. The tutorial guides the user through selection and specification of modeling options, specification of source parameters, definition of receptor locations, specification of the input meteorological data, and selection of output options. Since this discussion is aimed at novice users of the AERMOD model, general overviews of input and output files, as well as control file keyword/parameter approach, is provided first.

2.1 Controlling input and output files

This section describes the various input and output files used by the AERMOD model and discusses control of input and output (I/O) in the Microsoft Windows PC environment. Much of this discussion also applies to operating the model in other environments.

2.1.1 Description of AERMOD input files

The two basic types of input files required to run the AERMOD model are: 1) the input control file containing the modeling options, source data and receptor data, and 2) the meteorological data files including a file of surface parameters and a separate file of multilevel parameters. Each of these is discussed below, as well as a third file type that may be used to initialize the AERMOD model with intermediate results from a previous run.

2.1.1.1 Input control file

The input control file contains the user-specified options for running the various AERMOD model (with a default filename, AERMOD.INP), includes the source parameter data and source group information, defines the receptor locations, specifies the location and parameters regarding the

meteorological data, and specifies the output options. Details regarding the keywords and parameters used in the input control file are provided in Section 3.0, and APPENDIX A.

2.1.1.2 Meteorological data files

The input meteorological data is read into the AERMOD model from two separate data files, one corresponding to surface (scalar) parameters, and the other corresponding to multi-level profiles of data. The meteorological data filenames and formats are specified within the input control file using the ME SURFFILE and PROFFILE keywords. The AERMOD model accepts meteorological data that has been preprocessed by the AERMET meteorological preprocessor program (EPA, 2024e). The data are read from formatted ASCII files of hourly sequential records.

2.1.1.3 Initialization file for model re-start

The AERMOD model has an optional capability to store intermediate results to an unformatted (sometimes called binary) file for later re-starting of the model in the event of a power failure or user interrupt. This unformatted file may, therefore, be used as an input file to initialize the model. This option is controlled by the SAVEFILE (saves intermediate results to a file) and the INITFILE (initialize result arrays from a previously saved file) keywords on the CO pathway.

When initializing the model for the re-start option, the user specifies the name of the unformatted results file on the INITFILE keyword. The default filename used if no parameter is provided is TMP.FIL.

2.1.2 Description of AERMOD output files

The AERMOD model can produce a variety of output files, including a main file of model results, an unformatted file of intermediate results for later re-start of the model (AERMOD only), and several output data files for specialized purposes. These files are described below.

2.1.2.1 Main output file

The AERMOD model produces a standard output file of model results called AERMOD.OUT, by default, unless a unique name is provided by the user when AERMOD is executed at the command prompt. The contents and organization of this file are shown in Figure 2-5. This file includes a duplication of the contents of the input control up unless 'NO ECHO' is encountered in the input control file. The contents of the input control file will be duplicated in the output file up to the place in the file where 'NO ECHO' is specified. The contents of the input control file beyond 'NO ECHO' will not be duplicated in the output file. A summary of control file setup messages and a summary of the inputs follow the echo of inputs. The input summary includes a summary of modeling options, source data, receptor data, and meteorological data, following the same order as the pathways in the control file. If model calculations are performed, then the model results are summarized next. The content and order of the model result summaries depend on the output options selected. Following the detailed model results are summary tables of the high values for each averaging period and source group. The final portion of the main output file is the summary of messages for the complete model run.

2.1.2.2 Detailed error message file

The user may select an option for the model to save a separate file of detailed error and other messages, through use of the CO ERRORFIL keyword. The format and syntax of these messages is described in APPENDIX B. The order of messages within the file is the order in which they were generated by the model. The file includes all types of messages that were generated.

2.1.2.3 Intermediate results file for model re-start

The AERMOD model has an optional capability to store intermediate results to an unformatted (sometimes called binary) file for later re-starting of the model in the event of a power failure or user interrupt. This unformatted file may therefore be used as an input file to initialize the model. This option is controlled by the SAVEFILE (saves intermediate results to a file) and the INITFILE (initialize result arrays from a previously saved file) keywords on the CO pathway.

When saving the intermediate results for the re-start option, the user specifies the name of the unformatted results file on the SAVEFILE keyword. The user has the option of specifying a single filename, two filenames (for alternate saves), or specifying no filename. The default filename used if no parameter is provided is TMP.FIL. If a single file is used, then the intermediate results file is overwritten

on each successive dump, with the chance that the file will be lost if the interrupt occurs during the time that the file is opened. If two filenames are provided, then the model also saves to the second file on alternate dumps, so that the next most recent dump will always be available.

2.1.2.4 Maximum value/threshold file

The user may select an option for the AERMOD model to generate a file or files of concentration values exceeding a user-specified threshold. The OU MAXIFILE keyword controls this option. The user may select separate files for each averaging period and source group combination for which a list of threshold violations may be needed. Each file includes several records with header information identifying the averaging period, source group and threshold value, and then a record for every occurrence where the result for that averaging period/source group equals or exceeds the threshold value. Each of these records includes the averaging period, source group ID, date for the threshold violation (ending hour of the averaging period), the x, y, z and flagpole receptor height for the receptor location where the violation occurred, and the concentration value.

The structure of the threshold violation file is described in more detail in APPENDIX C. Each of the files selected by the user is opened explicitly by the model as a formatted file. The filenames are provided on the input control file command. The user may specify the file unit on the MAXIFILE card through the optional FUNIT parameter. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. If no file unit is specified, then the file unit is determined internally according to the following formula:

IMXUNT = 100 + IGRP*10 + IAVE

where IMXUNT is the Fortran unit number, IGRP is the source group number (the order in which the group is defined in the control file), and IAVE is the averaging period number (the order of the averaging period as specified on the CO AVERTIME card). This formula was developed for up to nine source groups and up to nine short-term averaging periods, therefore the range of possible internally generated file units for MAXIFILE is 100 to 199.

2.1.2.5 Sequential results file for postprocessing

The user may select an option for the AERMOD model to generate a file or files of concentration values suitable for postprocessing. The OU POSTFILE keyword controls this option. The user may select separate files for each averaging period and source group combination for which postprocessing may be needed. For each file requested, the user has the option of specifying whether to use unformatted files suitable for postprocessing or to use a plot format which could allow for importing the x, y concentration files into a graphics package for plotting. For the unformatted file option, each file consists of sequential unformatted records of values at each receptor location for every averaging period calculated. For the plot file format option, each file consists of formatted records listing the x-coordinate, y-coordinate and concurrent concentration values for each receptor and for all averaging periods calculated. For certain applications, these files may become quite large, and should only be used when needed, especially when using the plot format.

The structure of both types of postprocessing file is described in more detail in APPENDIX C. Each of the postprocessing files selected by the user is opened explicitly by the model as either an unformatted or a formatted file, depending on the option selected. The filenames are provided on the input control file command. The user may specify the file unit on the POSTFILE card through the optional FUNIT parameter. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. If no file unit is specified, then the file unit is determined internally according to the following formulas:

IPSUNT = 200 + IGRP*10 + IAVE for short-term averages
IAPUNT = 300 + IGRP*10 - 5 for PERIOD averages

where IPSUNT and IAPUNT are the Fortran unit numbers, IGRP is the source group number (the order in which the group is defined in the control file), and IAVE is the averaging period number (the order of the averaging period as specified on the CO AVERTIME card). This formula will not cause any conflict with other file units used by the model for up to 9 source groups and up to 9 short-term averaging periods. This formula was developed for up to nine source groups and up to nine short-term averaging periods, therefore the range of possible internally generated file units for POSTFILE is 200 to 299 or 300 to 385 for PERIOD averaging periods.

2.1.2.6 High value summary file for plotting

The user may select an option for the AERMOD model to generate a file or files of the highest concentration values at each receptor suitable for importing into a graphics package in order to generate contour plots. The OU PLOTFILE keyword controls this option. The user may select separate files for each averaging period, source group and high value combination for which a plot file may be needed. Each file includes several records with header information identifying the averaging period, source group and high value number of the results, and then a record for each receptor which contains the x and y coordinates for the receptor location, the appropriate high value at that location, and the averaging period, source group and high value number.

The structure of the plot file is described in more detail in APPENDIX C. Each of the plot files selected by the user is opened explicitly by the model as a formatted file. The filenames are provided on the input control file command. The user may specify the file unit on the PLOTFILE card through the optional FUNIT parameter. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. If no file unit is specified, then the file unit is determined internally according to the following formulas:

IPLUNT = (IVAL+3)*100 + IGRP*10 + IAVE	for short-term averages
IPPUNT = 300 + IGRP*10	for PERIOD averages

where IPLUNT and IPPUNT are the Fortran unit numbers, IVAL is the high value number (1 for FIRST highest, 2 for SECOND highest, etc.), IGRP is the source group number (the order in which the group is defined in the control file), and IAVE is the averaging period number (the order of the averaging period as specified on the CO AVERTIME card). This formula was developed for up to nine source groups and up to nine short-term averaging periods, therefore the range of possible internally generated file units for PLOTFILE is 400 to 499 or 300 to 385 with the use of PERIOD AVERTIME.

2.1.2.7 TOXX model input files

The user may select an option for the AERMOD model to generate an unformatted file or files of concentration values exceeding a user-specified threshold for use with the TOXX model component of TOXST. The OU TOXXFILE keyword controls this option. The user may select separate files for each

averaging period for which a threshold violation file may be needed. Each file includes several records with header information identifying the title, averaging period, threshold value, and receptor network information, and then records including every occurrence where the result of any source group for that averaging period equals or exceeds the threshold value. Records are also output that identify the averaging period (hour number of the year), source group number and receptor number corresponding to the concentration values.

The structure of the threshold exceedance file for use with the TOXX model component of TOXST is described in more detail in APPENDIX C. Each of the files specified by the user is opened explicitly by the model as an unformatted file. The filenames are provided in the input control file. The user may specify the file unit on the TOXXFILE card through the optional FUNIT parameter. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. If no file unit is specified, then the file unit is determined internally according to the following formula:

ITXUNT(INDAVE) = 300 + INDAVE

where ITXUNT is a Fortran array that stores the Fortran unit number for each output file specified and INDAVE index reference for the ITXUNT array representing the averaging period based on the order each averaging period is specified on the CO AVERTIME card.

2.1.3 Controlling file inputs and outputs (I/O)

2.1.3.1 Controlling I/O on PCs.

The main input control file and the main output print file are specified internally by AERMOD as AERMOD.INP and AERMOD.OUT by default, respectively. The user has the option to provide command-line arguments when executing the model at the command prompt to specify a user-defined input control input filename and main output filename. When using the default names of AERMOD.INP and AERMOD.OUT, a standard command line to execute the AERMOD model might look something like this:

C:\>AERMOD

where the command prompt has been given as "C:\>", but may look different on different systems, or may include a subdirectory specification. Refer to Section 2.4.8 for details on specifying user-defined filenames when running AERMOD from the command prompt.

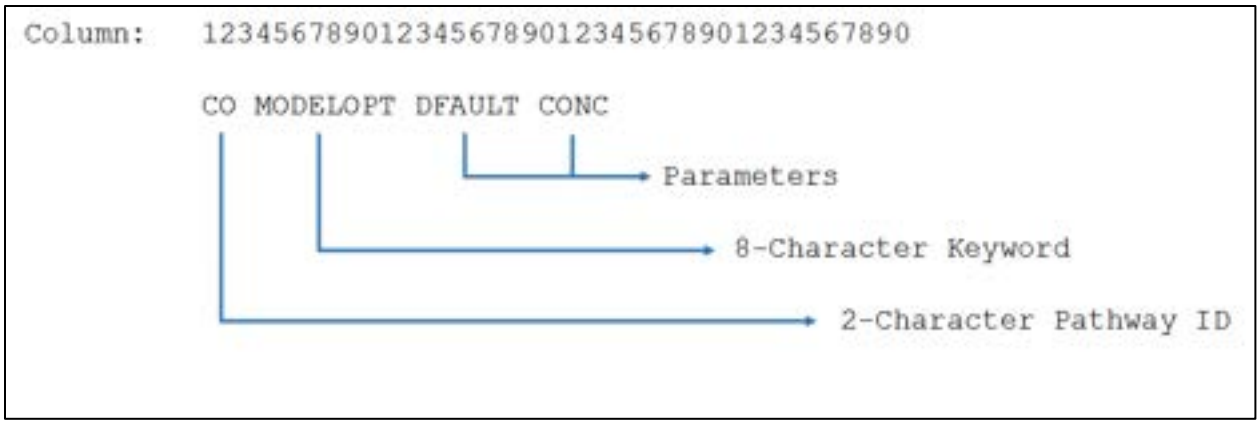
2.2 Description of keyword/parameter approach

The input control file for the AERMOD model makes use of a keyword/parameter approach to specifying the options and input data for running the model. The descriptive keywords and parameters that make up this control file may be thought of as a command language through which the user communicates with the model what he/she wishes to accomplish for a particular model run. The keywords specify the type of option or input data being entered on each line of the input file. An individual line or record in the control file is often referred to as a “card” throughout this manual and is commonly identified by the primary keyword associated with the information entered on the record. The parameters following the keyword define the specific options selected or the actual input data. Some of the parameters are also input as descriptive secondary keywords.

The control file is divided into five functional "pathways." These pathways are identified by a two-character pathway ID placed at the beginning of each line of the control file. The pathways and the order in which they are input to the model are as follows:

CO - for specifying overall job **CO**ntrol options;
SO - for specifying **SO**urce information;
RE - for specifying **RE**ceptor information;
ME - for specifying **ME**teorology information;
EV - for specifying **EV**ent processing;
OU - for specifying **OU**tput options.

Each line of the input control file consists of a pathway ID, an 8-character keyword, and a parameter list. An example of a line of input from a control file, with its various parts identified, is shown below:



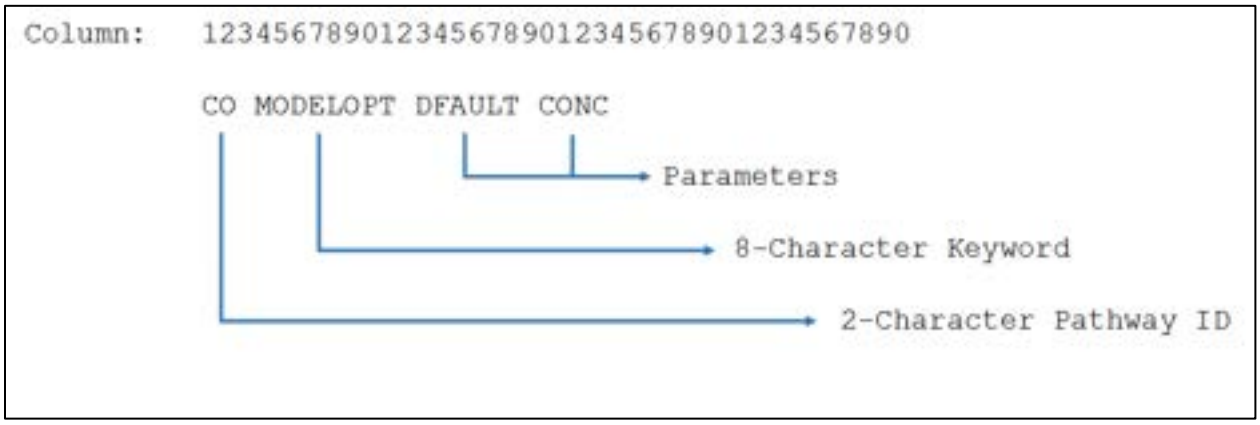
The following sections describe the rules for structuring the input control file and explain some of the advantages of the keyword/parameter approach.

2.2.1 Basic rules for structuring input control files

While the input control file has been designed to provide the user with considerable flexibility in structuring the input file, there are some basic syntax rules that need to be followed. These rules serve to maintain some consistency between input files generated by different users, to simplify the job of error handling performed by the model on the input data, and to provide information to the model in the appropriate order wherever order is critical to the interpretation of the inputs. These basic rules and the various elements of the input control file are described in the paragraphs that follow.

One of the most basic rules is that all inputs for a particular pathway must be “grouped within that specific pathway” and occur in the excepted order, i.e., all inputs for the CO pathway must come first, followed by the inputs for the SO pathway, and so on. The beginning of each pathway is identified with a "STARTING" keyword, and the ending of the pathway with the "FINISHED" keyword. Thus, the first functional record of each input file must be "CO STARTING" and the last record of each input file must be "OU FINISHED." The rest of the input control file commands will define the options and input data for a particular run.

Each record in the input control file is read into the model as a 512-character image beginning with version 09292. The information on each input image consists of a "pathway," a "keyword," and one or more "parameters." Each of these "fields" on a line in the control file command must be separated from other fields by at least one blank space. To simplify the interpretation of the control file command by the model, the control file must be structured with the two-character pathway in columns 1 and 2, the eight-character keyword in columns 4 through 11, followed by the parameters beginning in column 13 through the end of image, limited to 512 characters. For most keywords, the order of parameters following the keyword is important -- the exact spacing of the parameters is not important as long as they are separated from each other by at least one blank space and do not extend beyond the 512-character limit. The example of a control file command from the CO pathway shown above is repeated here:



Alphabetical characters can be input as either lower case or uppercase letters. The model converts all character input to upper case letters internally, except the title fields and file names to be discussed later. Throughout this document, the convention of using upper case letters is followed. For numeric input data, it should be noted that all data are assumed to be in metric units, i.e., length units of meters, speed units of meters per second, temperature units of degrees Kelvin, and emission units of grams per second. In a few instances, the user has the option of specifying units of feet for length and the model will perform the conversion to meters. These exceptions are the input of receptor heights for elevated terrain and the specification of anemometer height since these values are often more readily available in feet than in meters.

Certain keywords are mandatory and must be present in every control file, such as the MODELOPT keyword shown in the example above which identifies the modeling options. There are

also keywords that are optional and are only needed to exercise specific options, such as the option to allow for the input of flagpole receptor heights. Some of the keywords are repeatable, such as the keywords to specify source parameters, while other keywords may only appear once. The keyword references are provided in Section 3.0 and APPENDIX A.

With a few exceptions that are described below, the order of keywords within each pathway is not critical. For the SO pathway, the LOCATION keyword must be specified before other keywords for a particular source, and the SRCGROUP keyword must be the last keyword before SO FINISHED unless the PSDCREDIT keyword is specified on the MODELOPT card, in which case, SRCGROUP is replaced with the PSDGROUP keyword. For keywords on the SO pathway that accept a range of source IDs, the source parameters specified by those keywords will only be applied to the sources already defined and will exclude any sources that are specified latter in the input file.

The PARAMETER ILEN_FLD is used to specify the maximum length of individual fields on the input control file command and to declare the length of all filename and format variables. This PARAMETER is currently assigned a value of 200 beginning with version 09292 and is in MODULE MAIN1 in MODULES.FOR.

2.2.2 Advantages of the keyword approach

The keyword approach provides some advantages over the type of input file used by other models that require formatted input of several numeric switches. One advantage is that the keywords are descriptive of the options and inputs being used for a particular run, making it easier for a reviewer to ascertain what was accomplished in a particular run by reviewing the input file. Another advantage is that the user has considerable flexibility in structuring the inputs to improve their readability and understandability if they adhere to the few basic rules described above.

Some special provisions have been made to increase the flexibility to the user in structuring the input files. One provision is to allow for blank records in the input file. This allows the user to separate the pathways from each other, or to separate a group of images, such as source locations, from the other images. Another provision is for the use of "comment lines," identified by a "**" in the pathway field. Any input image that has "**" for the pathway ID will be ignored by the model. This is especially useful for labeling the columns in the source parameter input images, as illustrated in the example problem later in this section. It may also be used to "comment out" certain options for a particular run without deleting the options and associated data (e.g., elevated terrain heights) completely from the input file. Because of

the descriptive nature of the keyword options and the flexibility of the inputs it is generally much easier to make modifications to an existing input control file to obtain the desired result.

Another reason for improved "user-friendliness" is that detailed error-handling has been built into the model. The model provides descriptions of the location and nature of all the errors encountered for a particular run. Rather than stopping execution at each occurrence of an input error, the model will read through and attempt to process all input records and report all errors encountered. If a fatal error occurs, then the model will not attempt to execute the model calculations.

2.3 Regulatory default modeling options

The regulatory default option is controlled from the MODELOPT keyword on the CO pathway. As its name implies, this keyword controls the selection of modeling options. It is a mandatory, non-repeatable keyword, and it is an especially important keyword for understanding and controlling the operation of the AERMOD model. Unless specified otherwise through the available keyword options, the AERMOD model implements the following default options:

- Use the elevated terrain algorithms requiring input of terrain height data;
- Use stack-tip downwash (except for building downwash cases);
- Use the calms processing routines;
- Use the missing data processing routines; and
- Use a 4-hour half-life for exponential decay of SO_2 for urban sources.

  Note that beginning with AERMOD version 18081, the 4-hour half-life is included by default for SO_2 urban sources for regulatory default applications and non-regulatory applications.

The parameters used to specify options on the MODELOPT keyword are character strings, called "secondary keywords," that are descriptive of the option being selected. For example, to ensure that the regulatory default options listed above are used for a particular model simulation, the user would include the secondary keyword "DFAULT" on the MODELOPT input. Upon initial execution, the model reads the control file to identify any conflicts in the options specified. In most cases, the model will issue an error message to inform the user of the conflict and abort before the simulation begins. For regulatory modeling applications, it is strongly suggested that the DFAULT switch be set to ensure the regulatory default options listed above are used and non-regulatory options are not used.

In addition to the default regulatory options listed above, AERMOD includes several other regulatory options that are application dependent and are required to be set explicitly by the user in the control file. Most of these can be set with the use of secondary keywords associated with the MODELOPT keyword. The MODELOPT keyword is described in more detail in the Section 3.2.2. Throughout this user's guide, there has been an effort to clearly distinguish regulatory options that are required to be set by the user and can be used simultaneously with the DFAULT keyword from non-regulatory options that cannot be used along with the DFAULT keyword. These non-regulatory options are sometimes referred to as "non-DFAULT" options since they cannot be used along with the DFAULT keyword.

2.4 Setting up a simple control file

This section goes through a step-by-step description of setting up a simple application problem, illustrating the more commonly used options of the AERMOD model. The example problem is based on a simple industrial source application. The input file for AERMOD for the example problem is shown in Figure 2-1. The remainder of this section explains the various parts of the input file for the AERMOD model and illustrates some of the flexibility in structuring the input file.

```
CO STARTING
CO TITLEONE A Simple Example Problem for the AERMOD-PRIME Model
CO MODELOPT CONC FLAT
CO AVERTIME 3 24 PERIOD
CO POLLUTID SO2
CO RUNORNOT RUN
CO FINISHED

SO STARTING
SO LOCATION  STACK1  POINT 0.0 0.0 0.0
SO SRCPARAM  STACK1  500.0 65.00 425. 15.0 5.
SO BUILDHGT  STACK1  36*50.
SO BUILDWID  STACK1  62.26   72.64   80.80   86.51   89.59   89.95
SO BUILDWID  STACK1  87.58   82.54   75.00   82.54   87.58   89.95
SO BUILDWID  STACK1  89.59   86.51   80.80   72.64   62.26   50.00
SO BUILDWID  STACK1  62.26   72.64   80.80   86.51   89.59   89.95
SO BUILDWID  STACK1  87.58   82.54   75.00   82.54   87.58   89.95
SO BUILDWID  STACK1  89.59   86.51   80.80   72.64   62.26   50.00
SO BUILDLEN  STACK1  82.54   87.58   89.95   89.59   86.51   80.80
SO BUILDLEN  STACK1  72.64   62.26   50.00   62.26   72.64   80.80
SO BUILDLEN  STACK1  86.51   89.59   89.95   87.58   82.54   75.00
SO BUILDLEN  STACK1  82.54   87.58   89.95   89.59   86.51   80.80
SO BUILDLEN  STACK1  72.64   62.26   50.00   62.26   72.64   80.80
SO BUILDLEN  STACK1  86.51   89.59   89.95   87.58   82.54   75.00
SO XBADJ     STACK1 -47.35  -55.76  -62.48  -67.29  -70.07  -70.71
SO XBADJ     STACK1 -69.21  -65.60  -60.00  -65.60  -69.21  -70.71
SO XBADJ     STACK1 -70.07  -67.29  -62.48  -55.76  -47.35  -37.50
SO XBADJ     STACK1 -35.19  -31.82  -27.48  -22.30  -16.44  -10.09
SO XBADJ     STACK1  -3.43    3.34   10.00    3.34   -3.43  -10.09
SO XBADJ     STACK1 -16.44  -22.30  -27.48  -31.82  -35.19  -37.50
SO YBADJ     STACK1  34.47   32.89   30.31   26.81   22.50   17.50
SO YBADJ     STACK1  11.97    6.08    0.00   -6.08  -11.97  -17.50
SO YBADJ     STACK1 -22.50  -26.81  -30.31  -32.89  -34.47  -35.00
SO YBADJ     STACK1 -34.47  -32.89  -30.31  -26.81  -22.50  -17.50
SO YBADJ     STACK1 -11.97   -6.08    0.00    6.08   11.97   17.50
SO YBADJ     STACK1  22.50   26.81   30.31   32.89   34.47   35.00
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDPOLR  POL1 STA
RE GRIDPOLR  POL1 ORIG STACK1
RE GRIDPOLR  POL1 DIST 175. 350. 500. 1000.
RE GRIDPOLR  POL1 GDIR 36 10 10
RE GRIDPOLR  POL1 END
RE FINISHED

ME STARTING
ME SURFFILE AERMET2.SFC
ME PROFFILE AERMET2.PFL
ME SURFDATA 14735 1988 ALBANY,NY
ME UAIRDATA 14735 1988 ALBANY,NY
ME SITEDATA
ME PROFBASE  0.0 METERS
ME FINISHED

OU STARTING
OU RECTABLE ALIVE FIRST-SECOND
OU MAXTABLE ALIVE 50
OU FINISHED
```

Figure 2-1. Example Input File for AERMOD for Sample Problem

2.4.1 A simple industrial source application

For this simple tutorial, an application is selected involving a single point source of SO_2 that is subject to the influences of building downwash. The source consists of a 50-meter stack with a buoyant release that is adjacent to a building. It is assumed that the stack is situated in flat terrain in a rural setting. A polar receptor network will be placed around the stack location to identify areas of maximum impact.

2.4.2 Selecting modeling options - CO pathway

The modeling options are input to the model on the Control pathway. The mandatory keywords for the CO pathway are listed below. A complete listing of all keywords is provided in Section 3.2 and APPENDIX A

STARTING -	Indicates the beginning of inputs for the pathway; this keyword is mandatory on each of the pathways.
TITLEONE -	A user-specified title line (up to 68 characters) that will appear on each page of the printed output file (an optional second title line is also available with the keyword TITLE TWO).
MODELOPT -	Controls the modeling options selected for a particular run through a series of secondary keywords.
AVERTIME -	Identifies the averaging periods to be calculated for a particular run.
POLLUTID -	Identifies the type of pollutant being modeled. At the present time, this option has no influence on the results.
RUNORNOT -	A special keyword that tells the model whether to run the full model executions or not. If the user selects not to run, then the control file will be processed and any input errors reported, but no dispersion calculations will be made.
FINISHED -	Indicates that the user is finished with the inputs for this pathway; this keyword is also mandatory on each of the other pathways.

The first two keywords are self-explanatory. As discussed above in Section 2.3, the MODELOPT keyword on the CO pathway is pivotal to controlling the modeling options used for a particular run. For this example, we intend to use the regulatory default option, and have specified for the model to output concentration values. After the first three input records our input file will look something like this:

```
CO STARTING
CO TITLEONE A Simple Example Problem for the AERMOD-PRIME Model
CO MODELOPT CONC  FLAT
```

Note that the title parameter field does not need to be in quotations, even though it represents a single parameter. The model simply reads whatever appears beginning in column 13 out to a length of 200 characters of the TITLEONE card as the title field, without changing the lower case to upper case letters. Leading blanks are therefore significant if the user wishes to center the title within the field. Note that in the output files, only the first 68 characters of TITLEONE are printed. Note also that the spacing and order of the secondary keywords on the MODELOPT card are not significant. A MODELOPT card that looked like this:

```
CO MODELOPT CONC  FLAT
```

would have an identical result as the example above. It is suggested that the user adopt a style that is consistent and easy to read. A complete description of the available modeling options that can be specified on the MODELOPT keyword is provided in Section 3.0.

For this example, the average values are calculated for 3-hour and 24-hour and the full period that is modeled. The control file might, therefore, look similar to this after adding two more keywords:

```
CO STARTING
CO TITLEONE A Simple Example Problem for the AERMOD-PRIME Model
CO MODELOPT CONC  FLAT
CO AVERTIME 3  24  PERIOD
CO POLLUTID SO2
```

Note again that the order of the parameters on the AVERTIME keyword is not critical, although the order of the short-term averages given on the AVERTIME keyword will also be the order in which the results are presented in the output file. The order of the keywords within each pathway is also not critical in most cases, although the intent of the input control file may be easier to decipher if a consistent and logical order is followed. It is suggested that users follow the order in which the keywords are presented in Section 3.0, in APPENDIX A, and in the Quick Reference, unless there is a clear advantage to doing otherwise.

The only remaining mandatory keywords for the CO pathway are RUNORNOT and FINISHED. We will set the RUNORNOT switch to RUN for this example. If a user is unsure about the operation of certain options or is setting up a complex control file to run for the first time, it may be desirable to set the model NOT to run, but simply to read and analyze the input file and report any errors or warning messages that are generated. Once the input file has been debugged using these descriptive error/warning messages, then the RUNORNOT switch can be set to RUN, avoiding a possible costly waste of resources generating erroneous results. Even if the model is set NOT to run, all the inputs are summarized in the output file for the user to review.

Our complete control file for the CO pathway may look something like this:

```
CO STARTING
CO TITLEONE A Simple Example Problem for the AERMOD-PRIME Model
CO MODELOPT CONC  FLAT
CO AVERTIME 3  24  PERIOD
CO POLLUTID SO2
CO RUNORNOT RUN
CO FINISHED
```

The following set of control file options has a more structured look, but it is equivalent to the example above:

```
CO STARTING
   TITLEONE A Simple Example Problem for the AERMOD-PRIME Model
   MODELOPT CONC  FLAT
   AVERTIME 3  24  PERIOD
   POLLUTID SO2
   RUNORNOT RUN
CO FINISHED
```

Since the pathway ID is required to begin in column 1 (see Section 2.4.8 for a discussion of this restriction), the model will assume that the previous pathway is in effect if the pathway field is left blank. The model will do the same for blank keyword fields, which will be illustrated in the next section, Section 2.4.3.

In addition to these mandatory keywords on the CO pathway, the user may select optional keywords to allow the use of receptor heights above ground-level for flagpole receptors, to specify a decay coefficient or a half-life for exponential decay, and to generate an input file containing events for EVENT processing. The user also has the option of having the model periodically save the results to a file for later re-starting in the event of a power failure or other interruption of the model's execution. These options are described in more detail in Section 3.0 of this volume.

2.4.3 Specifying source inputs - SO pathway

Besides the STARTING and FINISHED keywords that are mandatory for all pathways, the Source pathway has the following mandatory keywords:

LOCATION - Identifies a particular source ID and specifies the source type and location of that source.

SRCPARAM - Specifies the source parameters for a particular source ID identified by a previous LOCATION card.

SRCGROUP - Specifies how sources will be grouped for calculational purposes. There is always at least one group, even though it may be the group of ALL sources and even if there is only one source.

Since the hypothetical source in this example problem is influenced by a nearby building, we also need to include the optional keywords BUILDHGT and BUILDWID in our input file.

The input file for the SO pathway for this example will like the following:

```
 STARTING
```

```
LOCATION  STACK1    POINT   0.0     0.0     0.0
SRCPARAM  STACK1    500.0   65.00   425.    15.0    5.0
BUILDHGT  STACK1    50.00   50.00   50.00   50.00   50.00   50.00
BUILDHGT  STACK1    50.00   50.00   50.00   50.00   50.00   50.00
BUILDHGT  STACK1    50.00   50.00   50.00   50.00   50.00   50.00
BUILDHGT  STACK1    50.00   50.00   50.00   50.00   50.00   50.00
BUILDHGT  STACK1    50.00   50.00   50.00   50.00   50.00   50.00
BUILDHGT  STACK1    50.00   50.00   50.00   50.00   50.00   50.00
BUILDWID  STACK1    62.26   72.64   80.80   86.51   89.59   89.95
BUILDWID  STACK1    87.58   82.54   75.00   82.54   87.58   89.95
BUILDWID  STACK1    89.59   86.51   80.80   72.64   62.26   50.00
BUILDWID  STACK1    62.26   72.64   80.80   86.51   89.59   89.95
BUILDWID  STACK1    87.58   82.54   75.00   82.54   87.58   89.95
BUILDWID  STACK1    89.59   86.51   80.80   72.64   62.26   50.00
BUILDLEN  STACK1    82.54   87.58   89.95   89.59   86.51   80.80
BUILDLEN  STACK1    72.64   62.26   50.00   62.26   72.64   80.80
BUILDLEN  STACK1    86.51   89.59   89.95   87.58   82.54   75.00
BUILDLEN  STACK1    82.54   87.58   89.95   89.59   86.51   80.80
BUILDLEN  STACK1    72.64   62.26   50.00   62.26   72.64   80.80
BUILDLEN  STACK1    86.51   89.59   89.95   87.58   82.54   75.00
XBADJ     STACK1   -47.35  -55.76  -62.48  -67.29  -70.07  -70.71
XBADJ     STACK1   -69.21  -65.60  -60.00  -65.60  -69.21  -70.71
XBADJ     STACK1   -70.07  -67.29  -62.48  -55.76  -47.35  -37.50
XBADJ     STACK1   -35.19  -31.82  -27.48  -22.30  -16.44  -10.09
XBADJ     STACK1    -3.43    3.34   10.00    3.34   -3.43  -10.09
XBADJ     STACK1   -16.44  -22.30  -27.48  -31.82  -35.19  -37.50
YBADJ     STACK1    34.47   32.89   30.31   26.81   22.50   17.50
YBADJ     STACK1    11.97    6.08    0.00   -6.08  -11.97  -17.50
YBADJ     STACK1   -22.50  -26.81  -30.31  -32.89  -34.47  -35.00
YBADJ     STACK1   -34.47  -32.89  -30.31  -26.81  -22.50  -17.50
YBADJ     STACK1   -11.97   -6.08    0.00    6.08   11.97   17.50
YBADJ     STACK1    22.50   26.81   30.31   32.89   34.47   35.00
SRCGROUP  ALL
FINISHED
```

There are a few things to note about these inputs. First, the source ID (STACK1 in this example) is an alphanumeric parameter (up to 12 characters) that identifies the inputs for different keywords with a particular source. It is crucial that the source be identified with a LOCATION card before any other keyword references the source, since this identifies the source type (POINT in this case), and therefore, which parameters the model will allow. See Section 3.3.1 for a complete list and descriptions of the valid source types. If the effects of elevated terrain were included in this analysis, it would be important to specify the source base elevation above mean sea level (MSL) on the LOCATION card. For this example, the source base elevation is 0.0 meters MSL.

Another thing to note is that since the model uses direction-specific building dimensions for all sources with downwash, there are 36 building heights and 36 building widths entered on the appropriate keywords, one value for each 10-degree sector beginning with the 10-degree flow vector (direction toward which the wind is blowing) and continuing clockwise. Since the user could not fit all 36 values on a single record, the pathway, keyword, and source ID were repeated as many times as were necessary. In this case there were six values given on each of the six lines for each of the building dimensions. There could have been fewer or more lines if exactly 36 values were entered before starting with a new keyword. Since the building height was the same across the sectors (fairly realistic for the height but not

for widths, unless the structure was circular), there is a short cut available for specifying numeric input in the control files for the model. The user can specify "repeat values" by entering a field such as "36*50.0" as a parameter for the BUILDHGT keyword. The model will interpret this as "36 separate entries, each with a value of 50.0," and store the values in the appropriate arrays within the model. Since the model must identify this as a single parameter field, there must not be any spaces between the repeat-value and the value to be repeated.

The final keyword before finishing the SO pathway must be the SRCGROUP keyword (unless the PSDCREDIT keyword is specified on the MODELOPT card, in which case SRCGROUP is replaced with the PSDGROUP keyword). In this example, since there is only one source, we have taken advantage of a short cut provided by the model by specifying a source group ID (which may be up to eight characters) of ALL. Whenever this card appears in an input file, it will generate a source group with a source-group ID of ALL, consisting of all sources defined for that run. The sources do not have to be explicitly identified. In a run involving multiple sources, the user may specify multiple source groups by repeating the SRCGROUP keyword. The use of the SRCGROUP card is explained in more detail in Section 3.0.

Using some of the formatting options discussed above, the SO pathway for this example may look like this, with the same result as above:

```
SO STARTING
LOCATION    STACK1   POINT  0.0 0.0 0.0
** Point Source       QS    HS    TS     VS     DS
** Parameters:       ----  ----  ----   ----   ----
   SRCPARAM STACK1   500.0 65.0  425.0  15.0    5.0
   BUILDHTS STACK1   36*50.
   BUILDWTS STACK1   62.26    72.64    80.80    86.51    89.59     89.95
            STACK1   87.58    82.54    75.00    82.54    87.58     89.95
            STACK1   89.59    86.51    80.80    72.64    62.26     50.00
            STACK1   62.26    72.64    80.80    86.51    89.59     89.95
            STACK1   87.58    82.54    75.00    82.54    87.58     89.95
            STACK1   89.59    86.51    80.80    72.64    62.26     50.00
   XBADJ    STACK1  -47.35   -55.76   -62.48   -67.29   -70.07    -70.71
            STACK1  -69.21   -65.60   -60.00   -65.60   -69.21    -70.71
            STACK1  -70.07   -67.29   -62.48   -55.76   -47.35    -37.50
            STACK1  -35.19   -31.82   -27.48   -22.30   -16.44    -10.09
            STACK1   -3.43     3.34    10.00     3.34    -3.43    -10.09
            STACK1  -16.44   -22.30   -27.48   -31.82   -35.19    -37.50
   YBADJ    STACK1   34.47    32.89    30.31    26.81    22.50     17.50
            STACK1   11.97     6.08     0.00    -6.08   -11.97    -17.50
            STACK1  -22.50    26.81   -30.31   -32.89   -34.47    -35.00
            STACK1  -34.47   -32.89   -30.31   -26.81   -22.50    -17.50
            STACK1  -11.97    -6.08     0.00     6.08    11.97     17.50
            STACK1   22.50    26.81    30.31    32.89    34.47     35.00
   SRCGROUP ALL
SO FINISHED
```

This example of the SO pathway inputs illustrates the use of the comment card to label the stack parameters on the SRCPARAM card, i.e., QS for emission rate (g/s), HS for stack height (m), TS for stack exit temperature (K), VS for exit velocity (m/s), and DS for stack diameter (m). A complete description of the source parameter card, with a list of parameters for each source type, is provided in Section 3.3 and in APPENDIX A.

Other optional inputs that may be entered on the SO pathway include specifying variable emission rate factors for sources whose emissions vary as a function of month, season, hour-of-day, or season and hour-of-day (see Section 3.3.11 for more details). The number of factors entered depends on the option selected, and factors may be input for single sources or for a range of sources.

2.4.4 Specifying a receptor network - RE pathway

As mentioned above, this example will illustrate the use of a single polar receptor network centered on the stack location. Other options available on the REceptor pathway include specifying a Cartesian grid receptor network and specifying discrete receptor locations in either a polar or a Cartesian system. These other options are described in more detail in Section 3.4.

The RE pathway for this example will look like this:

```
RE STARTING
   GRIDPOLR POL1 STA
   GRIDPOLR POL1 ORIG STACK1
   GRIDPOLR POL1 DIST 175. 350. 500. 1000.
   GRIDPOLR POL1 GDIR 36 10 10
   GRIDPOLR POL1 END
RE FINISHED
```

Looking at the example for the RE pathway, the first thing to note about these inputs is that there is a new set of keywords, including something that looks like a STArting and ENDing. In fact, the GRIDPOLR keyword can be thought of as a "sub-pathway," in that all of the information for a particular polar network must be in contiguous records, and that the start and end of the sub-pathway are identified. Like the main pathways, the order of secondary keywords within the sub-pathway is not critical. Each card must be identified with a network ID (up to eight alphanumeric characters), in this case it is "POL1." Multiple networks may be specified in a single model run. The model waits until the END secondary keyword is encountered to set the variables, which may include terrain heights for receptors on elevated terrain or flagpole receptor heights if those options are being exercised by the user. The use of these optional secondary keywords is described in detail in Section 3.4.

For this example, the ORIG secondary keyword specifies the location of the origin for the polar network being defined as being the location of the source STACK1. The origin can also be specified as X and Y-coordinates. The ORIG keyword is optional, and the model will default to an origin of (0.0, 0.0) if it is omitted. The DIST keyword identifies the distances along each direction radial at which the receptors will be located. In this case there are four distances. More distances could be added by adding values to that input card or by including a continuation card with the DIST keyword, if needed. The GDIR keyword specifies that the model will Generate DIRection radials for the network, in this case there will be 36 directions, beginning with the 10-degree flow vector and incrementing every 10 degrees

clockwise. The user may elect to define Discrete DIRection radials instead by using the DDIR keyword in place of the GDIR keyword.

2.4.5 Specifying the meteorological Input - ME pathway

The MEteorology pathway has the following four mandatory keywords in addition to the common STARTING and FINISHED keywords:

SURFFILE - Specifies the filename and format for the input surface meteorological data file.

PROFFILE - Specifies the filename and format for the input profile meteorological data file.

SURFDATA - Specifies information about the surface meteorological data which will be used in the modeling.

UAIRDATA - Specifies information about the upper air meteorological data which will be used in the modeling.

PROFBASE - Specifies the base elevation above MSL for the potential temperature profile.

For the purposes of this example, it is assumed that the meteorological data files are for Albany, NY and that an on-site location called Hudson has also been used. It is also assumed that the surface and profile data files were generated by the AERMET preprocessor and are in the default format for AERMOD. The filename of the surface file is AERMET2.SFC and it consists of four days of data for Albany/Hudson from March 1988. The filename of the profile file is AERMET2.PFL. The data files used in this example correspond with the on-site example files used for the AERMET preprocessor program. The control file commands for the MEteorology pathway would look like the following:

```
ME STARTING
   SURFFILE  AERMET2.SFC
   PROFFILE  AERMET2.PFL
   SURFDATA  14735  1988  ALBANY,NY
   UAIRDATA  14735  1988  ALBANY,NY
   SITEDATA  99999 1988   HUDSON
   PROFBASE  0.0  METERS
ME FINISHED
```

The first parameters on the SURFFILE and PROFFILE keywords are the filenames for the surface and profile data file, respectively, which can be entered as a full DOS pathname, including the drive specification and subdirectories, up to a total of 200 characters (with the maximum number of characters controlled by the ILEN_FLD PARAMETER located in MODULE MAIN1 - see Section 2.2.1). Since there is no second parameter, the model will assume the default ASCII format for the data files. The format of the surface and profile data files is described in APPENDIX C.

The next two mandatory inputs identify the location and data period of the input meteorological data. A separate keyword is used for the surface meteorological data and for the upper air (mixing height) data. The parameters on these cards are the station number (e.g., WBAN number for NWS stations), the data period (year), and a station name. In order to identify potential errors in the model inputs, the model compares the station number from the control input file with values provided in the first record of the surface meteorology file, and issues warning messages if there are any mismatches. The user may also optionally input the (X,Y) coordinates for the location of the station(s), although these values are not currently used by the model. In this case, we have also included the optional SITEDATA keyword to identify the location for the on-site meteorological data that were preprocessed by AERMET.

The final mandatory keyword is PROFBASE, which is used to specify the base elevation (above MSL) for the potential temperature profile generated by AERMOD for use in the plume rise calculations. This should correspond to the base elevation for the main meteorological tower, which in this example is specified as 0.0 meters and is the same as the source base elevation.

Other optional keywords available on the ME pathway provide the user with options to specify selected days to process from the meteorological data file, and a wind direction rotation correction term. These optional inputs are described in more detail in Section 3.5.

2.4.6 Selecting output options - OU pathway

All the keywords on the Output pathway are optional, although the model will warn the user if no printed outputs are requested and will halt processing if no outputs (printed results or file outputs) are selected. The user has considerable flexibility to select only the outputs that are needed for a particular application. The printed table keywords are:

RECTABLE - Specifies the selection of high value by receptor table output options.

MAXTABLE - Specifies the selection of overall maximum value table output options.

DAYTABLE - Specifies the selection of printed results (by receptor) for each day of data processed (this option can produce very large files and should be used with caution).

The RECTABLE keyword provides the highest, second highest and third highest values, etc., by receptor. The MAXTABLE keyword provides a table of the overall maximum *n* number of values. For both keywords, the user has additional flexibility to specify for which short-term averaging periods the outputs are selected. For the MAXTABLE keyword the user can also specify the number of overall maximum values to summarize for each averaging period selected, up to a maximum number controlled by a parameter in the computer code. In the example below, the highest and second-highest values by receptor and the maximum 50 values for all averaging periods are specified.

```
OU STARTING
   RECTABLE  ALLAVE  FIRST  SECOND
   MAXTABLE  ALLAVE  50
OU FINISHED
```

To simplify the input for users who request the same printed table output options for all averaging periods, these keywords recognize the secondary keyword "ALLAVE" as the first parameter for that purpose. To obtain the overall maximum 10 values for the 24-hour averages only, the OU pathway input would look like the following example:

```
OU STARTING
   RECTABLE  ALLAVE  FIRST  SECOND
   MAXTABLE  24  10
OU FINISHED
```

It should also be noted that these output table options apply only to the short-term averaging periods, such as the 3-hour and 24-hour averages used in our example. If the user has selected that PERIOD averages be calculated (on the CO AVERTIME keyword), then the output file will automatically include a table of period averages summarized by receptor (the RECTABLE option does not apply since there is only one period value for each receptor). In addition, the printed output file will include tables summarizing the highest values for each averaging period and source group.

Other options on the OU pathway include several keywords to produce output files for specialized purposes, such as generating contour plots of high values, identifying occurrences of

violations of a particular threshold value (e.g., a NAAQS), and for postprocessing of the raw concentration data. These options are described in detail in Section 3.7.

The complete input control file for this simple example is shown in Figure 2-2. Note that a consistent style has been used for formatting and structuring the file to improve its readability. This input file is comparable to the version shown earlier in Figure 2-1, which used a somewhat different style.

```
CO STARTING
   TITLEONE A Simple Example Problem for the AERMOD-PRIME Model
   MODELOPT CONC  FLAT
   AVERTIME 3  24  PERIOD
   POLLUTID SO2
   RUNORNOT RUN
CO FINISHED

SO STARTING
   LOCATION  STACK1  POINT 0.0 0.0 0.0
** Point Source       QS     HS    TS    VS   DS
** Parameters:       -----  ----  ----  ----  ---
   SRCPARAM  STACK1  500.0  65.0  425.  15.0  5.0
   BUILDHGT  STACK1  36*50.
SO BUILDWID  STACK1    62.26   72.64   80.80   86.51   89.59   89.95
             STACK1    87.58   82.54   75.00   82.54   87.58   89.95
             STACK1    89.59   86.51   80.80   72.64   62.26   50.00
             STACK1    62.26   72.64   80.80   86.51   89.59   89.95
             STACK1    87.58   82.54   75.00   82.54   87.58   89.95
             STACK1    89.59   86.51   80.80   72.64   62.26   50.00
SO BUILDLEN  STACK1    82.54   87.58   89.95   89.59   86.51   80.80
             STACK1    72.64   62.26   50.00   62.26   72.64   80.80
             STACK1    86.51   89.59   89.95   87.58   82.54   75.00
             STACK1    82.54   87.58   89.95   89.59   86.51   80.80
             STACK1    72.64   62.26   50.00   62.26   72.64   80.80
             STACK1    86.51   89.59   89.95   87.58   82.54   75.00
SO XBADJ     STACK1   -47.35  -55.76  -62.48  -67.29  -70.07  -70.71
             STACK1   -69.21  -65.60  -60.00  -65.60  -69.21  -70.71
             STACK1   -70.07  -67.29  -62.48  -55.76  -47.35  -37.50
             STACK1   -35.19  -31.82  -27.48  -22.30  -16.44  -10.09
             STACK1    -3.43    3.34   10.00    3.34   -3.43  -10.09
             STACK1   -16.44  -22.30  -27.48  -31.82  -35.19  -37.50
SO YBADJ     STACK1    34.47   32.89   30.31   26.81   22.50   17.50
             STACK1    11.97    6.08    0.00   -6.08  -11.97  -17.50
             STACK1   -22.50  -26.81  -30.31  -32.89  -34.47  -35.00
             STACK1   -34.47  -32.89  -30.31  -26.81  -22.50  -17.50
             STACK1   -11.97   -6.08    0.00    6.08   11.97   17.50
             STACK1    22.50   26.81   30.31   32.89   34.47   35.00
   SRCGROUP  ALL
SO FINISHED

RE STARTING
   GRIDPOLR  POL1 STA
   GRIDPOLR  POL1 ORIG STACK1
   GRIDPOLR  POL1 DIST 175. 350. 500. 1000.
   GRIDPOLR  POL1 GDIR 36 10 10
   GRIDPOLR  POL1 END
RE FINISHED

ME STARTING
   SURFFILE AERMET2.SFC
   PROFFILE AERMET2.PFL
   SURFDATA 14735 1988 ALBANY,NY
   UAIRDATA 14735 1988 ALBANY,NY
   SITEDATA 99999 1988 HUDSON
   PROFBASE  0.0 METERS
ME FINISHED

OU STARTING
   RECTABLE ALLAVE FIRST-SECOND
   MAXTABLE ALLAVE 50
OU FINISHED
```

Figure 2-2. Example Input control file for Sample Problem

2.4.7 Using the error message file to debug the input control file

The previous sections in this tutorial have provided a step-by-step construction of a sample control input file for AERMOD. This simple example problem illustrated the usage of the more commonly used options of the AERMOD model. However, many real-time applications of the model will be much more complex than this example, perhaps involving multiple sources and source groups, multiple receptor networks, the addition of discrete receptor locations, and/or elevated terrain heights. To reduce errors in modeling applications, an effort has been made to develop detailed error handling capabilities for the AERMOD model.

The error handling capabilities of the AERMOD model are designed to accomplish two things for the user. First, the model reads through the complete input file and report all occurrences of errors or suspect entries before stopping, rather than stopping on the first instance (and every instance thereafter) of an error in the input file. Second, the model provides error and warning messages that are detailed and descriptive enough that they will help the user in his/her effort to debug the input file. The remainder of this section provides of brief introduction to the use of the model's error handling capabilities. APPENDIX B of this volume provides more details about the error handling provided by the AERMOD model.

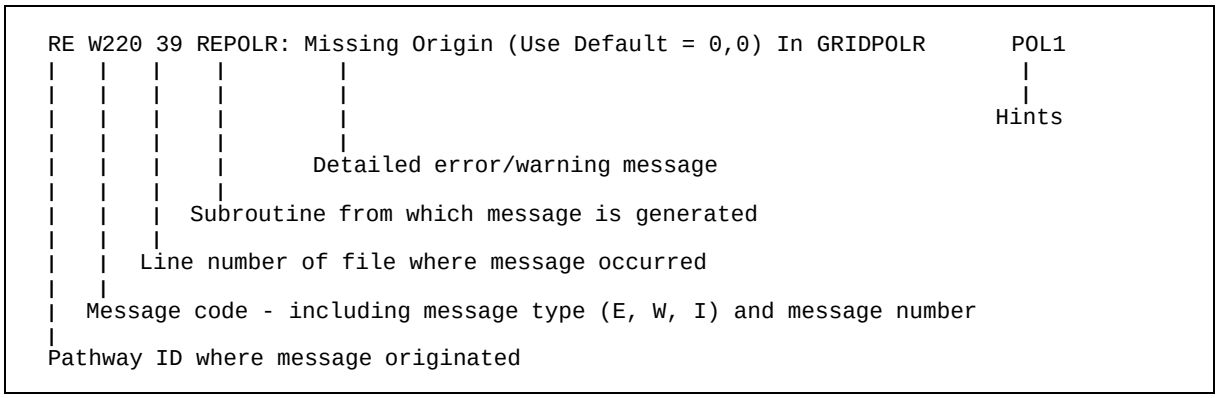
The AERMOD model generates messages during the processing of the input data and during the execution of model calculations. These messages inform the user about a range of possible conditions including:

- Errors that will halt any further processing, except to identify additional error conditions;
- Warnings that do not halt processing but indicate possible errors or suspect conditions; and
- Informational messages that may be of interest to the user but have no direct bearing on the validity of the results.

As the model encounters a condition for which a message is generated, the model writes the message to a temporary storage file. At the completion of the setup processing for a run, and at the completion of the model calculations, the model rereads the message file and generates a summary of the messages which is included in the main printed output file. If the processing of the model setup information indicates no errors or warnings, and the user has selected the option to RUN the model calculations on the CO RUNORNOT card, then the model will simply write a statement to the print file that the model setup was completed successfully. Otherwise, the model will report a summary of the

messages encountered. The summary of model setup messages that would be generated for the example problem if the option NOT to run was chosen is shown in Figure 2-3. This summary table reports the total number of occurrences for each of the message types and lists the detailed message for any fatal errors or warning messages that were generated. In this case, since there were no errors or suspicious conditions in the setup file, there are no error or warning messages listed.

An example of the warning message that would have been generated had we left out the card on the RE pathway that specifies the origin of the polar receptor network is shown below:



Since this is a warning message, it would have appeared at the end of the message summary table in the output file, but it would not have halted processing of the data. The last item on the message line, "Hints," may include such information as the keyword or parameter name causing the error, the source ID, group ID or (as in this case) the network ID involved, or perhaps the date variable identifying when the message occurred during the processing of the meteorological data, such as an informational message identifying the occurrence of a calm wind.

For new users and for particularly complex applications, it is strongly recommended that the model first be run with the RUNORNOT keyword (on the CO pathway) set NOT to run. In this way, the user can determine if the model is being setup properly by the control file before committing the resources to perform a complete run. The user should make a point of examining any warning messages carefully to be sure that the model is operating as expected for their application, since these messages will not halt processing by the model. The detailed messages should provide enough information for the user to determine the location and nature of any errors in the control file.

In deciphering the error and warning messages, the line number provided as part of the message may be particularly helpful in locating the error within the input file. However, if it is an error of omission that is caught by the error checking performed at the completion of inputs for a pathway, then the line number will correspond to the last record for that pathway. The user may need to examine all of the messages carefully before locating the error or errors, especially since a single occurrence of certain types of errors may lead to other error conditions being identified later in the input file which do not really constitute errors in themselves. An example of this is provided in Figure 2-4, which shows some inputs for the SO pathway where the building dimension keywords have been typed incorrectly, and the associated list of error messages. Since continuation cards (cards or records that require multiple entries and the input continues on subsequent lines) were used for the building width inputs, and the keyword was entered incorrectly on the first line, the subsequent records were also taken by the model to be invalid keyword inputs. While the error messages are the same for these records, the message originates from a different part of the model (SUBROUTINE SOCARD) for the records with the blank keyword.

Since the detailed error and warning messages are listed in the output file as part of the message summary table, there will generally not be a need for the user to examine the contents of the detailed message file. For this reason, the default operation of the model is to write the messages that are generated by a particular run to a temporary file that is deleted when the run is completed. If the user wishes to examine the complete list of detailed messages (of all types), there is an optional keyword available on the CO pathway for that purpose. The ERRORFIL keyword, which is described in detail in Section 3.2.19, allows the user to save the complete list of detailed messages to a user-specified filename.

```
*** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)

 A Total of           96 Hours Were Processed

 A Total of            0 Calm Hours Identified

 A Total of            0 Missing Hours Identified (  0.00 Percent)


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
 MX W403      57       PFLCNV: Turbulence data is being used w/o ADJ_U* option     SigA & SigW

    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
```

Figure 2-3. Example Message Summary Table for AERMOD Execution

```
SO STARTING
LOCATION    STACK1   POINT  0.0 0.0 0.0
** Point Source       QS    HS    TS     VS     DS
** Parameters:       ----  ----  ----   ----   ----
   SRCPARAM STACK1   500.0 65.0  425.0  15.0    5.0
   BUILDHTS STACK1   36*50.
   BUILDWTS STACK1   62.26    72.64    80.80    86.51    89.59     89.95
            STACK1   87.58    82.54    75.00    82.54    87.58     89.95
            STACK1   89.59    86.51    80.80    72.64    62.26     50.00
            STACK1   62.26    72.64    80.80    86.51    89.59     89.95
            STACK1   87.58    82.54    75.00    82.54    87.58     89.95
            STACK1   89.59    86.51    80.80    72.64    62.26     50.00
   XBADJ    STACK1  -47.35   -55.76   -62.48   -67.29   -70.07    -70.71
            STACK1  -69.21   -65.60   -60.00   -65.60   -69.21    -70.71
            STACK1  -70.07   -67.29   -62.48   -55.76   -47.35    -37.50
            STACK1  -35.19   -31.82   -27.48   -22.30   -16.44    -10.09
            STACK1   -3.43     3.34    10.00     3.34    -3.43    -10.09
            STACK1  -16.44   -22.30   -27.48   -31.82   -35.19    -37.50
   YBADJ    STACK1   34.47    32.89    30.31    26.81    22.50     17.50
            STACK1   11.97     6.08     0.00    -6.08   -11.97    -17.50
            STACK1  -22.50    26.81   -30.31   -32.89   -34.47    -35.00
            STACK1  -34.47   -32.89   -30.31   -26.81   -22.50    -17.50
            STACK1  -11.97    -6.08     0.00     6.08    11.97     17.50
            STACK1   22.50    26.81    30.31    32.89    34.47     35.00
   SRCGROUP     ALL
SO FINISHED
```

```
  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            7 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
 SO E105      15        SETUP: Invalid Keyword Specified. The Troubled Keyword is     BUILDWTS
 SO E110      16       SOCARD: Keyword is Not Valid for This Pathway.  Keyword is     BUILDWTS
 SO E110      17       SOCARD: Keyword is Not Valid for This Pathway.  Keyword is     BUILDWTS
 SO E110      18       SOCARD: Keyword is Not Valid for This Pathway.  Keyword is     BUILDWTS
 SO E110      19       SOCARD: Keyword is Not Valid for This Pathway.  Keyword is     BUILDWTS
 SO E110      20       SOCARD: Keyword is Not Valid for This Pathway.  Keyword is     BUILDWTS
 SO E237      40        SRCQA: Not Enough BUILDWIDs Specified for SourceID              STACK1

    ********   WARNING MESSAGES   ********
 MX W403      57       PFLCNV: Turbulence data is being used w/o ADJ_U* option     SigA & SigW

    ************************************
    *** SETUP Finishes UN-successfully ***
    ************************************
```

Figure 2-4. Example of Keyword Error and Associated Message Summary Table

2.4.8 Running the model and reviewing the results

Now that we have a complete and error-free control input file, we are ready to run the model and then review the results. The PC-executable file available on the SCRAM website opens the control input and printed output files and the model can be executed from the command prompt three ways as follows:

Path-to-AERMOD.EXE\AERMOD

Path-to-AERMOD.EXE\AERMOD *runstream_input_filename*

Path-to-AERMOD.EXE\AERMOD *runstream_input_filename output_filename*

The first example above is applicable for all versions of AERMOD and assumes that the control input and printed output files are AERMOD.INP and AERMOD.OUT (not case sensitive in DOS and case sensitive on Unix and Linux systems). The other two examples apply to AERMOD versions beginning with 18081 in which the user can specify the control input filename and optionally the output filename as well. The filenames can include a directory pathname if the files reside in a different directory than the working directory. If the output filename is not specified, AERMOD will use the control input filename (including pathname) and replace the input filenames extension (e.g., ".INP") with a ".OUT" extension. Otherwise, if both files are specified, they can be in different locations. The important points are that the AERMOD.EXE file either be in the directory from which you are attempting to run the model or in a directory that is included on the DOS PATH command when the system is "booted-up." The control input file (AERMOD.INP) must also be located in the directory which the model is being executed when the control input filename is not specified. When the default control file and main output filenames are used and reside in the working directory with AERMOD.EXE, the model can also be executed by double clicking on the executable file from Windows Explorer.

As mentioned above, the SCRAM PC-executable file for AERMOD opens the input and output files explicitly. One reason for this is to allow for the model to write an update on the status of processing to the PC terminal screen. For the AERMOD model, the model first indicates that setup information is being processed and then gives the Julian day currently being processed. If no status message is displayed, then the model did not load into memory properly. If the model stops after completing the setup processing, then the RUNORNOT option was set NOT to run. If a fatal error is encountered during the setup processing, then a message to that effect will be written to the screen and model execution will be stopped. Another reason for not sending the printed output to the default output device (i.e., to the screen or redirected to a file), is so that any DOS error messages will be visible on the screen and not be

written to the printed file. One such message might be that there is insufficient memory available to run the program. Handling of DOS error messages may require some knowledge of DOS, unless the meaning of the message is obvious.

The order of contents and organization of the main output file for the AERMOD model is presented in Figure 2-5.

Echo of Input Control File Commands

Summary of Control File Messages

Summary of Inputs
- Summary of Modeling Options
- Summary of Source Data Summary of
- Receptor Data Summary of
- Meteorology Data

Model Results

- Daily Results for Each Averaging Period Selected for Each Day Processed (If Applicable)
  - DAYTABLE Keyword
- PERIOD Results for Each Source Group (If Applicable)
  - PERIOD Parameter on AVERTIME Keyword
- Short-Term Average Results (High, Second High, etc.) by Receptor for Each Source Group (If Applicable)
  - RECTABLE Keyword
- Overall Maximum Short-Term Average Results for Each Source Group (If Applicable)
  - MAXTABLE Keyword

Summary Tables of High Values for Each Averaging Period and Source Group (Always provided if PERIOD averages or the RECTABLE keyword are used)

Summary of Complete Model Execution Messages

Figure 2-5. Organization of the AERMOD Model Output File

Each page of the output file, except for the echo of the input file entries, is labeled with the model name and version number, user-specified title(s), page number, and, for the PC version of the model, the date and time of the particular run. Also included as part of the header information for each page is a one-line summary of the modeling options used for that particular run. The modeling options are listed as the secondary keywords used to control the options, such as DFAULT, CONC, etc.

Since the complete input file is normally echoed back as part of the output file, and since processing of the inputs stops when the OU FINISHED card is reached, the run can be duplicated by simply specifying the output filename as the input control file. Alternatively, the input records could be "cut and pasted" from the output file to a separate file using a text editor.

By default, the model will echo each line of the input control file to the printed output file. This provides a convenient record of the inputs as originally read into the model, without any rounding of numerical values that may appear in the input summary tables. As noted above, it also means that the output file can be used as an input file to the model to reproduce a particular application. However, for some applications, the length of the input control file may be too cumbersome to include the entire set of inputs at the beginning of each output file. This may happen, for example, if a large number of sources are being defined or if a large number of discrete receptor locations are used. For this reason, the user is provided with the option to "turn off" the echoing of the input file at any point within the control file. This is accomplished by entering the keywords "NO ECHO" in the first two fields anywhere within the control file. In other words, place NO in the pathway field, followed by a space and then ECHO. None of the input control file options after the NO ECHO will be echoed to the output file. Thus, a user may choose to place NO ECHO after the Control pathway in order to keep the control options echoed but suppress echoing the rest of the input file.

The details of the message summary tables were discussed in the previous section. A portion of the summary of modeling option inputs is shown in Figure 2-6 for the simple example described in this section. The summary of source parameter input data includes separate tables for each source type, rather than combining all sources onto a single table. In this way the column headings are specific to the source type.

Figure 2-7 presents an example of the results output for the first highest values by receptor for our sample problem. These values are the first highest 3-hour averages at each receptor location. The number in parentheses following each concentration value is the date corresponding to each value. The

date is given as an eight-digit integer variable that includes the year (2-digits), month, day, and hour corresponding to the end of the averaging period.

For each of the different types of model result tables, the controlling keyword is identified in Figure 2-5 at the end of the description. All of the outputs of the same type, e.g., high values by receptor, are printed together, and the order of tables loops through all source groups for a particular averaging period, and then loops through all averaging periods. The summary tables of high values at the end of the model results follow the same order of loops. An example of the summary tables for our sample problem is shown in Figure 2-8.

```
*** AERMOD - VERSION 22112  ***   *** A Simple Example Problem for the AERMOD-PRIME Model                 ***        06/07/22

*** AERMET - VERSION  22112 ***   ***                                                                    ***        14:18:02
                                                                                                                  PAGE   1
*** MODELOPTs:    NonDFAULT  CONC  FLAT  RURAL  SigA&SigW

                                       ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
** Model Options Selected:
     * Model Allows User-Specified Options
     * Model Is Setup For Calculation of Average CONCentration Values.
     * NO GAS DEPOSITION Data Provided.
     * NO PARTICLE DEPOSITION Data Provided.
     * Model Uses NO DRY DEPLETION. DDPLETE  =  F
     * Model Uses NO WET DEPLETION. WETDPLT  =  F
     * Stack-tip Downwash.
     * Model Assumes Receptors on FLAT Terrain.
     * Use Calms Processing Routine.
     * Use Missing Data Processing Routine.
     * No Exponential Decay.
     * Model Uses RURAL Dispersion Only.
     * CCVR_Sub - Meteorological data includes CCVR substitutions
     * Model Assumes No FLAGPOLE Receptor Heights.
     * The User Specified a Pollutant Type of: SO2

**NOTE: Special processing requirements applicable for the 1-hour SO2 NAAQS have been disabled!!!
        User has specified non-standard averaging periods:    3-HR  24-HR
        High ranked 1-hour values are NOT averaged across the number of years modeled, and
        complete years of data are NOT required.

**Model Calculates  2 Short Term Average(s) of:   3-HR  24-HR
    and Calculates PERIOD Averages

**This Run Includes:      1 Source(s);       1 Source Group(s); and     144 Receptor(s)

               with:      1 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:      0 VOLUME source(s)
                and:      0 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                and:      0 SWPOINT source(s)


**Model Set To Continue RUNning After the Setup Testing.

**The AERMET Input Meteorological Data Version Date:  22112

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
         Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     0.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.5 MB of RAM.
```

Figure 2-6. Sample of Model Option Summary Table from an AERMOD Model Output File

```
*** AERMOD - VERSION 22112  ***   *** A Simple Example Problem for the AERMOD-PRIME Model                  ***        06/07/22
*** AERMET - VERSION  22112 ***   ***                                                                     ***        14:18:02
                                                                                                                    PAGE   9
*** MODELOPTs:    NonDFAULT  CONC  FLAT  RURAL  SigA&SigW

                          *** THE   1ST HIGHEST  3-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                              INCLUDING SOURCE(S):     STACK1      ,

                               *** NETWORK ID: POL1     ;  NETWORK TYPE: GRIDPOLR ***

                                    ** CONC OF SO2      IN MICROGRAMS/M**3                          **

DIRECTION |                                          DISTANCE (METERS)
(DEGREES) |         175.00                350.00                500.00                1000.00
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

     10.0 |      1.60637 (88030212)     4.32183 (88030215)     9.87871 (88030215)    20.31341 (88030215)
     20.0 |      1.27691 (88030212)     7.75747 (88030215)    19.35471 (88030215)    43.24437 (88030215)
     30.0 |      1.31753 (88030321)     6.80000 (88030215)    16.96932 (88030215)    37.21008 (88030215)
     40.0 |      1.37996 (88030321)     2.78658 (88030215)     6.56111 (88030215)    13.02309 (88030215)
     50.0 |      1.41988 (88030321)     2.62563 (88030115)     4.10823 (88030115)     4.68748 (88030212)
     60.0 |      1.43198 (88030321)     2.82901 (88030115)     4.55254 (88030115)     4.68748 (88030212)
     70.0 |      1.41464 (88030321)     8.49965 (88030115)    11.29511 (88030115)    11.52741 (88030115)
     80.0 |      2.58429 (88030115)    43.19500 (88030115)    48.25320 (88030115)    34.37546 (88030115)
     90.0 |      7.93441 (88030115)   113.82878 (88030115)   143.17280 (88030115)    83.53515 (88030115)
    100.0 |     49.08751 (88030112)   182.84906 (88030115)   220.83958 (88030115)   145.67442 (88030115)
    110.0 |    112.74908 (88030112)   242.27766 (88030112)   278.47896 (88030115)   163.85177 (88030115)
    120.0 |    133.57972 (88030112)   303.36789 (88030112)   329.96015 (88030112)   201.18211 (88030112)
    130.0 |     84.37463 (88030112)   177.43472 (88030112)   193.23411 (88030112)   123.90900 (88030112)
    140.0 |     34.33105 (88030112)    78.48757 (88030115)    90.16431 (88030115)    66.26935 (88030112)
    150.0 |      3.26313 (88030112)    28.20306 (88030115)    35.81299 (88030112)    33.54932 (88030112)
    160.0 |      1.45757 (88030209)     8.53192 (88030112)    13.46873 (88030112)    12.93284 (88030112)
    170.0 |      1.33663 (88030209)     2.92150 (88030112)     4.70642 (88030112)     9.87872 (88030415)
    180.0 |      1.23781 (88030212)     2.59400 (88030115)     4.58665 (88030415)    11.25826 (88030415)
    190.0 |      1.23781 (88030212)     2.62640 (88030115)     4.10607 (88030115)     6.95118 (88030415)
    200.0 |      1.23781 (88030212)     2.63486 (88030115)     4.10609 (88030115)     4.68748 (88030212)
    210.0 |      1.23781 (88030212)     2.63700 (88030115)     4.10609 (88030115)     4.68748 (88030212)
    220.0 |      1.23783 (88030212)     2.63762 (88030115)     4.10609 (88030115)     4.68748 (88030212)
    230.0 |      1.26732 (88030212)     2.63762 (88030115)     4.10609 (88030115)     4.68767 (88030212)
    240.0 |      1.59395 (88030212)     2.63762 (88030115)     4.10609 (88030115)     4.72694 (88030212)
    250.0 |      2.39221 (88030212)     2.63762 (88030115)     4.10609 (88030115)     5.24318 (88030212)
    260.0 |      3.44586 (88030212)     3.11001 (88030212)     4.10609 (88030115)     7.70339 (88030212)
    270.0 |      4.67900 (88030212)     4.53914 (88030212)     4.60912 (88030212)    13.41550 (88030212)
    280.0 |      6.10725 (88030212)     6.15657 (88030212)     6.42897 (88030212)    21.16129 (88030212)
    290.0 |      7.47165 (88030212)     7.75530 (88030212)     8.18188 (88030212)    27.76976 (88030212)
    300.0 |      8.45754 (88030212)     8.93592 (88030212)     9.35713 (88030212)    30.22723 (88030212)
    310.0 |      8.83767 (88030212)     9.29972 (88030212)     9.54143 (88030212)    27.40028 (88030212)
    320.0 |      8.53526 (88030212)     8.67663 (88030212)     8.65382 (88030212)    20.68075 (88030212)
    330.0 |      7.53807 (88030212)     7.17470 (88030212)     6.91694 (88030212)    13.22924 (88030212)
    340.0 |      5.96054 (88030212)     5.15139 (88030212)     4.78244 (88030212)     8.04861 (88030212)
    350.0 |      4.10326 (88030212)     3.16494 (88030212)     4.10609 (88030115)     5.75319 (88030212)
    360.0 |      2.52862 (88030212)     2.63762 (88030115)     4.10609 (88030115)     4.96113 (88030212)
```

Figure 2-7. Example Output Table of High Values by Receptor

```
 *** AERMOD - VERSION 22112  ***   *** A Simple Example Problem for the AERMOD-PRIME Model                 ***        06/07/22
 *** AERMET - VERSION  22112 ***   ***                                                                    ***        14:18:02
                                                                                                                    PAGE  15
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  RURAL  SigA&SigW

                                     *** THE SUMMARY OF MAXIMUM PERIOD (    96 HRS) RESULTS ***


                                  ** CONC OF SO2      IN MICROGRAMS/M**3                        **

                                                                                                          NETWORK
GROUP ID                       AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL       1ST HIGHEST VALUE IS      24.85173 AT (     433.01,     -250.00,     0.00,     0.00,    0.00)  GP  POL1
          2ND HIGHEST VALUE IS      23.13772 AT (     469.85,     -171.01,     0.00,     0.00,    0.00)  GP  POL1
          3RD HIGHEST VALUE IS      21.03529 AT (     303.11,     -175.00,     0.00,     0.00,    0.00)  GP  POL1
          4TH HIGHEST VALUE IS      19.33506 AT (     328.89,     -119.71,     0.00,     0.00,    0.00)  GP  POL1
          5TH HIGHEST VALUE IS      17.19044 AT (     383.02,     -321.39,     0.00,     0.00,    0.00)  GP  POL1
          6TH HIGHEST VALUE IS      16.86865 AT (     866.03,     -500.00,     0.00,     0.00,    0.00)  GP  POL1
          7TH HIGHEST VALUE IS      15.01122 AT (     939.69,     -342.02,     0.00,     0.00,    0.00)  GP  POL1
          8TH HIGHEST VALUE IS      14.27336 AT (     268.12,     -224.98,     0.00,     0.00,    0.00)  GP  POL1
          9TH HIGHEST VALUE IS      12.80321 AT (     492.40,      -86.82,     0.00,     0.00,    0.00)  GP  POL1
         10TH HIGHEST VALUE IS      12.38150 AT (     766.04,     -642.79,     0.00,     0.00,    0.00)  GP  POL1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 22112  ***   *** A Simple Example Problem for the AERMOD-PRIME Model                 ***        06/07/22
 *** AERMET - VERSION  22112 ***   ***                                                                    ***        14:18:02
                                                                                                                    PAGE  16
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  RURAL  SigA&SigW

                                          *** THE SUMMARY OF HIGHEST  3-HR RESULTS ***


                                  ** CONC OF SO2      IN MICROGRAMS/M**3                        **

                                                  DATE                                                              NETWORK
GROUP ID                       AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL       HIGH   1ST HIGH VALUE IS     329.96015  ON 88030112: AT (     433.01,     -250.00,     0.00,     0.00,    0.00)  GP  POL1
          HIGH   2ND HIGH VALUE IS     261.07805  ON 88030112: AT (     469.85,     -171.01,     0.00,     0.00,    0.00)  GP  POL1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 22112  ***   *** A Simple Example Problem for the AERMOD-PRIME Model                 ***        06/07/22
 *** AERMET - VERSION  22112 ***   ***                                                                    ***        14:18:02
                                                                                                                    PAGE  17
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  RURAL  SigA&SigW
```

```
                                    *** THE SUMMARY OF HIGHEST 24-HR RESULTS ***


                                  ** CONC OF SO2      IN MICROGRAMS/M**3                        **

                                                          DATE                                                                  NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS      88.89517  ON 88030124: AT (     433.01,     -250.00,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS      10.09519  ON 88030324: AT (     866.03,     -500.00,     0.00,     0.00,    0.00)  GP  POL1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

Figure 2-8. Example of Result Summary Tables for the AERMOD Model

2.5 Modifying an existing control file

As noted earlier, one of the advantages of the keyword/parameter approach and the flexible format adopted for the input control file is that it will be easier for the user to make modifications to the control file and obtain the desired result. This section briefly illustrates some examples of how a control file can be modified. It is assumed that the reader is familiar with the operation of and basic editing commands for a text editor (i.e., a program that edits ASCII files), and is familiar with the previous sections of this tutorial.

2.5.1 Modifying modeling options

Depending on the type of analysis being performed, the user may need to modify the modeling options and run the model again. Because of the descriptive nature of the keywords and the secondary keywords used to control the modeling options, this can easily be done with the new control file, and usually without having to refer back to the user's guide each time a modification is attempted.

2.5.2 Adding or modifying a source or source group

Modifying the input file to add a source or a source group, or to add a source to a source group, is as simple as just adding it. There is no need to specify the total number of sources in the run, which would then have to be changed if more sources were added. The same applies to the number of groups, or the number of sources per group. If the user attempts to input more than the total number of sources or groups allowed for a particular run, an error message will be generated to that effect. Also, modifying a source group to delete a source is as easy as just deleting it from the input card, without having to change any other inputs.

Another way of "deleting" a source or a group from an input file is to place a "**" in the pathway field of the card or cards which define the source or group to "comment out" those inputs. This approach, which was discussed above in Section 2.2.2, has the advantage of leaving the input data for the source or group in the input file for possible later use. It doesn't matter whether the "**" is entered with the text editor in "insert" mode, in which case the other inputs of that line are moved over, or if it is in "overtype" mode, which would replace the pathway ID that was already there.

2.5.3 Adding or modifying a receptor network

As with source data, adding to or modifying the receptor information in the AERMOD model is relatively straight forward. The problem of having to make several changes to accomplish one small modification, such as adding a distance to a polar receptor network, has been avoided in the new model. All

that the user needs to do is to add the new distance on the appropriate input card, which is easily identifiable because of the use of descriptive keywords. The model checks to ensure that the user does not attempt to specify more than the maximum number of receptors for a particular run and generates an appropriate message if too many are input.

2.5.4 Modifying output options

Modifying the output options involves many of the same principles that are described above. In addition, all the output options are structured in a way that allows the user to select options for specific averaging periods, so that the user may find it useful to copy a record or group of records set up for one averaging period and simply change the averaging period parameter. The other important short cut that is available for the printed table output options is to use the secondary keyword ALLAVE to indicate that the option applies to all averaging periods that are calculated. In this way, there will be no need to change the output options if a new averaging period is added to a run or if one is deleted.

3.0 Detailed keyword reference

This section of the AERMOD user's guide provides a detailed reference for all the input keyword options for the AERMOD model. The information provided in this section is more detailed than the information provided in the Brief Tutorial in Section 2.0. Since this section is intended to meet the needs of experienced modelers who may need to understand completely how particular options are implemented in the model, the information for each keyword should stand on its own. This section assumes that the reader has a basic understanding of the keyword/parameter approach used by the model for specification of input options and data. Novice users should first review the contents of Section 2.0 to obtain that understanding.

3.1 Overview

The information in this section is organized by function, i.e., the keywords are grouped by pathway, and are in a logical order based on their function within the model. The order of keywords presented here is the same as the order used in the functional keyword reference in APPENDIX A. The syntax for each keyword is provided, and the keyword type is specified - either mandatory or optional and either repeatable or non-repeatable. Unless noted otherwise, there are no special requirements for the order of keywords within each pathway, although the order in which the keywords are presented here and in APPENDIX A is recommended. Any keyword which has special requirements for its order within the pathway is so noted following the syntax and type description.

The syntax descriptions in the following sections use certain conventions. Parameters that are in all capital letters and underlined in the syntax description are secondary keywords that are to be entered as indicated for that keyword. Other parameters are given descriptive names to convey the meaning of the parameter and are listed with an initial capital letter. Many of the parameter names used correspond to variable names used in the computer code of the model. Parentheses around a parameter indicate that the parameter is optional for that keyword. The default that is taken when an optional parameter is left blank is explained in the discussion for that keyword.

3.2 Control pathway inputs and options

The **CO**ntrol pathway contains the keywords that provide the overall control of the model run. These include the dispersion options, averaging time options, terrain height options, and others that are described below. The CO pathway must be the first pathway in the control input file.

3.2.1 Title information

There are two keywords that allow the user to specify up to two lines of title information that will appear on each page of the main output file from the model. The first keyword, TITLEONE, is mandatory, while the second keyword, TITLETWO, is optional. The syntax and type for the keywords are summarized below:

Syntax:	CO TITLEONE Title1 CO TITLETWO Title2
Type	TITLEONE - Mandatory, Non-repeatable TITLETWO - Optional, Non-repeatable

The parameters Title1 and Title2 are character parameters of length 200, which are read as a single field starting at column 13. The title information is taken as it appears in the control file without any conversion of lower case to upper case letters. If the TITLETWO keyword is not included in the control file, then the second line of the title in the output file will appear blank. Note that in the output files, only the first 68 characters of TITLEONE and TITLETWO are printed.

3.2.2 Dispersion options

The dispersion options are controlled by the MODELOPT keyword on the CO pathway and are specified using secondary keywords that represent each of the different options. The secondary keywords and syntax are shown and described below. Some related options are mutually exclusive, others can be specified in combination with each other, and some are dependent on others and must be specified together.

Syntax:	
CO MODELOPT DFAULT ALPHA BETA CONC AREADPLT FLAT NOSTD NOCHKD NOWARN SCREEN SCIM NOMINO3 RLINEFDH ELEV WARNCHKD NOURBTRAN VECTORWS PSDCREDIT FASTALL FASTAREA GSRM TTRM TTRM2 PVMRM OLM ARM2 DEPOS DDEP WDEP DRYDPLT WETDPLT NODRYDPLT NOWETDPLT AREAMNDR HBP	
Type:	Mandatory, Non-repeatable
Order:	Must precede POLLUTID, HALFLIFE and DCAYCOEF

where the secondary keyword parameters are described below (the order and spacing of these parameters is not critical):

DFAULT - Specifies that the regulatory default options will be used; note that specification of the DFAULT option will override some non-DFAULT options that may be specified in the input file, while other non-DFAULT options will cause fatal errors when DFAULT is specified (see below for details).

ALPHA - Non-regulatory option flag that allows the input control file to include research/experimental options for review and evaluation by the user community; (e.g., LOW_WIND, PSDCREDIT, ORD_DWNW, AWMADWNW, PLATFORM, METHOD 2 particle deposition, gas deposition, RLINEFDH, and RLINEXT with options for modeling barriers and depressed roadways) and cannot be used with DFAULT keyword.

BETA - Non-regulatory option flag that allows the input control file to include options that have been vetted through the scientific community and are waiting to be promulgated as regulatory options. Prior to promulgation, BETA options require alternative model approval for use in regulatory applications and cannot be used with DFAULT keyword.

CONC - Specifies that concentration values will be calculated.

DEPOS - Specifies that total deposition flux values (both dry and wet) will be calculated.

DDEP - Specifies that dry deposition flux values will be calculated.

WDEP - Specifies that wet deposition flux values will be calculated.

AREADPLT - Specifies that a non-regulatory method for optimized plume depletion due to dry removal mechanisms will be included in calculations for area sources (cannot be used simultaneously with the DFAULT keyword).

FLAT - Specifies that the non-regulatory option of assuming flat terrain will be used; Note that FLAT and ELEV may be specified in the same model run to allow specifying the non-regulatory FLAT terrain option on a source-by-source basis; FLAT sources are identified by specifying the keyword FLAT in the MODELOPT line on the CO pathway and in place of the source elevation field on the SO LOCATION keyword (cannot be used simultaneously with the DFAULT keyword).

ELEV - Specifies that the default option of assuming elevated terrain will be used; Note that FLAT and ELEV may be specified in the same model run to allow

specifying the non-regulatory FLAT terrain option on a source-by-source basis (the ELEV option is set as a regulatory option with the DFAULT keyword)

NOSTD - Specifies that the non-regulatory option of no stack-tip downwash will be used (cannot be used with the DFAULT keyword).

NOCHKD - Specifies that the non-regulatory option of suspending date checking will be used for non-sequential meteorological data files (cannot be used with the DFAULT keyword).

WARNCHKD - Specifies that the option of issuing warning messages rather than fatal errors will be used for non-sequential meteorological data files.

NOWARN - Specifies that the option of suppressing the detailed listing of warning messages in the main output file will be used (the number of warning messages is still reported, and warning messages are still included in the error file controlled by the CO ERRORFIL keyword).

SCREEN - Non-regulatory option for running AERMOD in a screening mode for AERSCREEN (cannot be used when the DFAULT keyword is specified).

SCIM - Sampled Chronological Input Model – non-regulatory option used only with the ANNUAL average option to reduce runtime by sampling meteorology at a user-specified regular interval; SCIM sampling parameters must be specified on the ME pathway (cannot be used with the DFAULT keyword).

PVMRM - Specifies that the Plume Volume Molar Ratio Method (PVMRM) for NO_2 conversion will be used (regulatory option, can be used simultaneously with DFAULT); cannot be used with OLM, ARM2, or GRSM; cannot be used with TTRM without TTRM2.

OLM - Specifies that the Ozone Limiting Method (OLM) for NO_2 conversion will be used (regulatory option, can be used simultaneously with DFAULT keyword); cannot be used with PVMRM, ARM2, or GRSM; cannot be used with TTRM without TTRM2.

ARM2 - Specifies that the Ambient Ratio Method - 2 (ARM2) for NO_2 conversion will be used (regulatory option, can be used with DFAULT keyword); cannot be used with PVMRM, OLM, or GRSM; cannot be used with TTRM without TTRM2.

TTRM - Specifies that the non-regulatory Travel Time Reaction Method (TTRM) will be used for NO_2 conversion (non-regulatory ALPHA option, requires the ALPHA keyword and cannot be used with the DFAULT keyword); cannot be used with PVMRM, OLM, ARM2 without TTRM2; cannot be used with GRSM; cannot be used with TTRM2 without PVMRM, OLM, or ARM2.

TTRM2 - Specifies that the non-regulatory Travel Time Reaction Method (TTRM) will be paired with one of OLM, PVMRM, or ARM2 for NO_2 conversion (non-regulatory ALPHA option, requires the ALPHA keyword and cannot be used with the DFAULT keyword); cannot be used with TTRM alone or GRSM; must be paired with one of PVMRM, OLM, or ARM2 and does not require TTRM keyword when pairing.

GRSM - Specifies that the Generic Reaction Set Method (GRSM) will be used for NO_2 conversion; cannot be used with PVMRM, OLM, TTRM, TTRM2, or ARM2.

PSDCREDIT - Specifies that the non-regulatory ALPHA option will be used to calculate the increment consumption with PSD credits using the PVMRM option (cannot be used with the DFAULT keyword).

FASTALL - Non-regulatory option to optimize model runtime through use of an alternative implementation of horizontal meander for POINT and VOLUME sources; also optimizes model runtime for AREA/AREAPOLY/AREACIRC/LINE, OPENPIT, RLINE, and RLINEXT sources (formerly associated with TOXICS option, now controlled by the FASTAREA and FASTALL option, cannot be used with the DFAULT keyword).

FASTAREA - Non-regulatory option to optimize model runtime through hybrid approach for AREA/ AREAPOLY/AREACIRC and OPENPIT sources (formerly associated with TOXICS option, cannot be used with the DFAULT keyword).

DRYDPLT - Option to incorporate dry depletion (removal) processes associated with dry deposition algorithms; this requires specification of dry deposition source parameters and additional meteorological variables; dry depletion will be used by default if dry deposition algorithms are invoked; cannot be used with NODRYDPLT.

NODRYDPLT - Option to disable dry depletion (removal) processes associated with dry deposition algorithms; cannot be used with DRYDPLT.

WETDPLT - Option to incorporate wet depletion (removal) processes associated with wet deposition algorithms; this requires specification of wet deposition source parameters and additional meteorological variables; wet depletion will be used by default if wet deposition algorithms are invoked; cannot be used with NOWETDPLT.

NOWETDPLT - Option to disable wet depletion (removal) processes associated with wet deposition algorithms; cannot be used with WETDPLT.

NOURBTRAN - Non-regulatory option to ignore the transition from nighttime urban boundary layer to daytime convective boundary layer (i.e., to revert to the urban option as implemented prior to version 11059) (cannot be used with the DFAULT keyword).

VECTORWS - Option to specify that input wind speeds are vector mean (or resultant) wind speeds, rather than scalar means. Under the VECTORWS option, the adjustments to wind speeds based on Equation 112 of the AERMOD Model Formulation document (EPA, 2024a) will be applied (can be used with the DFAULT keyword).

NOMINO3 - Option to remove the minimum ozone used for Tier 2 & 3 NO_2 options. Without this option, AERMOD will use a minimum value of 40 ppb of ozone for nighttime stable conditions, regardless of the value in an hourly input file (can be used with the DFAULT keyword).

RLINEFDH - Option to have wind profile calculations without a displacement height for RLINE and RLINEXT source types. This makes the wind profile closer to other AERMOD source types, which do not use a displacement height in wind profile (requires the ALPHA keyword and cannot be used with the DFAULT keyword).

AREAMNDR - Option to apply plume meander to AREA. AREAPOLY, AREACIRC, and LINE source types. Note that AREAMNDR and FASTAREA or FASTALL can be specified in the same model run, but in that case, meander will not be applied to those source types listed,

HBP - Option for highly buoyant plumes (HBP) when plume penetrates the top of the mixed layer. Limited to point source types (POINT, POINTHOR, POINTCAP). Compares convective mixing height for the current hour and next hour to determine how much of the penetrated plume has been captured by the CBL by the end of the current hour (requires the ALPHA keyword and cannot be used with the DFAULT keyword).

3.2.2.1 DFAULT option

As previously discussed, the regulatory DFAULT option in AERMOD informs the model that certain regulatory options will be invoked including stack-tip downwash, effects of elevated terrain, and calms and missing data processing. The DFAULT option in AERMOD also forces the use of a 4-hour half-life when modeling SO_2 in an urban source and does not allow for exponential decay for other applications. If exponential decay is requested via the DCAYCOEFF or HALFLIFE keyword, AERMOD will issue a warning that the DFAULT overrides the requested exponential and will run the model without exponential decay. If exponential decay is desired, then the DFAULT keyword cannot be included. The DFAULT option also imposes a restriction on the optional urban roughness length parameter to be 1 meter for regulatory applications. If the urban roughness length parameter is not 1 m with the DFAULT keyword, AERMOD issues a warning and resets it to 1 m.

The missing data processing routines that are included in the AERMOD model allow the model to handle missing meteorological data in the processing of short-term averages. The model treats missing meteorological data in the same way as the calms processing routine, i.e., it sets the concentration values to zero for that hour and calculates the short-term averages according to EPA's calms policy, as set forth in the Guideline. Calms and missing values are tracked separately for the purpose of flagging the short-term averages. An average that includes a calm hour is flagged with a 'c', an average that includes a missing hour is flagged with an 'm', and an average that includes both calm and missing hours is flagged with a 'b'. If the number of hours of missing meteorological data exceeds 10 percent of the total number of hours for a given model run, a cautionary message is written to the main output file, and the user is referred to Section 5.3.2 of "Meteorological Monitoring Guidance for Regulatory Modeling Applications" (EPA, 2004). An hour is considered missing if one or more of the following surface variables have missing value indicators for the hour: wind speed, wind direction, ambient temperature, Monin-Obukhov length, mechanical mixing height,

surface friction velocity (u*), convective mixing height (convective hours only), or convective velocity scale (w*; for convective hours only).

The DFAULT keyword cannot be used simultaneously with either the ALPHA or BETA secondary keywords or other secondary keywords that enable a specific ALPHA or BETA option.

3.2.2.2 ALPHA options

Beginning with version 18081, a new secondary keyword, ALPHA, was added to the MODELOPT keyword. When included, ALPHA indicates one or more options are being used that are in a special category of options. These can include but are not limited to:

- Scientific/formulation updates that are in the research phase and have not been fully evaluated and peer reviewed by the scientific community; and
- Non-scientific model options in development that still need rigorous testing and for which EPA is seeking feedback from the user community.

Different ALPHA options are enabled in the control file in different ways. Some ALPHA options, as indicated above, are enabled by specifying the appropriate secondary keyword with the MODELOPT keyword, while others are specified as either a primary keyword on the CO pathway (e.g., LOW_WIND, AWMADWNW) or as source type with the LOCATION keyword (e.g., RLINEXT, SWPOINT) on the SO pathway or as a primary keyword on the SO pathway to enter source-specific inputs (e.g., PLATFORM, RBARRIER). AERMOD version 24142 includes the following ALPHA options:

- Prevention of Significant Deterioration Credit (PSDCREDIT)
- Low Wind Parameters (LOW_WIND)
- A&WMA Downwash Options (AWMADWNW)
- EPA Office of Research and Development Downwash Options (ORD_DWNW)
- Offshore Platform Downwash (PLATFORM, applies to point sources only)
- Extended RLINE Source Type (RLINEXT)
- Depressed Roadway (RDEPRESS, used only with RLINEXT)
- Roadway Barrier (RBARRIER, used only with RLINEXT)
- Removal of Displacement Height from RLINE Wind Profile (RLINEFDH)
- Particle Deposition - Method 2 (METHOD_2)

- Gas deposition (GDSEASON, GDLANUSE, GASDEPDF, GASDEPOS, GASDEPVD keywords)
- Travel Time Reaction Method (TTRM, for NO_2 conversion, stand-alone method)
- Travel Time Reaction Method 2 (TTRM2, for NO_2 conversion, applies TTRM to ARM2, OLM, or PVMRM conversion methods)
- Sidewash Point Source (SWPOINT, experimental source type)
- AREA Source Meander (AREAMNDR)
- Highly Buoyant Plume (HBP)
- Aircraft Plume Rise (ARCFTOPT, can be applied to AREA and VOLUME source types only via SO ARCFTSRC grouping and an hourly emission file)

As noted above, METHOD 2 particle deposition and gas deposition are ALPHA options beginning with version 19191 of AERMOD. In previous versions of AERMOD, these two deposition options were non-default and could be used without the ALPHA or BETA keywords. The reason that these two options are now ALPHA options is that they have not been rigorously tested and evaluated since their inclusion in AERMOD's initial promulgation. Thus, it was decided to make the options ALPHA while deposition is further evaluated in AERMOD. Note that METHOD 1 particle deposition is unaffected and can still be used with AERMOD in default mode (i.e., with the DFAULT keyword).

3.2.2.3 BETA options

BETA options refer to scientific updates to the formulation of AERMOD that have been fully vetted through the scientific community with appropriate evaluation and peer review. BETA options are planned for future promulgation as regulatory options. However, until they are promulgated, they require alternative model approval by the EPA Regional Office and concurrence by the Model Clearing House. AERMOD version 24142 does not include any BETA options.

3.2.2.4 Options for capped and horizontal stack releases

Options are included in AERMOD, beginning with version 06341, for modeling releases from capped and horizontal stacks. For sources that are not subject to building downwash influences, the plume rise for these capped and horizontal stacks is simulated based on an EPA Model Clearinghouse Memorandum, dated July 9, 1993. The Model Clearinghouse procedure for these sources entails setting the exit velocity very low (0.001 m/s) to account for suppression of vertical momentum of the plume and using an effective stack diameter that maintains the actual flow rate of the plume. Maintaining the flow rate will

also serve to maintain the buoyancy of the plume to provide a more realistic estimate of plume rise. The Model Clearinghouse procedure also addresses the issue of stack-tip downwash for these cases.

The Model Clearinghouse procedure is not considered to be appropriate for sources subject to building downwash influences with the PRIME downwash algorithm for the following reason. The PRIME algorithm uses the specified stack diameter to define the initial radius of the plume for the numerical plume rise calculation, and the initial radius of the plume can significantly influence plume rise based on the PRIME algorithm. As a result, use of an effective diameter adjusted to maintain the flow rate is not appropriate and could produce unrealistic results. For PRIME downwash sources modeled using the options for capped and horizontal releases, the basic premise of the Model Clearinghouse procedure, i.e., that the vertical momentum is suppressed while the buoyancy of the plume is conserved has been adapted for the PRIME numerical plume rise formulation. For capped stacks the initial radius of the plume is assumed to be 2 times the actual stack diameter to account for the interaction of the exiting plume with the cap. The initial vertical velocity of the plume is set at 0.001 m/s, and the initial lateral velocity of the plume is set at 25% of the initial exit velocity of the plume. For horizontal stacks, the initial vertical velocity of the plume is set at 0.001 m/s, the total exit velocity of the plume is assigned to the initial lateral velocity, and the plume is assumed to be emitted in the downwind direction. Although this adaptation of the Model Clearinghouse procedure to PRIME downwash sources has not been validated by field tracer or wind tunnel data, analyses have shown that simply setting the exit velocity to 0.001 m/s without any further adjustment when downwash is applied, as suggested in Section 6.1 of the AERMOD Implementation Guide (EPA, 2024b), may lead to overly conservative results (EPA, 2007).

The user selects the options for capped and/or horizontal releases by specifying one of the new source types on the SO LOCATION card: POINTCAP for capped stacks, and POINTHOR for horizontal releases. For each of these options, the user specifies the actual stack parameters [release height (m), exit temperature (K), exit velocity (m/s), and stack diameter (m)] using the SO SRCPARAM card as if the release were a non-capped vertical point source. The syntax of the SO LOCATION and SRCPARAM keywords is described in Sections 3.3.1 and 3.3.2 and is also summarized in APPENDIX A. The AERMOD model performs the necessary adjustments internally to account for plume rise and stack-tip downwash. For horizontal releases, the model currently assumes that the release is oriented with the wind direction, and the model does not account for directional effects that may occur with horizontal releases. The model also does not account for stacks oriented at a non-horizontal angle relative to vertical. For PRIME downwash sources, the user-specified exit velocity for horizontal releases is treated initially as horizontal momentum in the downwind direction.

3.2.2.5 Output types (CONC, DEPOS, DDEP and/or WDEP)

The user may select any or all of the output types (CONC, DEPOS, DDEP and/or WDEP) to be generated in a single model run. The order of these secondary keywords on the MODELOPT card has no effect on the order of results in the output files – the outputs will always be listed in the order of CONC, DEPOS, DDEP, and WDEP. Appropriate deposition parameters must be specified in order to output deposition fluxes using the DEPOS, DDEP, and/or WDEP keywords (see Sections 3.3.3 and 3.3.4 for more details). Deposition has not been implemented for RLINE/RLINEXT, BUOYLINE, or SWPOINT source types, thus the user can only run CONC with these source types.

3.2.2.6 Deposition depletion options

Beginning with version 04300, the dry and wet removal (depletion) mechanisms (the DRYDPLT and WETDPLT options in earlier versions of AERMOD) will automatically be included in the calculated concentrations or deposition flux values if the dry and/or wet deposition processes are considered, unless the user specifies the NODRYDPLT and/or NOWETDPLT options. Note that dry and wet removal effects on calculated concentration values can be included even if deposition flux values are not being calculated. However, the additional data requirements for dry and wet deposition, described in Sections 3.3.3 and 3.3.4, must be met in order for dry and wet removal to be included in the concentration calculations. The use of the NODRYDPLT and/or NOWETDPLT options will result in a more conservative estimate of concentrations and/or deposition fluxes for applications involving deposition processes, but the degree of additional conservatism will vary depending on the source characteristics, meteorological conditions, receptor locations and terrain influences. However, the inclusion of particle deposition effects may increase ground-level concentrations for some sources compared to the same source modeled as a gaseous emission due to gravitational settling on the particulate plume. The magnitude of this effect will depend on the source characteristics (elevated or low-level) and particle size distribution. As of version 19191, deposition has not been implemented for RLINE/RLINEXT, BUOYLINE, or SWPOINT sources, thus the user can only run CONC with these source types.

3.2.2.7 NO_2 conversion options

Beginning with version 16216r, the PVMRM and OLM Tier 3 NO_2 conversion methods, as well as the Tier 2 ARM2 method are regulatory options that can be specified with the DFAULT keyword. PVMRM, OLM, and ARM2 assume the reaction involving NO and available O_3 to form NO_2 occurs instantaneously. Although this chemical reaction is relatively rapid, it is not actually instantaneous and depends on the transport time to the downwind receptor of interest. Beginning with version 21112, TTRM was added as an

ALPHA option for NO_2 conversion that considers the distance and the travel time from the emission source to each receptor. In general, much of the conversion of NO to NO_2 occurs within the first minute of travel which limits the effectiveness of this method to the near field receptors.

In version 21112, TTRM, the Travel Time Reaction Method, was implemented as a stand-alone ALPHA option which can determine the initial fraction of NO to NO_2 conversion in the travel time of each source emissions to each receptor. The conversion is capped at an upper limit, which is typically reached after a few tens of seconds of plume travel. Beyond the distance the fraction reaches the upper limit of the equilibrium fraction (generally 0.9), TTRM is no longer effective, and another method is needed for receptors beyond that distance. Beginning with version 22112, TTRM was integrated to be used simultaneously with PVMRM, OLM, or ARM2. This integration was added as the ALPHA option, TTRM2, separate from TTRM which was retained as a stand-alone option. When TTRM2 is specified along with PVMRM, OLM, or ARM2, TTRM will be implemented for near field receptors where the fraction of conversion has not reached the upper limit, and the other specified method will be used for all other receptors.

In addition to TTRM and TTRM2, beginning with version 21112, GRSM, the Generic Reaction Set Method, was added as an ALPHA option, updated as a BETA option beginning with version 22112, and promulgated as a regulatory option in version 24142. GRSM was adapted from the Atmospheric Dispersion Model Method (ADMSM), documented by Carruthers et al., 2017, which accounts for the equilibrium between NO, NO_2, and ozone in the atmosphere. GRSM treats plume entrainment of ozone similar to PVMRM but provides for treatment of reaction rates based on ozone and solar radiation intensity, NO2 photolysis, and travel time from source to receptor. The reaction rate is based on the generic reaction set (GRS) chemistry scheme, which is a semi-empirical photochemical model developed originally by CSIRO in Australia (Azzi and Johnson, 1992; Venkatram et al., 1994) for multiple step conversions between NO, NO_2, and O_3. The integration of GRSM into AERMOD is documented in EPA's related Technical Support Document (TSD) (2024d).

Only one of ARM2, TTRM, OLM, PVMRM, or GRSM options for NO_2 conversion can be specified for a given model run. Alternatively, the TTRM2 ALPHA option (which invokes TTRM), can be paired with ARM2, OLM, or PVMRM by specifying the TTRM2 keyword along with the ARM2, PVMRM, or OLM with the MODELOPT keyword. Because GRSM accounts for travel time between the emission source and receptor, it cannot be paired with TTRM2. All NO_2 conversion options require that the pollutant ID be

specified as 'NO2' on the CO POLLUTID card (see Section 3.2.9.) These options have additional input requirements as described in Section 3.3.6.

3.2.2.8 FASTAREA and FASTALL

The FASTAREA secondary keyword on the MODELOPT keyword is used to select the non-regulatory option to optimize model runtime for AREA sources (including AREA, AREAPOLY, AREACIRC and OPENPIT source types, as well as LINE sources introduced with version 12345 (see Section 3.3.1)). When FASTAREA is specified, the area source integration routine is optimized to reduce model runtime by incorporation of a three-tiered approach using the Romberg numerical integration, a 2-point Gaussian Quadrature routine for numerical integration, or a point source approximation, depending on the location of the receptor relative to the source. In the regulatory default mode, the Romberg numerical integration is utilized for all receptors. The FASTAREA approach does not include meander in the AREA, AREAPOLY, AREACIRC, or LINE source types even if the AREAMNDR keyword has been included. Also beginning with version 09292, a non-regulatory option to optimize model runtime for POINT and VOLUME sources was included, which is selected with the FASTALL secondary keyword on the MODELOPT keyword. Specification of the FASTALL option also activates the FASTAREA option if AREA sources are including in the model inputs. Both FASTALL and FASTAREA skip receptors that are more than 80 kilometers from the source. Beginning with version 22112, the RLINE and RLINEXT sources also include a FAST option activated with the FASTALL keyword.

The FASTALL option for POINT/POINTHOR/POINTCAP and VOLUME sources uses an alternative implementation of the horizontal meander algorithm based on an effective horizontal dispersion coefficient (σ_{yeff}) that replicates the centerline concentration based on the full meander approach. Use of the effective σ_y allows the model runtime to be optimized by skipping receptors that are more than $4\sigma_{yeff}$ off the plume centerline. Based on tests conducted to date, comparisons of concentrations based on the FASTALL option for POINT and VOLUME sources with concentrations using the DFAULT option are similar to comparisons of concentrations for AREA sources using the FASTAREA option. The average ratio of FASTALL concentrations to DFAULT values is about 1.02 for high ranked values, showing a slight bias toward over prediction for the FASTALL option. However, the range of ratios for high ranked values shows both over predictions and under predictions relative to the DFAULT option, and differences at specific receptors may be much larger.

The FASTALL option for RLINE and RLINEXT uses an approximation to estimate the values for the horizontal and vertical dispersion coefficients (σ_y and σ_z, respectively) and the effective plume wind

speed. These estimates are made by interpolating between values of these variables computed at three distances from the source (1 m, 10 m, and 500 m). **Note that, as of version 19191, the FASTALL option has not been implemented for the BUOYLINE and SWPOINT source types and is not applicable with the PLATFORM keyword.**

3.2.2.9 Urban transition and NOURBTRAN option

The urban option within AERMOD was modified, beginning with version 11059, to address potential issues associated with the transition from the nighttime urban boundary layer to the daytime convective boundary layer. Prior to version 11059, the enhanced dispersion due to the urban heat island during nighttime stable conditions was ignored once the rural boundary layer became convective. This could result in an unrealistic drop in the mixing height for urban sources during the morning transition to a convective boundary layer, which could contribute to overly conservative concentrations for low-level sources under such conditions. This potentially anomalous behavior was observed in a few cases during the application of AERMOD for the Risk and Exposure Assessment (REA) conducted in support of a review for the NO_2 National Ambient Air Quality Standard (NAAQS) (EPA, 2008). The potential significance of this issue for AERMOD applications in support of air quality permitting increased with the promulgation of the more recent 1-hour NO_2 and 1-hour SO_2 NAAQS in 2010.

To address this issue, AERMOD was modified to continue applying the urban boundary layer option for urban sources until the daytime (rural) convective boundary exceeds the population-dependent urban boundary layer height. This modification to the urban option within AERMOD has been evaluated using the 1985 Indianapolis SF_6 field study data (Murray and Bowne, 1988), and shows improved model performance during daytime convective conditions compared to the original implementation of the urban option. Model-to-monitor comparisons of 1-hour NO_2 concentrations from the Atlanta NO_2 REA also exhibit improved model performance with this modification to the urban option in AERMOD. A summary of these model evaluation results is provided in the AERMOD Model Formulation document (EPA, 2024a).

The NOURBTRAN non-regulatory option has been included to allow users to revert to the urban option as implemented prior to version 11059, which ignores the transition from the nighttime urban boundary layer to the daytime convective boundary layer.

3.2.2.10 SCREEN mode

The screening mode of AERMOD, which is controlled by the SCREEN keyword on the MODELOPT card, forces the model calculations to represent values for the plume centerline, regardless of the source-receptor-wind direction orientation. This option is included in AERMOD to facilitate the use of the model with the AERSCREEN (EPA, 2021) to estimate worst case impacts. Its use outside of that context is not recommended. Since the screening model is designed to be used with a non-sequential meteorological data file, representing a matrix of conditions, the SCREEN option also forces the use of the NOCHKD option described above, even if NOCHKD is not included on the MODELOPT card. The SCREEN option also restricts the averaging period options to 1-hour averages only on the AVERTIME card (see Section 3.2.2.10). Note that the SCREEN mode is only applicable for point type sources (POINT, POINTCAP, and POINTHOR) and VOLUME sources. For all other source types, screening is not invoked, and results are unchanged from non-screening mode.

3.2.2.11 SCIM

The AERMOD model includes the non-regulatory Sampled Chronological Input Model (SCIM) option to reduce model runtime for some uses of the model. The SCIM option can only be used with the ANNUAL average option and is primarily applicable to multi-year model simulations. The approach used by the SCIM option is to sample the meteorological data at a user-specified regular interval to approximate the long-term (i.e., ANNUAL) average impacts. Studies have shown that the uncertainty in modeled results introduced by use of the SCIM option is generally lower for area sources than for point sources.

When only the regular sampling is selected, hourly concentrations are calculated in the normal fashion for each sampled hour. The annual average concentration is then simply calculated by dividing the cumulative concentration for the sampled hours by the number of hours sampled (arithmetic average), i.e.,

$$\mathbf{C = \sum C_S / N_S}$$

where:

C = Calculated concentration

$\sum C_S$ = Cumulative impacts for the sampled hours

N_S = Number of sampled hours

To use the SCIM option, the user must include the SCIM keyword on the CO MODELOPT card and the SCIM sampling parameters on the ME SCIMBYHR card. The format and syntax of the ME SCIMBYHR keyword are described in Section 3.5.7.

3.2.2.12 Deposition Options

The AERMOD model includes algorithms for both dry and wet deposition of both particulate and gaseous emissions. The deposition algorithms incorporated into AERMOD are based on the draft Argonne National Laboratory (ANL) report (Wesely et al., 2002), with modifications based on peer review. Treatment of wet deposition was revised from Wesely et al. (2002) based on recommendations by peer review panel members (Walcek et al., 2001). A full technical description of the deposition algorithms implemented in AERMOD is provided in an EPA report specific to these algorithms (EPA, 2003).

Based on the guidance provided for application of the AERMOD model in the Guideline (EPA, 2017b), and the history of the deposition algorithms in the AERMOD and ISC models, the particle deposition algorithms with a user-specified particle size distribution (referred to below as "Method 1") can be applied simultaneously with the regulatory DFAULT keyword. Method 1 is comparable to the particle deposition algorithm in the ISCST3 model (EPA, 1995a). The gas deposition algorithms and the "Method 2" option for particle deposition based on the ANL draft report (Wesely, et al, 2002) are non-regulatory ALPHA options in AERMOD, and beginning with version 19191, the model will issue a fatal error message and abort processing if the ALPHA keyword is not specified with the gas deposition or Method 2 particle deposition options.

For gaseous dry deposition, the user must define seasonal categories for each of the calendar months, direction-specific land use categories, and several pollutant-specific parameters. An optional keyword is also provided to override default values for three parameters used in the gas deposition algorithm. The input requirements for "Method 1" particle deposition in AERMOD are the same as for the particle deposition algorithm in the ISCST3 model. For "Method 2" particle deposition, the user must define the fraction of the particle mass in the fine particle category (less than 2.5 microns) and a representative mass mean diameter for the particles. Table 3-1 summarizes the required keywords for the various deposition options within AERMOD and whether they are allowed under the DFAULT option. For all keywords associated with METHOD 2 or gas deposition, the ALPHA keyword must be used along with the MODELOPT keyword. The keywords used to define inputs for deposition specified on the CO pathway are described in the sections that follow. The keywords associated with deposition specified on the SO pathway are described in sections 3.3.3 through 3.3.5.

Table 3-1 Summary of Deposition Options

Pollutant Type	Model Output Type	Required Keywords	Allowed under DFAULT?
Gaseous	CONC w/dry depletion DDEP	CO GASDEPVD or CO GDSEASON, CO GDLANUSE, and SO GASDEPOS	No[1]
Gaseous	CONC w/wet depletion WDEP	SO GASDEPOS	No[1]
Gaseous	CONC w/dry & wet depletion DEPOS	CO GDSEASON, CO GDLANUSE, and SO GASDEPOS	No[1]
Particulate ("Method 1")	CONC w/dry and/or wet depletion DEPOS DDEP WDEP	SO PARTDIAM, SO PARTDENS, and SO MASSFRAX	Yes[2]
Particulate ("Method 2")	CONC w/dry and/or wet depletion DEPOS DDEP WDEP	SO METHOD_2	No[1]

The user should be aware that one or more of the following meteorological parameters are needed for deposition: precipitation code, precipitation rate, relative humidity, surface pressure, and cloud cover.

3.2.2.13 Definition of seasons for gaseous dry deposition

The gas deposition algorithms in AERMOD include land use characteristics and gas deposition resistance terms based on five seasonal categories defined in Table 2 of the ANL report as:

Seasonal Category 1: Midsummer with lush vegetation

Seasonal Category 2: Autumn with unharvested cropland

Seasonal Category 3: Late autumn after frost and harvest, or winter with no snow

Seasonal Category 4: Winter with snow on ground (with generally continuous snow cover)

[1] The ALPHA option must be included.

[2] While "Method 1" is allowed under the regulatory "DFAULT" option within AERMOD, the use of "Method 1" for particulate emissions in regulatory modeling applications should follow the guidance provided in Section 7.2.1.3 of the Guideline (EPA, 2017b).

Seasonal Category 5: Transitional spring with partial green coverage or short annuals

The user correlates these seasonal definitions to calendar months through the GDSEASON keyword on the CO pathway. The syntax and type of the GDSEASON keyword are:

Syntax:	CO GDSEASON Jan Feb Mar ... Dec
Type:	Optional, Non-repeatable

where a numeric value from 1 to 5 is entered for each of the twelve calendar months to associate it with the seasonal definitions given above. This keyword is optional for the model, but mandatory when applying the gas deposition algorithms, unless the GASDEPVD option for user-specified dry deposition velocity on the CO pathway is used, described below in Section 3.3.3.2. Note that some of the seasonal categories defined above may not apply for certain regions, such as Category 4, winter with continuous snow cover, for moderate climates.

3.2.2.14 Definition of land use categories for gas dry deposition

The gas deposition algorithms also require direction-specific land use categories based on the following land use codes and definitions (from Table 1 of the ANL report):

Land Use Category	Description
1	Urban land, no vegetation
2	Agricultural land
3	Rangeland
4	Forest
5	Suburban areas, grassy
6	Suburban areas, forested
7	Bodies of water
8	Barren land, mostly desert
9	Non-forested wetlands

The user defines the land use categories by direction sector through the GDLANUSE keyword on the CO pathway. The syntax and type of the GDLANUSE keyword are:

Syntax:	CO GDLANUSE Sec1 Sec2 Sec3 ... Sec36
Type:	Optional, Non-repeatable

where a numeric value from 1 to 9 is entered for each of the 36 direction sectors (every 10 degrees) to associate it with the land use definitions given above. This keyword is optional for the model, but mandatory when applying the gas deposition algorithms, unless the GASDEPVD option for user-specified deposition velocity is used. The first value, Sec1, corresponds with the land use category, downwind of the application site, for winds blowing toward 10 degrees, plus or minus 5 degrees. The downwind sectors are defined in clockwise order, with Sec36 corresponding to winds blowing toward 360 degrees (North) and should generally reflect conditions downwind relative to the source location. The user can specify "repeat values" by entering a field such as "36*3" as a parameter for the GDLANUSE keyword. The model will interpret this as "36 separate entries, each with a value of 3." Since the model must identify this as a single parameter field, there must not be any spaces between the repeat-value and the value to be repeated. Option for overriding default parameters for gas dry deposition

An optional keyword is available on the Control (CO) pathway to allow the user to override the default values of the reactivity factor (f_o), and the fraction (F) of maximum green leaf area index (LAI) for seasonal categories 2 (autumn/unharvested cropland) and 5 (transitional spring), for use with the gas dry deposition algorithms.

The syntax and type of the GASDEPDF keyword are summarized below:

Syntax:	CO GASDEPDF React F_Seas2 F_Seas5 (Refpoll)
Type:	Optional, Non-repeatable

where the parameter React is the value for pollutant reactivity factor (f_o), and F_Seas2 and F_Seas5 are the fractions (F) of maximum green LAI for seasonal categories 2 and 5, respectively. The parameter Refpoll is the optional name of the pollutant. If the optional GASDEPDF keyword is omitted, then the default value of 0 is used for React, and default values of 0.5 and 0.25 are used for F_Seas2 and F_Seas5, respectively. A value of F=1.0 is used for seasonal categories 1, 3, and 4. A reactivity factor value of 1 should be input for ozone (O_3), titanium tetrachloride ($TiCl_4$), and divalent mercury (Hg^{2+}), and a value of 0.1 should be input for nitrogen dioxide (NO_2).

3.2.2.15 Deposition velocity and resistance outputs

In order to facilitate review and testing of the deposition algorithms in the AERMOD model, the model includes an option to output the main resistance terms and deposition velocities for gaseous and particle sources. These optional outputs are generated if the user specifies the ‘CO DEBUGOPT MODEL’

option described in Section 3.2.18. The gas deposition data are written to a file called GDEP.DAT, which includes the values of R_a, R_b, R_c, and V_{dg} (see Wesely, et al, 2002, for definitions) for each source and for each hour modeled. A header record is included to identify the columns. The particle deposition data are written to a file called PDEP.DAT, which includes the values of R_a, R_p, V_g, and V_d for each source and for each hour modeled. The particle outputs are labeled as being based on either Method 1 or Method 2. For Method 1, results are output for each particle size category. The filename and file units for these data files are hardcoded in the model, and the files are overwritten each time the model is executed. Since these files include data for each source for each hour, file sizes may become large.

3.2.2.16 Remove displacement height from RLINE wind profile

Beginning with version 22112, the ALPHA option RLINEFDH was added to calculate the wind profile for RLINE sources without a displacement height. The displacement height is used in the wind profile to modify the wind profile below five times the surface roughness. When the surface roughness is large, such as in urban environments this displacement height could significantly impact the calculated windspeeds when the mean plume height is below five times the surface roughness length. RLINEFDH removes the displacement height and the wind speed profile is similar to the wind speed profile used in other AERMOD source types. RLINEFDH must be used along with the ALPHA keyword and cannot be used with the DFAULT keyword.

3.2.3 Low wind parameters

An ALPHA option, LOW_WIND (see Section3.2.3), is included in AERMOD (beginning with the version dated 18081 and updated in versions 21112 and 22112) related to concerns regarding model performance under low wind speed conditions. Inclusion of the LOW_WIND keyword is intended to facilitate further testing and evaluation of AERMOD in low wind conditions in order to better understand the relationships of certain variables and potentially develop additional regulatory low wind options that will improve AERMOD's performance in low wind conditions. The LOW_WIND keyword has been added to the CO pathway to allow users to override the default values for seven different parameters that can potentially affect performance under low wind speed conditions with user-defined values. Model default values can be overridden with user-defined values for the following parameters:

- Minimum sigma-v value (SVmin) within a range of 0.01 to 1.0 m/s),
- Minimum wind speed value (WSmin) within a range from 0.01 to 1.0 m/s,
- Maximum value for the meander factor (FRANmax), within a range of 0.0 to 1.0,

- Minimum sigma-w value (SWMin), within a range of 0.0 to 3.0 m/s, and
- Time period (BigT) used to calculate the time scale TRAN, within a range of 0.5 to 48.0 hours.
- Minimum value for the meander factor (FRANmin), within a range of 0.0 to 1.0 but must be less than or equal to FRANmax
- Alternate momentum balance (PBAL) approach to determine plume meander which overrides the default energy balance approach.

Absent user-specified values on the LOW_WIND keyword, a default value of 0.2828 m/s is used for WSmin, consistent with the default applied in previous versions of AERMOD based on SQRT(2*SVmin*SVmin). The default value of SVmin = 0.2 m/s, FRANMax = 1.0, SWMin = 0.02 m/s, BigT = 24.0 hours, and FRANMin = 0.0.

The syntax and type of the LOW_WIND keyword is:

Syntax:	CO LOW_WIND SVmin [WSmin] *or* CO LOW_WIND SVmin WSmin [FRANmax] *or* CO LOW_WIND SVmin WSmin FRANmax [SWmin] *or* CO LOW_WIND SVmin WSmin FRANmax SWmin [BigT] *or* CO LOW_WIND SVmin WSmin FRANmax SWmin BigT [FRANmin] *or* CO LOW_WIND SVmin WSmin FRANmax SWmin BigT FRANmin [PBAL]
Type:	Optional, Non-repeatable

where SVmin is the minimum value of sigma-v, within a range of 0.01 to 1.0 m/s. WSmin is the minimum wind speed and can range from 0.01 to 1.0 m/s. FRANmax is the maximum meander factor, within a range of 0.0 to 1.0. BigT is the time scale used to calculate TRAN and can range from 0.5 to 48 hours, FRANmin is the minimum meander factor within a range of 0.0 to 1.0 and is required to be less than or equal to FRANmax. PBAL is a secondary keyword to replace the default energy balance approach for determining meander with a momentum balance approach. The syntax allows one of six ways to specify one or more of the LOW_WIND parameter values. For each syntax option, the parameter listed in square brackets, [], is optional, but the preceding parameters are required. For example, to override the default value for SWMin, you must also provide values for SVMin, WSMin, and FRANmax preceding the value for SWMin, in the order listed above.

Note: The LOW_WIND keyword was previously implemented as a BETA option to supplement the former LOWWIND1, LOWWIND2, and LOWWIND3 BETA options. These options have since been removed from AERMOD, and the LOW_WIND keyword was retained and changed to an ALPHA option.

In addition to the LOW_WIND ALPHA option, an option has been incorporated in the AERMET meteorological processor (first as a BETA option beginning with version 12345 and a regulatory option in version 16216) to address concerns regarding model performance under low wind conditions. The ADJ_U* option in AERMET adjusts the surface friction velocity (U*) under low wind/stable conditions based on Qian and Venkatram (2011). The ADJ_U* option may be used as a regulatory option in AERMET with NWS data or with site-specific data that does not include turbulence (i.e., sigma-w and/or sigma-theta). When the ADJ_U* option is used in the absence of turbulence data, AERMOD can accept the data with the regulatory DFAULT option enabled. Beginning with version 16216 of AERMET, an adjustment to U* under the ADJ_U* option is also available as a regulatory option for applications utilizing the Bulk Richardson Number (BULKRN) method, based on Luhar and Raynor (2009) (see also AECOM (2010)) when used with site-specific data that does not include turbulence parameters. The ADJ_U* option, when used with site-specific data that does include turbulence parameters, is currently considered a non-regulatory option and is therefore, subject to the alternative model provisions in Section 3.2 of Appendix W (40 CFR Part 51). During processing, AERMET includes a flag in the header of the surface meteorological data file (.SFC) to inform AERMOD that the data were processed using the ADJ_U* option. If AERMOD then encounters turbulence data in the profile file (PFL) generated by AERMET and the DFAULT flag is set, AERMOD will record the error and abort processing. Refer to the AERMET user's guide for additional details regarding the ADJ_U* option in AERMET.

3.2.4 Building downwash options

Beginning with version 19191, two distinct sets of ALPHA building downwash options are included in AERMOD and are enabled using the ORD_DWNW and AWMADWNW keywords. These are research grade options that have been identified as having potential to refine and improve the performance of the PRIME downwash algorithm in AERMOD in certain situations. They have been made available to users for testing and evaluation and require that the secondary keyword, ALPHA, be included with the MODELOPT keyword. The options associated with ORD_DWNW were developed by the EPA's Office of Research and Development (ORD) and the AWMADWNW options were developed by a research subcommittee of the Air and Waste Management Association (AWMA) formed for the purpose of conducting research that will lead to the improvement of the treatment of building downwash in AERMOD.

In addition to the ALPHA building downwash options implemented in AERMOD by ORD and AWMA, the research and development performed by both groups of researchers used an alternative method for determining the equivalent building dimensions for a rectangular building that is oblique to the wind from the method used by the building preprocessor, BPIPPRM. The alternative method uses the along wind building length and actual building width, for a given wind direction, as the equivalent building length and width, whereas BPIPPRM, for the same wind direction, uses the maximum projected length and maximum projected width. The alternate method reduces the footprint of the building which is reflected in the building parameters that are input into AERMOD.

The alternate method for determining equivalent building dimensions for a rectangular building used by ORD and AWMA has been implemented by ORD in a draft version of BPIPPRM (19191_DRFT) which can be downloaded from the EPA SCRAM website at: https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#bpipprm. It is important to note that this draft version of BPIPPRM (19191_DRFT) is a research grade version that has been provided to the modeling community for testing, evaluation, and feedback and may not be used in a regulatory context. The changes implemented in this draft version affect only the building parameters generated for rectangular buildings or tiers. It is also important to note that this draft version of BPIPPRM (19191_DRFT) is completely independent of the ALPHA downwash options implemented by ORD and AWMA. Any of the ALPHA downwash options can be tested and evaluated with and without the use of this draft version of BPIPPM.

The remainder of this section describes the usage of these keywords (ORD_DWNW and AWMADWNW), the ALPHA building downwash options associated with each, and the corresponding secondary keywords used to enable them for testing and evaluation. While, for the most part, the different downwash options are independent of one another and can be used in various combinations with one another, any conflicts and dependencies between options are noted in the sections below.

3.2.4.1 ORD building downwash options

The first is an initiative led by the EPA's Office of Research and Development (ORD). ORD has performed wind tunnel experiments and embedded large eddy simulations (LES) to better understand how to parameterize buildings that are elongated and angled relative to the wind flow and the parameterization of the plume in the cavity and far wake regions. The ORD studies are concentrated on single rectangular buildings, specifically investigating changes in plume parameters at discrete downwind distances from the building and source, longitudinal and lateral plume profiles, the lateral plume shift on the lee side of rotated buildings, and building characterization in BPIPPRM (Heist et al., 2016). To date, this research has led to

recommended changes to the building preprocessor, BPIPPRM, as well as changes to the building downwash algorithm in the AERMOD program.

ORD has performed wind tunnel experiments and embedded large eddy simulations (LES) to better understand how to parameterize buildings that are elongated and angled relative to the wind flow and the parameterization of the plume in the cavity and far wake regions. The ORD studies focused on single rectangular buildings and investigated changes in plume parameters at discrete downwind distances from the building and source and building characterization.

As previously stated, the ORD building options associated with the ORD_DWNW keyword are research grade ALPHA options and require the ALPHA secondary keyword included with the MODELOPT keyword. There are three distinct ORD options that can be enabled individually or in combination with one another. For detailed information on ORD's research and the options implemented in AERMOD, refer to Heist et al., 2016; Monbureau et al., 2018; and Perry et al., 2018. The usage of the ORD_DWNW keyword and associated secondary keywords is as follows:

Syntax:	CO ORD_DWNW	ORDUEFF ORDTURB ORDCAV	and/or and/or
Type:	Optional, Non-repeatable		

where:

ORDUEFF - Redefines the height at which the wind speed is taken from the profile wind speed used in the calculation of concentrations from the primary plume. The PRIME algorithm currently uses the wind speed at the stack height. ORDUEFF uses the average of the profiled wind speed between the height of the receptor and the plume centerline, allowing the wind speed of the plume to change with a changing environment.

NOTE: ORDUEFF cannot be used in combination with the AWMADWNW option AWMAUEFF.

ORDTURB - Redefines the maximum value of the non-dimensional vertical turbulence intensity in the wake, reduced from 0.07, the current value in PRIME, to 0.06 based on Wiel (1996).

ORDCAV- Redefines point downwind at which the vertical and lateral dispersion coefficients begin to grow with downwind distance from the lee edge of the building to the end of the cavity. PRIME considers a cavity plume and a re-emitted plume to simulate two distinct regions with a weighted distribution of mass between the two plumes. The cavity and re-emitted plumes initially have the same lateral and vertical dispersion on the leeward side of the building. The re-emitted plume grows with downwind distance while the dispersion of the cavity plume remains unchanged throughout the cavity which creates a discontinuity of the two plumes at the near-wake boundary and results in a reduction in ground level concentrations. This option sets the dispersion coefficients for the two plumes equal to each other at the cavity edge eliminating the discontinuity between the two plumes.

NOTE: Each of the three ORD_DWNW options listed are optional, but at least one must be included if the ORD_ DWNW keyword is specified in the control file.

3.2.4.2 AWMA building downwash options

AWMA's research focused on the reanalysis of existing wind tunnel data, as well as the completion of new wind tunnel experiments to investigate the decay of the building wake above the top of the building, appropriate height at which approach turbulence and wind speed are calculated, the reduction of wake effects for streamlined structures, and the effect of approach roughness on the wake.

Five ALPHA building downwash options developed by the AWMA have been implemented in AERMOD and require the ALPHA secondary keyword included with the MODELOPT keyword. For detailed information on AWMA's research and the development of these ALPHA building downwash options, refer to Petersen et al., 2017 and Petersen et al., 2018. The usage of the AWMADWNW keyword and the associated secondary keywords to enable the AWMA building downwash ALPHA options is as follows:

Syntax:	CO AWMADWNW	AWMAUEFF and/or AWMAENTRAIN and/or ((AWMAUTURB or AWMAUTURBHX) w/wo STREAMLINE(D))
Type:	Optional, Non-repeatable	

where:

AWMAUEFF - Redefines the height at which the wind speed is taken from the profile wind speed used in the calculation of concentrations from the primary plume. The PRIME algorithm currently uses the wind speed at the stack height. AWMAUEFF uses the wind speed at the height of the plume centerline.

NOTE: AWMAUEFF cannot be used in combination with the ORD_DWNW option ORDUEFF.

AWMAENTRAIN - AWMAENTRAIN changes beta (B) entrainment coefficient for PRIME downwash from default value of 0.60 to 0.35.

AWMAUTURB - Enables enhanced calculations of turbulence and wind speed using the minimum of the final momentum plume rise or a representative PRIME plume rise height for all calculations. Also, uses the final momentum plume rise height used to compute effective wind speed (UEFF), effective σ_w (SWEFF), effective σ_v (SVEFF), effective potential temperature gradient (TGEFF), and initial turbulence intensities (ambiy and ambiz) and computes mean wind speed, σ_w, and σ_v at 30 meters (U30, SW30 and SV30, respectively).

AWMAUTURBHX - Enables enhanced calculations of turbulence and wind speed using the PRIME plume rise at the downwind distance X, for all calculations. Uses the final momentum plume rise height to initially compute effective wind speed (UEFF), effective σ_w (SWEFF), effective σ_v (SVEFF), effective potential temperature gradient (TGEFF), and initial turbulence intensities (ambiy and ambiz) and then then uses the PRIME computed plume rise at each downwind distance. Also, computes mean wind speed, σ_w, and σ_v at 30 meters (U30, SW30 and SV30, respectively).

NOTE: If AWMAUTURB and AWMAUTURBHX are both specified, AERMOD will issue a warning and continue processing using the AWMAUTURBHX option.

STREAMLINE(D) - Reduces dispersion in the wake of streamlined structures such as storage tanks and cooling towers. Uses alternate formulations for turbulence enhancement and velocity deficit associated with the AWMUTURB and AWMATURBHX options with modifications for streamlined structures. When specified, all structures will be treated as streamlined structures.

NOTE: The STREAMLINE option can only be specified in conjunction with the AWMAUTURB and AWMAUTURBHX options. When specified, AERMOD assumes all buildings defined in the input control file are streamlined structures.

NOTE: Each of the AWMADWNW options listed are optional, but at least one must be included if the AWMADWNW is used.

Refer to Section 3.2.18 for debug output options associated with the ALPHA building downwash options.

3.2.5 Input parameters for NO_2 conversion options

This section provides a description of the AERMOD inputs related to the PVMRM, OLM, GRSM, and ARM2 regulatory options for modeling the conversion of NO to NO_2, as well as the ALPHA options, TTRM and TTRM2. TTRM and GRSM were both added as ALPHA options beginning with version 21112. Beginning with version 22112, GRSM was updated to a BETA option, and TTRM2 was added as an ALPHA option to invoke TTRM simultaneously with ARM2, PVMRM, or OLM. GRSM was updated to a regulatory option beginning in version 24142. As a stand-alone option, TTRM is only effective for near field receptors. TTRM2 paired with ARM2, PVMRM, or OLM, will invoke TTRM for near field receptors and use the other method specified for all other receptors. While TTRM as a method has now been integrated to be paired with these other options using the TTRM2 keyword, the TTRM keyword has been retained as a stand-alone option for testing and diagnostic purposes. Note that the TTRM2 option cannot be paired with GRSM. Also note that beginning with version 16216r, ARM2 replaced the original Ambient Ratio Method (ARM) Tier 2 option for NO conversion to NO_2. ARM is no longer an option in AERMOD.

A technical description of the PVMRM algorithm as incorporated within AERMOD is provided in the AERMOD Model Formulation document (EPA, 2024a). Additional information regarding the regulatory options for NO_2 modeling are provided in Technical Support Document (TSD) for NO_2-related AERMOD Modifications (EPA, 2015). Background on the original development of the PVMRM option is provided by Hanrahan (1999a and 1999b).

The ARM2 option is based on work sponsored by API (API, 2013) to develop a method to adjust the modeled NO_x concentrations based on an empirical relationship between ambient NO_x and ambient NO_2 concentrations. A key difference between the PVMRM and OLM methods, as compared to the ARM2 method, is that ARM2 does not require the user to input background ozone (O_3) concentrations or in-stack NO_2/NO_x ratios, as required by PVMRM and OLM; however, the default minimum ratio utilized in the ARM2 method may not be appropriate in cases where the sources being modeled are known to have relatively high in-stack NO_2/NO_x ratios. ARM2 sums all NOX impacts from all sources modeled in a single model run to determine the NO2/NOX ratio that's applied for each source group (SRCGROUP) specified. While the SRCGROUP keyword is required with at least one source group defined, if source group 'ALL' is omitted, AERMOD will automatically assume a source group 'ALL' internally and apply ARM2 to that assumed source group. In this case, AERMOD will generate a warning message to indicate that source group 'ALL' is missing but not required. Thus, ARM2 will not be calculated based on separate source groups NOX impacts. For example, if NOX emissions from five stacks are modeled with the ARM2 option, and only one source group is specified for one stack, ARM2 will first determine the total NOX impact from all five stacks, calculate the empirically derived NO2/NOX ratio from the total NOX impact (using a 5^{th} order polynomial equation discussed in API, 2013), and the final NO2 impact concentration for the single stack source group would be calculated as the product of the NO2/NOX ratio and the discreet NOX impact for the single stack source group.

The ARM2 has been implemented as a regulatory Tier 2 option while the PVMRM, OLM, and GRSM algorithms have been implemented as regulatory Tier 3 screening options. Therefore, any one of the four options can be used with the DFAULT keyword. TTRM/TTRM2 have been added as non-regulatory ALPHA options and cannot be used with the DFAULT keyword. As with all other ALPHA options, they require the use of the ALPHA keyword. With exception to daytime GRSM NO_2 calculations, it is important to note that the OLM, PVMRM, ARM2, and TTRM/TTRM2 options are <u>NOT</u> applied to the background NO_2 concentrations input through the SO BACKGRND option (described in Section 3.3.8.2). The background NO_2 concentrations, if provided, will be added to the modeled NO_2 concentrations after the NO-NO_2 conversion has been calculated. GRSM daytime NO_2 model concentrations are calculated based on the

net production of NO_2 from the following: NO_2 in-stack ratio, ozone entrainment and conversion of NO_X to NO_2, photolysis of NO_2 to NO, and time-of-travel of the NO_X plume from source to receptor. GRSM nighttime NO_2 model concentrations are calculated similar to OLM and PVMRM, i.e., limited by ozone conversion of NO to NO_2 with background NO_2 concentrations (as specified through SO BACKGRND pathway) simply added to the post-chemistry total NO_2 concentration.

It should be noted that not all NO_2 conversion options have been implemented for all source types in AERMOD. Table 3-2 summarizes which NO_2 conversion options have been implemented for each of the AERMOD source types and which options have not.

Table 3-2. Implemented NO2 Conversion Options by AERMOD Source Type

AERMOD Source Type	Implemented NO2 Options	Not Implemented Warning Issued
POINT (inc. POINTCAP and POINTHOR)	ALL	NONE
AREA (inc. AREAPOLY, AREACIRC, and LINE)	ALL	NONE
VOLUME	ALL	NONE
OPENPIT	ARM2, PVMRM, OLM, TTRM, GRSM	TTRM2 (unpaired or paired with ARM2, OLM, or PVMRM), TTRM2 by itself produces zero-values!
RLINE/RLINEXT	ARM2	PVMRM, OLM, TTRM, TTRM2, GRSM
BUOYLINE	ARM2	PVMRM, OLM, TTRM, TTRM2, GRSM
SWPOINT	NONE	ARM2, PVMRM, OLM, TTRM, TTRM2, GRSM

As described in Section 3.3.7, the ALPHA model option, PSDCREDIT, has been included for testing and evaluation for increment consumption with PSD credits using PVMRM. The special source grouping required for the PSDCREDIT option is also described below in Section 3.3.7.

3.2.5.1 Specifying ozone concentrations for PVMRM, OLM, TTRM/TTRM2, and GRSM options

The background ozone concentrations for the PVMRM, OLM, TTRM/TTRM2, and GRSM options can be input as a single value through the OZONEVAL keyword on the CO pathway, as temporally varying values through the O3VALUES keyword on the CO pathway, or as hourly values from a separate data file specified through the OZONEFIL keyword on the CO pathway. The user must specify background ozone concentrations through the OZONEVAL, O3VALUES, or OZONEFIL keyword to use the PVMRM, OLM, TTRM/TTRM2, or GRSM option. The OZONEVAL or O3VALUES keyword may also be specified with the OZONEFIL keyword, in which case the value(s) entered on the OZONEVAL or O3VALUES keyword will be used to substitute for hours with missing ozone data in the hourly ozone data file. Users are strongly encouraged to utilize the OZONEVAL or O3VALUES keyword with the OZONEFIL keyword to substitute for missing ozone concentrations in the hourly data file. Beginning with version 13350 users can vary background ozone concentrations by wind sector. For applications that include sector-varying background ozone concentrations, the sectors are defined based on the CO O3SECTOR keyword, as follows:

Syntax:	CO O3SECTOR StartSect1 StartSect2 . . . StartSect*N*, where $N \leq 6$
Type:	Optional, Non-Repeatable

For applications that include sector-varying background concentration the minimum sector width allowed is 30 degrees and warning messages will be issued for sector widths less than 60 degrees. **Sector-varying background concentrations will be selected based on the flow vector, i.e., the downwind direction based on the wind direction specified in the surface meteorological data file.**

The syntax of the OZONEVAL keyword is as follows:

Syntax:	CO OZONEVAL O3Value (O3Units) (w/o sectors) or CO OZONEVAL SECT*x* O3Value (O3Units), where $x \leq 6$ (w/ sectors)
Type:	Optional, Non-repeatable

where the O3Value parameter is the background ozone concentration in the units specified by the optional O3Units parameter (PPM, PPB, or UG/M3), and SECT*x* refers to the user-specified sector defined on the

optional O3SECTOR keyword for which the O3Value inputs are applied. Implement as SECT1 or SECT2 …or SECT*x* where $x \leq 6$, and x is an integer and corresponds to the Nth sector defined by O3SECTOR. If the optional O3Units parameter is missing, then the model will assume units of micrograms/cubic-meter (UG/M3) for the background ozone values. If units of PPM or PPB are used, then the model will convert the concentrations to micrograms/cubic-meter based on reference temperature (25 C) and pressure (1013.25 mb). If O3SECTOR has been implemented, then OZONEVAL can only be applied for a single sector. However, if using multiple sectors user should use O3VALUES.

The syntax of the O3VALUES keyword is as follows, and is similar to the EMISFACT keyword on the SO pathway (Section 3.3.11) for specifying temporally varying emission rates:

Syntax:	CO O3VALUES O3Flag O3values(i), i=1, *n* (w/o sectors) or CO O3VALUES SECT*x* O3Flag O3values(i), i=1, *n* where $x \leq 6$ (w/ sectors)
Type:	Optional, Repeatable

where the SECT*x* parameter specifies the applicable sector as defined on the optional O3SECTOR keyword. Implement as SECT1 or SECT2 …or SECT*x* where $x \leq 6$, and *x* is an integer and corresponds to the Nth sector defined by O3SECTOR. The parameter O3Flag is the variable ozone concentration flag, and must be specified as one of the following secondary keywords (the number in parentheses indicates the number of values required for each option):

ANNUAL - annual ozone value (*n* = 1); equivalent to OZONEVAL keyword in PPB,

SEASON - ozone values vary seasonally (*n* = 4),

MONTH - ozone values vary monthly (*n* = 12),

HROFDY - ozone values vary by hour-of-day (*n* = 24),

WSPEED - ozone values vary by wind speed (*n* = 6),

SEASHR - ozone values vary by season and hour-of-day (*n* = 96),

HRDOW - ozone values vary by hour-of-day, and day-of-week [M-F, Sat, Sun] (*n* = 72),

HRDOW7 - ozone values vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (*n* = 168),

SHRDOW - ozone values vary by season, hour-of-day, and day-of-week [M-F, Sat, Sun] (*n* = 288),

SHRDOW7 - ozone values vary by season, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (*n* = 672),

MHRDOW - ozone values vary by month, hour-of-day, and day-of-week [M-F, Sat, Sun] (n = 864), and

MHRDOW7 - ozone values vary by month, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n = 2,016).

The O3Values array is the array of ozone values, where the number of values is shown above for each O3Flag option. The seasons are defined in the following order: Winter (Dec., Jan., Feb.), Spring (Mar., Apr., May), Summer (Jun., Jul., Aug.), and Fall (Sep., Oct., Nov.). The wind speed categories used with the WSPEED option may be defined using the ME WINDCATS keyword. If the WINDCATS keyword is not used, the default wind speed categories are defined by the upper bound of the first five categories as follows (the sixth category is assumed to have no upper bound): 1.54, 3.09, 5.14, 8.23, and 10.8 m/s. The O3VALUES keyword may be repeated as many times as necessary to input all of the ozone values and repeat values may be used for the numerical inputs.

The order of inputs specified for the hour-of-day/day-of-week options (HRDOW, SHRDOW, SHRDOW7, etc.) are by hour-of-day, then season or month, if applicable, and then by day-of-week. For the HRDOW/SHRDOW/MHRDOW options, the days of the week are specified in the order of Weekdays (M-F), Saturdays, and Sundays. For the HRDOW7/SHRDOW7/ MHRDOW7 options, the days of the week are specified in the order of Mondays, Tuesdays, etc., through Sundays. Section 3.3.11 below includes an example illustrating the order of inputs for these options for the EMISFACT keyword.

Ozone concentrations specified on the O3VALUES keyword are assumed to be in units of PPB unless the OZONUNIT keyword is specified.

The syntax of the OZONUNIT keyword is as follows:

Syntax:	CO OZONUNIT OzoneUnits
Type:	Optional, Non-repeatable

where the OzoneUnits parameter specifies the units as parts-per-billion (PPB), parts-per-million (PPM), or micrograms/cubic-meter (UG/M3). Units specified on the CONCUNIT keyword are only applied to ozone concentrations input thought O3VALUES keyword, which assumes default units of PPB if the OZONUNIT keyword is not specified. Ozone concentrations specified in units of PPB or PPM are converted to UG/M3 based on reference temperature (25 C) and pressure (1013.25 mb).

Hourly ozone concentrations can be input through the optional OZONEFIL keyword. The syntax of the OZONEFIL keyword is as follows:

Syntax:	CO OZONEFIL O3FileName (O3Units) (O3Format) (w/o sectors) or CO OZONEFIL SECT*x* O3FileName (O3Units) (O3Format), where $x \leq 6$ (w/ sectors)
Type:	Optional, Non-repeatable

where the O3FileName parameter is the filename for the hourly ozone concentration file, the optional O3Units parameter specifies the units of the ozone data (PPM, PPB, or UG/M3, with UG/M3 as the default), and the optional O3Format parameter specifies the Fortran format to read the ozone data. If sector-varying ozone concentrations are being used, based on the CO O3SECTOR keyword, then the applicable sector ID needs to be specified, e.g., 'SECT1' indicates that values are specified for the first downwind sector. The O3FileName can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (") at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces.

The hourly ozone file must include the year, month, day, and hour, followed by the ozone concentration, in that order (unless specified differently through the O3Format parameter). The year can be specified as either a 2-digit or 4-digit year. If an optional Fortran format is specified using the O3Format parameter, the year, month, day, and hour variables must be read as integers using the Fortran 'I' format specifier, and the ozone concentration must be read as a real variable, using the Fortran 'F,' 'E,' or 'D' format specifiers, e.g., (4I2, F8.3). Note that ozone values that do not include decimal places can be read as F*x*.0, where *x* is the length of the data field. However, ozone values that to not include decimal places may be read incorrectly if the O3Format specified for reading the data includes decimal places. For example, a value of '1234' would be interpreted as '123.4' if a format of F4.1 was used. The O3Format parameter must include the open and close parentheses as shown in the example and may also include embedded spaces if double quotes (") are used to delimit the field. A warning message will be generated if the specified format does not meet these requirements, and AERMOD may also issue a fatal error message when reading the file in cases where real variables are read with an integer format, or vice versa.

If the optional O3Format parameter is missing, then the model will read the ozone data using a Fortran 'free' format, i.e., assuming commas or spaces separate the data fields, and that the fields are in the order given above. The date sequence in the ozone data file must match the date sequence in the hourly meteorological data files. As with the OZONEVAL keyword, if units of PPM or PPB are used, then the

model will convert the concentrations to micrograms/cubic-meter based on reference temperature (25 C) and pressure (1013.25 mb).

Values of ozone concentrations in the ozone data file that are less than zero or greater than or equal to 900.0 will be regarded as missing. If background ozone values have been specified using the OZONEVAL and/or O3VALUES keyword, then the appropriate value will be used to substitute for missing ozone data from the ozone file. If no OZONEVAL or O3VALUES keywords are used, then the model will assume full conversion of NO to NO_2 for hours with missing ozone data.

AERMOD will apply a minimum ozone value for NO conversion during stable hours, based on the maximum minimum of 40 ppb and the maximum hourly ozone from the previous 24-hours of ozone data. This minimum ozone restriction can be turned off with the NOMINO3 keyword. As with all NO_2 options, this option shall be used in agreement with the appropriate reviewing authority.

NOTE: The OLM method for estimating NO_2 concentrations, outlined by Cole and Summerhays (1979), assumes NO conversion to NO_2 by first dividing total NO_x into a thermal NO_2 component directly emitted from a stack, with the remaining NO_x assumed as NO and available for reaction with O_3. If ambient O_3 is greater than the portion of NO_x assumed as NO, all NO is converted to NO_2, otherwise, the amount of NO converted to NO_2 is limited to available O_3. AERMOD, for OLM processing, only incorporates user-defined, background ozone values in concentration calculations for hours that are “ozone-limited”, when sufficient atmospheric ozone is not present for NO_x chemistry reactions. Determination of ozone-limited hours is dependent on the relative values of background ozone concentrations to NO_2 emissions multiplied by the in-stack NO_2/NOx ratio, described in Section 3.2.5.4, defined by the user. It is possible, therefore, to define scenarios that will result in an absence of ozone-limited hours. Users interested in evaluating concentrations sensitivities to background ozone should consider the potential that modification of the background ozone concentration may not appear to impact output concentrations if relatively low in-stack NO_2/NO_x and/or emissions rates are defined. This behavior does not apply to the AERMOD PVMRM method.

3.2.5.2 Specifying NO_X background concentrations for the GRSM option

The background NO_X concentrations for the GRSM option is input similarly to the ozone background concentrations. The background NO_X concentrations can be input as a single value through the NOXVALUE keyword on the CO pathway, as temporally varying values through the NOX_VALS keyword on the CO pathway, or as hourly values from a separate data file specified through the NOX_FILE keyword

on the CO pathway. The user may specify background NO_X concentrations through the NOXVALUE, NOX_VALS, or NOX_FILE keyword in order to use the GRSM option. The NOXVALUE or NOX_VALS keyword may also be specified with the NOX_FILE keyword, in which case the value(s) entered on the NOXVALUE or NOX_VALS keyword will be used to substitute for hours with missing NO_X background data in the hourly NO_X data file. Users are strongly encouraged to utilize the NOXVALUE or NOX_VALS keyword with the NOX_FILE keyword to substitute for missing NO_X concentrations in the hourly data file. If no NO_X input is supplied, GRSM will assume equilibrium with NO_X. As with background ozone, users can vary background NO_X concentrations by wind sector. For applications that include sector-varying background NO_X concentrations, the sectors are defined based on the CO NOXSECTR keyword, as follows:

Syntax:	CO NOXSECTR StartSect1 StartSect2 . . . StartSect*N*, where $N \leq 6$
Type:	Optional, Non-Repeatable

For applications that include sector-varying background concentration the minimum sector width allowed is 30 degrees and warning messages will be issued for sector widths less than 60 degrees. **Sector-varying background concentrations will be selected based on the flow vector, i.e., the downwind direction, based on the wind direction specified in the surface meteorological data file.**

The syntax of the NOXVALUE keyword is as follows:

Syntax:	CO NOXVALUE NOXValue (NOXUnits) (w/o sectors) or CO NOXVALUE SECT*x* NOXValue (NOXUnits), where $x \leq 6$ (w/ sectors)
Type:	Optional, Non-repeatable

where the NOXValue parameter is the background NO_X concentration in the units specified by the optional NOXUnits parameter (PPM, PPB, or UG/M3), and SECT*x* refers to the user-specified sector defined on the optional NOXSECTR keyword for which the NOXValue inputs are applied. Implement as SECT1 or SECT2 …or SECT*x* where $x \leq 6$, and x is an integer and corresponds to the Nth sector defined by NOXSECTR. If the optional NOXUnits parameter is missing, then the model will assume units of micrograms/cubic-meter (UG/M3) for the background NO_X values. If units of PPM or PPB are used, then the model will convert the concentrations to micrograms/cubic-meter based on reference temperature (25 C) and pressure (1013.25 mb).

The syntax of the NOX_VALS keyword is as follows and is similar to the O3VALUES keyword described above in Section 3.2.5.1 for specifying temporally varying ozone background concentrations:

Syntax:	CO NOX_VALS NOXFlag NOXvalues(i), i=1, *n* (w/o sectors) or CO NOX_VALS SECT*x* NOXFlag NOXvalues(i), i=1, *n* and $x \leq 6$ (w/ sectors)
Type:	Optional, Repeatable

where the SECTx parameter specifies the applicable downwind sector as defined on the optional NOXSECTR keyword and the parameter NOXFlag is the variable NO_X concentration flag and must be specified as one of the following secondary keywords (the number in parentheses indicates the number of values required for each option):

ANNUAL - annual NO_X value (*n* = 1); equivalent to NOXVALUE keyword in PPB,

SEASON - NO_X values vary seasonally (*n* = 4),

MONTH - NO_X values vary monthly (*n* = 12),

HROFDY - NO_X values vary by hour-of-day (*n* = 24),

WSPEED - NO_X values vary by wind speed (*n* = 6),

SEASHR - NO_X values vary by season and hour-of-day (*n* = 96),

HRDOW - NO_X values vary by hour-of-day, and day-of-week [M-F, Sat, Sun] (*n* = 72),

HRDOW7 - NO_X values vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (*n* = 168),

SHRDOW - NO_X values vary by season, hour-of-day, and day-of-week [M-F, Sat, Sun] (*n* = 288),

SHRDOW7 - NO_X values vary by season, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (*n* = 672),

MHRDOW - NO_X values vary by month, hour-of-day, and day-of-week [M-F, Sat, Sun] (*n* = 864), and

MHRDOW7 - NO_X values vary by month, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (*n* = 2,016).

The NOX values array is the array of NO_X values, where the number of values is shown above for each NOXFlag option. The seasons are defined in the following order: Winter (Dec., Jan., Feb.), Spring (Mar., Apr., May), Summer (Jun., Jul., Aug.), and Fall (Sep., Oct., Nov.). The wind speed categories used with the WSPEED option may be defined using the ME WINDCATS keyword. If the WINDCATS keyword

is not used, the default wind speed categories are defined by the upper bound of the first five categories as follows (the sixth category is assumed to have no upper bound): 1.54, 3.09, 5.14, 8.23, and 10.8 m/s. The NOX_VALS keyword may be repeated as many times as necessary to input all the NO_X values and repeat values may be used for the numerical inputs.

The order of inputs specified for the hour-of-day/day-of-week options (HRDOW, SHRDOW, SHRDOW7, etc.) are by hour-of-day, then season or month, if applicable, and then by day-of-week. For the HRDOW/SHRDOW/MHRDOW options, the days of the week are specified in the order of Weekdays (M-F), Saturdays, and Sundays. For the HRDOW7/SHRDOW7/ MHRDOW7 options, the days of the week are specified in the order of Mondays, Tuesdays, etc., through Sundays. Section 3.3.11 below includes an example illustrating the order of inputs for these options for the EMISFACT keyword.

NO_X concentrations specified on the NOX_VALS keyword are assumed to be in units of PPB unless the NOX_UNIT keyword is specified.

The syntax of the NOX_UNIT keyword is as follows:

Syntax:	CO NOX_UNIT NOXUnits
Type:	Optional, Non-repeatable

where the NOXUnits parameter specifies the units as parts-per-billion (PPB), parts-per-million (PPM), or micrograms/cubic-meter (UG/M3). Units specified on the CONCUNIT keyword are only applied to ozone concentrations input thought NOX_VALS keyword, which assumes default units of PPB if the NOX_UNIT keyword is not specified. NO_X concentrations specified in units of PPB or PPM are converted to UG/M3 based on reference temperature (25 C) and pressure (1013.25 mb).

Hourly NO_X concentrations can be input through the optional NOX_FILE keyword. The syntax of the NOX_FILE keyword is as follows:

Syntax:	CO NOX_FILE NOXFileName (NOXUnits) (NOXFormat) (w/o sectors) or CO NOX_FILE SECT*x* NOXFileName (NOXUnits) (NOXFormat), where $x \leq 6$ (w/ sectors)
Type:	Optional, Non-repeatable

where the NOXFileName parameter is the filename for the hourly ozone concentration file, the optional NOXUnits parameter specifies the units of the ozone data (PPM, PPB, or UG/M3, with UG/M3 as the default), and the optional NOXFormat parameter specifies the Fortran format to read the NO_X data. If sector-varying NO_X concentrations are being used, based on the CO NOXSECTR keyword, then the applicable sector ID needs to be specified, e.g., 'SECT1' indicates that values are specified for the first downwind sector. The NOXFileName can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (") at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces.

The hourly NO_X file must include the year, month, day, and hour, followed by the NO_X concentration, in that order (unless specified differently through the NOXFormat parameter). The year can be specified as either a 2-digit or 4-digit year. If an optional Fortran format is specified using the NOXFormat parameter, the year, month, day, and hour variables must be read as integers using the Fortran 'I' format specifier, and the ozone concentration must be read as a real variable, using the Fortran 'F,' 'E,' or 'D' format specifiers, e.g., (4I2, F8.3). Note that NO_X values that do not include decimal places can be read as F*x*.0, where *x* is the length of the data field. However, NO_X values that to not include decimal places may be read incorrectly if the NOXFormat specified for reading the data includes decimal places. For example, a value of '1234' would be interpreted as '123.4' if a format of F4.1 was used. The NOXFormat parameter must include the open and close parentheses as shown in the example and may also include embedded spaces if double quotes (") are used to delimit the field. A warning message will be generated if the specified format does not meet these requirements, and AERMOD may also issue a fatal error message when reading the file in cases where real variables are read with an integer format, or vice versa.

If the optional NOXFormat parameter is missing, then the model will read the NO_X data using a Fortran 'free' format, i.e., assuming commas or spaces separate the data fields, and that the fields are in the order given above. The date sequence in the NO_X data file must match the date sequence in the hourly meteorological data files. As with the NOXVALUE keyword, if units of PPM or PPB are used, then the model will convert the concentrations to micrograms/cubic-meter based on reference temperature (25 C) and pressure (1013.25 mb).

Values of NO_X concentrations in the NO_X data file that are less than zero will be regarded as missing. If background NO_X values have been specified using the NOXVALUE and/or NOX_VALS keyword, then the appropriate value will be used to substitute for missing NO_X data from the NO_X file. If no NOXVALUE

or NOX_VALS keywords are used, then the model will assume equilibrium of NOx with NO_2 predicted from GRSM based on NO_X emissions and hourly ozone for hours with missing NO_X data.

3.2.5.3 Specifying the ambient equilibrium NO_2/NO_x ratio (PVMRM, OLM, TTRM/TTRM2)

The PVMRM option for modeling conversion of NO to NO_2 incorporate a default NO_2/NO_x ambient equilibrium ratio of 0.90. Beginning with version 11059 of AERMOD, a default equilibrium ratio of 0.90 has also been incorporated in the OLM option, as well as the TTRM option beginning with version 21112. A NO_2/NO_x equilibrium ratio other than 0.90 can be specified for the PVMRM, OLM, or TTRM/TTRM2 option through the optional NO2EQUIL keyword on the CO pathway. The syntax of the NO2EQUIL keyword is as follows:

Syntax:	CO NO2EQUIL NO2Equil
Type:	Optional, Non-repeatable

where the NO2Equil parameter is the NO_2/NO_x equilibrium ratio and must be between 0.10 and 1.0, inclusive. Note the NO2EQUIL option is invalid for GRSM simulations given that GRSM calculates the NO_2/NO_x conversion equilibrium ratio explicitly.

3.2.5.4 Specifying the default in-stack NO_2/NO_x ratio (PVMRM, OLM, TTRM/TTRM2, GRSM)

The PVMRM, OLM, TTRM/TTRM2, and GRSM options for modeling conversion of NO to NO_2 require that an in-stack NO_2/NO_x ratio be specified. Based on guidance issued June 28, 2010 (EPA, 2010b), regarding the 1-hour NO_2 NAAQS, AERMOD has been modified to require the user to specify in-stack NO_2/NO_x ratios for each source under the OLM and PVMRM options, i.e., AERMOD no longer assumes a default in-stack ratio of 0.10 for the OLM or PVMRM option. This requirement has been carried forward with the addition of the TTRM/TTRM2 and GRSM options.

The in-stack NO_2/NO_x ratio can be specified for the PVMRM, OLM, TTRM/TTRM2, or GRSM option by using either the CO NO2STACK keyword to specify a default value to be used for all sources, or by using the SO NO2RATIO keyword to specify a value on a source-by-source basis. The SO NO2RATIO keyword can also be used to override the default value for specific sources if the CO NO2STACK keyword has been specified. The syntax of the NO2STACK keyword is as follows:

Syntax:	CO NO2STACK NO2Ratio
Type:	Optional, Non-repeatable

where the NO2Ratio parameter is the default in-stack NO_2/NO_x ratio that will be used, unless overridden on a source-by-source basis by the SO NO2RATIO keyword (described below). The value of NO2Ratio must be between 0.0 and 1.0, inclusive. Users should note that while CO NO2STACK is an optional keyword, the OLM, PVMRM, TTRM/TTRM2, and GRSM options require the user to specify an in-stack NO_2/NO_x ratio for each source, using either the CO NO2STACK or SO NO2RATIO keyword (described in Section 3.3.6.1), or both.

3.2.6 Averaging time options

The averaging periods for AERMOD are selected using the AVERTIME keyword on the CO (Control) pathway. The syntax and type of the AVERTIME keyword are summarized below:

Syntax:	CO AVERTIME Time1 Time2 . . . Time*N* MONTH PERIOD or ANNUAL
Type:	Mandatory, Non-repeatable

where the parameters Time1 . . . Time*N* refer to the user-specified short-term averaging periods of 1, 2, 3, 4, 6, 8, 12, and/or 24 hours, the secondary keyword MONTH refers to monthly averages (for calendar months), the secondary keyword PERIOD refers to the average for the entire data period, and the secondary keyword ANNUAL refers to an annual average. Any of the short-term averaging periods listed above may be selected for a given run. Since the monthly averages are treated as short-term averages, the user can select appropriate output options, such as the second highest values by receptor, on the OU pathway. The location of the PERIOD or ANNUAL keyword in the parameter list is not critical. The order of the short-term averaging periods (including MONTH) is also not critical, although it does control the order of the averaging period result tables in the main output file. Generally, it is recommended that the short-term averaging periods be input in increasing order, unless there is a clear advantage in doing otherwise.

The user may specify either the PERIOD keyword or the ANNUAL keyword, but not both. For concentration calculations for a single year data file, the PERIOD and ANNUAL keywords produce the same results. **However, the ANNUAL average option applies only to complete years of data, and for multi-**

year data files, the ANNUAL average output is based on the average of the ANNUAL values across the years of data processed.

For deposition calculations, the PERIOD keyword will provide a total deposition flux for the full period of meteorological data that is modeled, including multi-year data files, with default units of g/m^2, whereas the ANNUAL keyword will provide an annualized rate of the deposition flux with default units of $g/m^2/yr$.

Use of the ANNUAL average option for meteorological data periods of less than a year will result in a fatal error. For meteorological data periods of longer than a year, if the meteorological data file does not contain complete years of data, any data remaining after the last complete year will be ignored for the ANNUAL average, and a warning message will be generated. The treatment of short-term averages with multiple-year data files is comparable to their treatment when the CO MULTYEAR option is used.

3.2.7 Performing multiple year analyses with MULTYEAR option

The MULTYEAR keyword on the CO pathway provides an option for the user to perform a multiple year analysis such as would be needed to determine the "high-sixth-high in five years" design value for determining PM-10 impacts without the need for postprocessing of multiple concentration files, and for multiple year analyses associated with the 24-hour PM2.5 NAAQS and 1-hour NO_2 and SO_2 NAAQS which are based on concentrations averaged across the number of years processed. More information regarding the 24-hour PM2.5 and 1-hour NO_2 and SO_2 NAAQS is provided in Sections 3.2.16 and 3.2.17. Since the multiple year option makes use of the model re-start capabilities described in the Section 3.2.15, the MULTYEAR keyword is not compatible with the SAVEFILE or INITFILE keywords. The model will generate a fatal error message if the user attempts to exercise both options in a single run. The syntax and type of the MULTYEAR keyword is summarized below:

Syntax:	CO MULTYEAR (H6H) Savfil (Inifil)
Type:	Optional, Non-repeatable

where the optional H6H field, formerly used to highlight the use of the MULTYEAR option for determining the High-6th-High (H6H) 24-hour average for the “pre-1997” PM-10 NAAQS, is no longer required since the “post-1997” PM-10 NAAQS was vacated. A warning message will be generated if the H6H field is included on the MULTYEAR keyword indicating that it is not required. The Savfil parameter specifies the filename for saving the results arrays at the end of each year of processing, and the Inifil parameter specifies the

filename to use for initializing the results arrays at the beginning of the current year. The Inifil parameter is optional and should be left blank for the first year in the multi-year series of runs. The MULTYEAR option works by accumulating the high short-term average results from year to year through the mechanism of the re-start save file. The model may be setup to run in a batch file with several years of meteorological data, and at the end of each year of processing, the short-term average results reflect the cumulative high values for the years that have been processed. The PERIOD average results are given for only the current year, but the model carries the highest PERIOD values from year to year and includes the cumulative highest PERIOD averages in the summary table at the end of the run.

When setting up a batch file to perform a multiple year analysis, the user would first create an input control file for the first year with all the applicable modeling options, the source inventory data, the receptor locations, the meteorology options for the first year and the output file options. To obtain the PM-10 design value, be sure to include the SIXTH highest value on the OU RECTABLE card (see Section 3.7.1). For the CO MULTYEAR card for the first year, the user would only specify the Savfil parameter, and may use a card such as:

```
CO MULTYEAR YEAR1.SAV
```

For the subsequent years, the user could copy the input file created for Year-1 and edit the files to change the year parameters and meteorology filename on the ME pathway (and possibly in the title information) and edit the MULTYEAR cards. For the subsequent years, both the Savfil and Inifil parameters must be specified, with the Savfil for Year-1 becoming the Inifil for Year-2, and so on. The MULTYEAR cards (one for each AERMOD run) might look like this:

```
CO MULTYEAR YEAR1.SAV (First year)
CO MULTYEAR YEAR2.SAV YEAR1.SAV (Second year)
CO MULTYEAR YEAR3.SAV YEAR2.SAV (Third year)
CO MULTYEAR YEAR4.SAV YEAR3.SAV (Fourth year)
CO MULTYEAR YEAR5.SAV YEAR4.SAV (Fifth year)
```

The MULTYEAR keyword option is separate from the ability of the AERMOD model to process a multiple-year meteorological data file in a single model run. The latter capability can be used for applications of the model to long term risk assessments where the average impacts over a long time period are of concern rather than the maximum annual average determined from five individual years. The MULTYEAR option can only

be used when PM10, PM-10, PM25, PM2.5, PM-2.5, PM-25, LEAD, NO2, SO2, or OTHER is specified as the pollutant ID.

3.2.8 Urban modeling option

The AERMOD model allows the user to incorporate the effects of increased surface heating from an urban area on pollutant dispersion under stable atmospheric conditions. Beginning with version 06341, multiple urban areas can be specified within the same model run. Multiple areas may be applicable for large domains that encompass more than one identifiable urban area where the separation is large enough to warrant separate treatment of the urban boundary layer effects. Use of the option for multiple urban areas eliminates the need for post-processing for such applications. The urban area(s) are defined using one or more instances of the URBANOPT keyword on the CO pathway. The sources that are to be modeled with urban effects and the urban area that will be applied to each source are identified using the URBANSRC keyword on the SO pathway (see Section 3.3.10). The syntax and type of the URBANOPT keyword are summarized below:

Syntax:	**For Multiple Urban Areas:** CO URBANOPT UrbanID UrbPop (UrbName) (UrbRoughness) **For Single Urban Areas:** CO URBANOPT UrbPop (UrbName) (UrbRoughness)
Type:	Optional, Repeatable for multiple urban areas

where the UrbanID parameter is the alphanumeric urban ID defined by the user (up to eight characters) when multiple urban areas are defined, the UrbPop parameter specifies the population of the urban area, the optional UrbName parameter may be used to identify the name of the urban area, and the optional UrbRoughness parameter may be used to specify the urban surface roughness length. Note the UrbName must be specified if the user wants to specify the urban roughness length. A default value of 1.0 meter will be used for the urban roughness length if the UrbRoughness parameter is omitted. Beginning with version 09292, any value for the urban roughness length other than 1.0 meter will be treated as a non-regulatory option. Caution should be used when specifying a non-default urban roughness length and use of a non-default value should be clearly documented and justified. Note that the syntax of the URBANOPT keyword for single urban areas has not changed from previous versions of AERMOD, so that existing input files will not require modification.

3.2.9 Specifying the pollutant type

The POLLUTID keyword is used to identify the type of pollutant being modeled for a particular run. The syntax, type, and order of the POLLUTID keyword are summarized below:

Syntax:	CO POLLUTID Pollut (H1H or H2H or INC)
Type:	Mandatory, Non-repeatable

where the Pollut parameter may be a pollutant name of up to eight characters. Examples include SO2, NOX, CO, PM10, TSP, and OTHER. Some pollutant names, by themselves or in combination with other model options, have special meaning and will affect how AERMOD computes the final results based on the current NAAQS. The parameters H1H, H2H, and INC disable the special processing requirements associated the 1-hr NO_2 and SO_2 NAAQS and the 24-hr PM2.5 NAAQS. Specifying one of these keywords will allow for modeling PM2.5 24-hr increments which are based on the H2H value, and also allow evaluating NO_2 options in AERMOD based on incomplete years of field measurements. The pollutants names with special meaning that will affect how AERMOD computes the results include:

- PM10 (or PM-10) with the multi-year option for generating the high-sixth-high in five years (see Section 3.2.16.2),
- PM25 (or PM-2.5, PM2.5, or PM-25) (see Section 3.2.16.1),
- NO2 when computing 1-hour averages (See Sections 3.2.7 and 3.2.17),
- NO2 is required when using the OLM, PVMRM, TTRM/TTRM2, or GRSM option for simulating the conversion of NO to NO_2 (see Section 3.2.2.7),
- SO2 when computing 1-hour averages (see Sections 3.2.7 and 3.2.17),
- SO2 triggers the use of a 4-hour half-life for SO2 decay for urban applications under both the regulatory default options and non-default options(see Sections 3.2.2.1 and 3.2.10), and
- The MULTYEAR option can only be used when PM10, PM-10, PM25, PM2.5, PM-2.5, PM-25, LEAD, NO2, SO2, or OTHER is specified as the pollutant ID.

3.2.10 Modeling with exponential decay

The model provides the option to use exponential decay of the pollutant being modeled. Two keywords are available for this purpose, the HALFLIFE and DCAYCOEF keywords. The syntax, type, and order of these keywords are summarized below:

Syntax:	CO HALFLIFE Haflif CO DCAYCOEF Decay
Type:	Optional, Non-repeatable

where the Haflif parameter is used to specify the half life for exponential decay in seconds, and the parameter Decay is used to specify the decay coefficient in units of s^{-1}. The relationship between these parameters is DECAY = 0.693/HAFLIF.

Only one of these keywords may be specified in a given run. If more than one is encountered, a non-fatal warning message is generated, and the first specification is used in the modeling.

3.2.11 Flagpole receptor height option

The FLAGPOLE keyword specifies that receptor heights above local ground level (i.e., flagpole receptors) are allowed on the REceptor pathway. The FLAGPOLE keyword may also be used to specify a default flagpole receptor height other than 0.0 meters. The syntax and type of the FLAGPOLE keyword are summarized below:

Syntax:	CO FLAGPOLE (Flagdf)
Type:	Optional, Non-repeatable

where Flagdf is an optional parameter to specify a default flagpole receptor height. If no parameter is provided, then a default flagpole receptor height of 0.0 meters is used. Any flagpole receptor heights that are entered on the Receptor pathway will override the default value but are ignored if the FLAGPOLE keyword is not present on the Control pathway, and a non-fatal warning message is generated.

3.2.12 Plume Rise from Aircraft Emissions

An ALPHA option to simulate aircraft emissions was added to AERMOD beginning with version 23132. Aircraft emissions from jet engines experience plume rise from both momentum and buoyancy but are commonly modeled as AREA and VOLUME source types in AERMOD which do not account for either momentum or buoyancy. The aircraft plume rise ALPHA option extends the formulation of AREA (including AREAPOLY, AREACIRC, and LINE) and VOLUME source types with additional input parameters based on the work of Pandey, et. al. (2023). The option can be applied to AREA (including AREAPOLY, AREACIRC, and LINE) and VOLUME source types identified as aircraft sources by

specifying the primary keyword ARCFTOPT in the CO pathway. Aircraft sources are identified on the SO pathway with the primary keyword ARCFTSRC followed by a list of source IDs and/or a range of source IDs (see Section 3.3.18). The syntax for ARCFTOPT is summarized below:

Syntax:	CO ARCFTOPT (AirportID)
Type:	Optional, Non-Repeatable

Where AirportID is an optional alphanumeric character string that can be included to identify the airport at which the sources are located. The current implementation of aircraft plume rise requires that an additional seven aircraft parameters be supplied to AERMOD using an hourly varying emissions input file. The additional aircraft parameter variables are read from the hourly emissions file by AERMOD in the following order:

- MFUEL: Fuel burn rate (g/s)
- THRUST: Aircraft thrust (newtons)
- VAA: Aircraft speed (m/s)
- AFR: Air-fuel ratio
- BYPR: Bypass ratio (> 0 for turbofan and -999 for shaft-based engines)
- RPWR: Rated power (kW) (-99999 for turbofan and > 0 for shaft-based)
- SRCANGLE: Landing/takeoff angle with the ground (degrees) (airborne sources)

Note that AERMOD will issue a fatal error if ARCFTOPT and ARCFTSRC are specified and the aircraft parameters are missing from the hourly emissions file, or if the hourly emissions file is missing altogether.

3.2.13 To run or not to run

Because of the improved error handling and the "defensive programming" that has been employed in the design of the AERMOD model, the model will read through all of the inputs in the control file regardless of any errors or warnings that may be encountered. If a fatal error occurs in processing of the control file information, then further model calculations will be aborted. Otherwise, the model will attempt to run. Because of the great many options available in the AERMOD model, and the potential for wasted resources if a large run is performed with some incorrect input data, the RUNORNOT keyword has been included on the Control pathway to allow the user to specify whether to RUN the model and perform all of the

calculations, or NOT to run and only process the input control file commands and summarize the setup information. The NOT option allows the user to check the syntax of the model keywords without performing possible time-consuming model calculations. The syntax and type of the RUNORNOT keyword are summarized below:

Syntax:	CO RUNORNOT RUN or NOT
Type:	Mandatory, Non-repeatable

3.2.14 Generating an input file for EVENT processing

The EVENTFIL keyword can be included on the CO pathway to generate an input file for EVENT processing. The syntax and type of the EVENTFIL keyword are summarized below:

Syntax:	CO EVENTFIL (Evfile) (Evopt)
Type:	Optional, Non-repeatable

where the optional Evfile parameter specifies the name of the EVENT input file to be generated (the maximum length of the file name is set by the ILEN_FLD parameter in MODULE MAIN1), and the optional parameter, Evopt, specifies the level of detail to be used in the EVENT output file. Valid inputs for the Evopt parameter are the secondary keywords of SOCONT and DETAIL (see the EVENTOUT keyword on the OUtput pathway, Section 3.7.2). The default filename used if no parameters are specified is EVENTS.INP, and the default for the level of detail is DETAIL. If only one parameter is present, then it is taken to be the Evfile, and the default will be used for Evopt.

The primary difference between routine AERMOD and EVENT processing is in the treatment of source group contributions. The AERMOD model treats the source groups independently. EVENT processing is designed to provide source contributions to specific events such as the design concentrations determined from AERMOD or user specified events. The user may specify the "events" to process using the EVent pathway, which lists specific combinations of receptor location, source group, and averaging period. By specifying the EVENTFIL keyword, an input control file will be generated that can be used directly for EVENT processing. The events included in the generated EVENT processing input file are the design concentrations defined by the RECTABLE keyword and the threshold violations identified by the MAXIFILE keyword on the OU pathway.

3.2.15 The model re-start capability

The AERMOD model has an optional capability to store intermediate results into an unformatted file, so that the model run can be continued later in case of a power failure or a user interrupt. This re-start option is controlled by the SAVEFILE and INITFILE keywords on the CO pathway. The syntax and type of these keywords are summarized below:

Syntax:	CO SAVEFILE (Savfil) (Dayinc) (Savfl2) CO INITFILE (Inifil)
Type:	Optional, Non-repeatable

The SAVEFILE keyword instructs the model to save the intermediate results to a file and controls the save options. All three parameters for this keyword are optional. If the user specifies only the Savfil parameter, then the intermediate results are saved to the same file (and overwritten) each time. If the user specifies both the Savfil and the Savfl2 parameters, then the model alternates between the two files for storing intermediate results. The latter approach requires additional disk space to handle two storage files. However, selecting two files avoids the potential problem like a power failure or interrupt that might occur while the temporary file is open, and the intermediate results are being copied to it. In such a case, the temporary results file would be lost.

The optional Dayinc parameter allows the user to specify the number of days between successive dumps. The default is to dump values at the end of each day, i.e., Dayinc = 1. For larger modeling runs, where the SAVEFILE option is most useful, the additional execution time required to implement this option is very small compared to the total runtime. To be most effective, it is recommended that results be saved at least every 5 days.

If no parameters are specified for the SAVEFILE keyword, then the model will store intermediate results at the end of each day using a default filename of TMP.FIL.

The INITFILE keyword works in conjunction with the SAVEFILE keyword and instructs the model to initialize the results arrays from a previously saved file. The optional parameter, Inifil, identifies the unformatted file of intermediate results to use for initializing the model. If no Inifil parameter is specified, then the model assumes the default filename of TMP.FIL. If the file doesn't exist or if there are any errors encountered in opening the file, then a fatal error message is generated, and processing is halted.

Note: It is important to note that if both the SAVEFILE and INITFILE keywords are used in the same model run, then different filenames must be specified for the Savfil and Inifil parameters. Otherwise, the model will encounter an error in opening the files, and further processing will be halted.

3.2.16 Processing for particulate matter (PM) NAAQS

3.2.16.1 Processing for fine particulate matter (PM-2.5)

A NAAQS for fine particulate matter, with aerodynamic particle diameters of 2.5 microns or less (PM-2.5), was promulgated in 1997, and the 24-hour standard was revised in December 2006. For attainment demonstrations, the PM-2.5 standard is based on a 3-year average of the 98th percentile 24-hour average and a 3-year average of the annual mean concentration at each ambient monitor. EPA issued new recommendations in May 2014 (EPA, 2014b) regarding appropriate modeling procedures for use in modeling demonstrations of compliance with the PM2.5 NAAQS that is intended to supersede the earlier guidance issued in March 2010 (EPA, 2010a). The May 2014 guidance, which addresses the issue of secondary formation of PM2.5 due to precursor emissions, has modified the earlier guidance regarding use of the average of the first-highest 24-hour average concentrations across the number of years modeled to represent the modeled contribution for a cumulative impact assessment and recommends using the average of the eighth-highest (98th percentile) of 24-hour concentrations to represent the modeled contribution for a cumulative impact assessment. Use of the first-highest 24-hour average is still appropriate for significant contribution determinations. Note that the use of a 3-year average for monitored design values to determine attainment of the NAAQS does not preempt the requirement in Section 8.3.1.2 of the Guideline (EPA, 2017b) for use of 5 years of National Weather Service (NWS) data, and the 5-year average of modeled impacts serves as an unbiased estimate of the 3-year average for purposes of modeling demonstrations of compliance with the NAAQS.

Based on EPA's May 2014 draft recommendations, the 24-hour modeled contribution to the design value for purposes of modeling demonstrations of compliance with the PM-2.5 NAAQS is based on the highest of the eighth-highest (H8H) concentrations at each receptor, if one year of site-specific meteorological data is input to the model, or the highest of the multi-year average of the eighth-highest (H8H) concentrations at each receptor, if more than one year of meteorological data is input to the model. In other words, the model calculates the eighth-highest 24-hour concentration at each receptor for each year modeled, averages those eighth-highest concentrations at each receptor across the number of years of meteorological data, and then selects the highest, across all receptors, of the N-year averaged eighth-highest values.

Similar to the 24-hour averages, an unbiased estimate of the 3-year average annual mean is simply the annual mean, if only one year of site-specific meteorological data is input to the model, or the multi-year average of the annual means if multiple years of meteorological data are used. The annual design value for PM-2.5 is then based on the highest annual average across the receptor domain for single-year meteorological data input, or the highest of the multi-year averaged annual means across the receptor domain for multi-year meteorological data input.

The special processing of the 24-hour and annual averages for the PM-2.5 NAAQS is triggered by specifying a pollutant ID of 'PM25', 'PM-2.5', 'PM2.5' or 'PM-25' on the CO POLLUTID card. In this case, the model will compute the 24-hour and annual average design values as described in the previous paragraphs. In order for the PM-2.5 processing to work correctly for multiple year periods, the yearly meteorological data files can be concatenated into a single multi-year file for input into the model, or the MULTYEAR option (Section 3.2.7) can be used with separate model runs for each year. There is no requirement to remove the header records between concatenated surface meteorological data files prior to running the model, and multi-year meteorological data files can also be generated by processing multi-year inputs in AERMET. (NOTE: While the MULTYEAR option with separate yearly meteorological data files can be used to determine the modeled design values for PM2.5, the OU MAXDCONT option (see Section 3.7.2.8) to determine contributions from other source groups to the cumulative modeled design value will not work with the MULTYEAR option or with separate meteorological data files for each year.) Processing the average of the individual annual mean values across multiple years for PM-2.5 also requires use of the ANNUAL average option on the AVERTIME keyword, rather than PERIOD average. The PERIOD option computes a single multi-year average concentration for each receptor, which may give slightly different results than the multi-year average of individual ANNUAL mean concentrations due to differences in the number of calms and/or missing data from year to year.

To comply with these processing requirements, the following restrictions are applied to the PM-2.5 NAAQS processing whenever a pollutant ID of 'PM25', 'PM2.5', 'PM-2.5' or 'PM-25' is specified on the CO POLLUTID keyword:

1. The averaging periods on the AVERTIME keyword are limited to the 24-hour and ANNUAL averages. Use of the PERIOD average or use of a short-term average other than 24-hour will result in a fatal error message being generated.

2. The FIRST (or 1ST) highest value should be requested on the RECTABLE keyword for 24-hour averages for estimating modeled PM2.5 contributions for compliance with the

NAAQS. However, the model places no restriction on the ranks requested on the RECTABLE keyword since selection of ranks lower than the FIRST highest may be needed to determine whether a source or group of sources is contributing significantly to modeled violations of the NAAQS.

3. The model will only process meteorological data for periods of record that span complete years, although the meteorological data period does not need to follow calendar years (i.e., the data period does not need to start on January 1, hour 1). If the period of record spans less than one complete year of data, a fatal error message will be generated, and the model run will be unsuccessful. If additional meteorological data remains after the end of the last complete year of data, the remaining data will be ignored, and a non-fatal warning message will be generated specifying the number of hours ignored.

4. The MULTYEAR keyword on the CO pathway can be used to calculate multi-year averages for the PM-2.5 NAAQS; however, the MAXDCONT option will not work with the MULTYEAR. Multiple year analyses are best accomplished by including the multiple years of meteorology in a single data file.

5. Since the 24-hour average design values for PM-2.5 analyses, based on the H1H averaged over N years, may consist of averages over a multi-year period, they are not compatible with the EVENT processor, and the high ranked values generated based on the RECTABLE keyword will not be included in the EVENTFIL. However, if the MAXIFILE option is used to output 24-hour averages exceeding a user-defined threshold, these individual exceedances may be used with the EVENT processor. Therefore, if the EVENTFIL option is used without the MAXIFILE option for PM-2.5 analyses, a non-fatal warning message will be generated, and the EVENTFIL option will be ignored.

3.2.16.2 Processing for particulate matter of 10 microns or less (PM-10)

The 24-hour NAAQS for particulate matter with aerodynamic particle diameters of 10 microns or less (PM-10) is in the form of an expected exceedance value, which cannot be exceeded more than once per year on average over a three year period for purposes of monitored attainment demonstrations. Modeling demonstrations of compliance with the PM-10 NAAQS are based on the High-*N+1*-High value over *N* years, or in the case of five years of NWS meteorological data, the High-6th-High (H6H) value over five years. In the AERMOD model, the H6H 24-hour average over five years can be modeled in one of two ways: 1)

running five individual years and combining the results using the CO MULTYEAR option, as described above in Section 3.2.7) using a single five-year meteorological data file and specifying the SIXTH (or 6TH) highest value on the OU RECTABLE card. If applied properly, the 24-hour average results of these two approaches will be equivalent. The special processing consisting of the 99th percentile 24-hour value averaged over *N* years for PM-10 in versions of AERMOD prior to 09292, referred to as the "Post-1997" PM-10 option, has been removed since that standard was vacated.

3.2.17 Processing for 1-hour NO_2 and SO_2 NAAQS

New 1-hour NAAQS for NO_2 and SO_2 were promulgated in February 2010 and June 2010, respectively. EPA has issued guidance related to dispersion modeling in support of these 1-hour standards (EPA, 2010b; EPA, 2010c; EPA, 2011; EPA, 2014a; and EPA, 2017a). The form of these 1-hour standards is similar, based on a percentile rank from the annual distribution of daily maximum 1-hour values, averaged across the number of years processed. For the 1-hour NO_2 standard, the modeled design value is based on the 98th-percentile of the daily maximum 1-hour values, which is represented by the eighth highest of the daily maximum 1-hour values across the year. The 1-hour SO_2 modeled design value is based on the 99th-percentile, or fourth highest, of the daily maximum 1-hour values across the year. For typical multi-year modeling analysis based on 5 years of NWS meteorological data, the modeled design value is the 5-year average of the eighth-highest values daily maximum 1-hour values for NO_2, or fourth-highest values for SO_2.

The form of these 1-hour standards complicates the process of determining the modeled design value as well as the analyses that may be required to determine whether a particular source or group of sources contributes significantly to any modeled violations of the standards, paired in time and space. Several enhancements have been incorporated into AERMOD, beginning with version 11059, to facilitate the modeling analyses required to demonstrate compliance with these new standards. These enhancements are described in Section 3.7.2. The ability of the model to exercise these options is facilitated by specifying 'NO2' or 'SO2' as the pollutant ID on the CO POLLUTID keyword, with the following restrictions. Whenever a pollutant ID of 'NO2' or 'SO2' is specified and 1-hour averages are selected, the options to calculate 1-hour NO_2 or SO_2 design values based on the distribution of daily maximum 1-hour values will be allowed, unless short-term averaging periods other than 1-hour are also specified on the AVERTIME keyword. If other short-term averages are specified, non-fatal warning messages will be generated and the options for processing 1-hour NO_2 or SO_2 design values will be disabled. In that case, the 1-hour modeled design values will be processed the same as other short-term averages, based on the overall distribution of hourly values. Also, if ANNUAL or PERIOD averages are specified on the AVERTIME keyword along with 1-hour averages, a non-fatal warning message will be generated unless the CO MULTYEAR keyword is

specified, since the annual NAAQS for NO_2 and SO_2 is based on the highest PERIOD or ANNUAL average from an individual year, rather than an average across the years modeled. However, the special processing based on daily maximum1-hour values will be still applied for the 1-hour averages in these cases since the ANNUAL or PERIOD averages may be appropriate if only 1 year of site-specific meteorological data is modeled.

Modeling 1-hour 'SO2' or 'NO2' for less than a full year without specifying additional short-term averaging periods will result in an error during processing since AERMOD attempts to generate a 1-hour value based on the form of the SO_2 or NO_2 1-hour standard. When modeling with a dataset that contains less than a full year of data or by restricting the days or hours that are modeled using the STARTEND or DAYRANGE keywords on the ME pathway, the NOCHKD option should be specified on the CO pathway along with the MODELOPT keyword to avoid an error during the processing phase (Refer to sections 3.2.2 and 3.5.4 for information on the use of the NOCHKD option and the STARTEND and DAYRANGE keywords).

3.2.18 Debugging output options

The DEBUGOPT keyword on the CO pathway allows the user to request detailed files of intermediate calculation results for debugging purposes. There are several types of debug information that AERMOD can generate. For each type specified, the user can also specify a filename of the file to which the debug output should be written. Filenames are optional with the exception of the DEPOS debug. If omitted, AERMOD will use a default filename. The syntax and type of the DEBUGOPT keyword are summarized below. Listed are the debug types and filename pairs. While multiple types of debugging information can be specified, note that there are some related types in which case only one type within the group can be specified:

Syntax:	CO DEBUGOPT MODEL (Dbgfil)	and/or
	METEOR (Dbmfil)	and/or
	PRIME (Prmfil)	and/or
	AWMADW (AwmaDwfil)	and/or
	PLATFORM (PlatfmDbgfil)	and/or
	DEPOS	and/or
	[AREA (AreaDbFil) or LINE (LineDbFil)**]**	and/or
	RLINE (RlineDbgFil)	and/or
	BLPDBUG (BLPDbFil)	and/or
	URBANDB (UrbanDbFil)	and/or
	[PVMRM (Dbpvfil) (and TTRM2) or OLM (OLMfil) (and TTRM2) or ARM2 (ARM2fil) (and TTRM2) or TTRM (TTRMfil) or GRSM (GRSMfil)**]**	and/or
	SWPOINT (SWfil)	and/or
	HBPDBG (HBPfil)	and/or
	AIRCRAFT (DbARCFTfil)	
Type:	Optional, Non-repeatable	

where the types of debug information and optional filename references include:

- MODEL (Dbgfil): Model type debug data. Default filename: MODEL.DBG.
- METEOR (Dbmfile): Meteorological profile data. Default filename: METEOR.DBG.
- PRIME (Prmfil): PRIME downwash debug data. Default filename: PRIME.DBG.
- AWMADW (Awmafil): AWMA downwash debug data. Default filename: AWMADW.DBG
- PLATFORM (PlatfmDbgfil): Platform downwash debug file. Default filename: PLATFORM.DBG
- DEPOS: Deposition debug information. Only default filenames will be used: GDEP.DAT for gas deposition and PDEP.DAT for particle deposition. If the MODEL debug option is not chosen, a debug file containing wet deposition debug information is also created called DEPOS.DBG. If the MODEL debug option is chosen with the DEPOS debug option, the wet deposition debug information is included in the model debug file.
- AREA (AreaDbFil) **or** LINE (LineDbFil): Area or Line source debugging data (includes OPENPIT). May only specify one. Default filename: AREA.DBG (same default filename used for AREA, LINE, and OPENPIT sources)
- RLINE (RlineDbgFil): RLINE and RLINEXT source type debug file. Default filename: RLINE.DBG
- BLPDBUG (BLPDbFil): Debug information for the BUOYLINE source. Default filename: BLPDBUG.DBG
- URBANDB (UrbanDbFil): Debug information for the urban option (URBANOPT, see Section 3.2.8). This will produce three output files, one for the surface meteorology, two for the profile meteorology. If the filename is specified by the user, then the filename will be used for the

surface meteorology debug file. The same name will be assigned for the two profile debug files with a "1" and "2" appended to the filename, respectively. Default filenames: URBDBUG.DBG, URBDBUG1.DBG, and URBDBUG2.DBG.

- PVMRM (Dbpvfil) (and TTRM2) **or** OLM (OLMfil) (and TTRM2) **or** ARM2 (ARM2fil) (and TTRM2) **or** TTRM (TTRMfil) **or** GRSM (GRSMfil): NO to NO_2 conversion debug data. Default filenames: PVMRM.DBG, OLM.DBG, ARM2.DBG, TTRM.DBG, GRSM.DBG, respectively. May only specify one of PVMRM, OLM, ARM2, TTRM, or GRSM debug options, consistent with the NO_2 conversion option specified with the MODELOPT keyword. The TTRM2 debug option can be paired with PVMRM, OLM, or ARM2 debug options when both options are specified with the MODELOPT keyword. A user-defined filename cannot be specified for the TTRM2 debug option. The TTRM2 debug option will generate three separate debug files named AFTER_TTRM.DBG, AFTER_*option*.DBG, and TTRM2_MERGE.DBG, where *option* is the NO_2 conversion option with which TTRM2 is paired. (e.g., AFTER_PVMRM.DBG).
- SWPOINT (SWfil): Sidewash point source type debug information and optional debug filename. Default filename: SWPOINT.DBG
- HBPDBG (HBPfil): Debug information for HBP option and optional debug filename. Default filename: HBP_DEBUG.DBG.
- AIRCRAFT (DbARCFTfil): Debug information for the aircraft plume rise option (ARCFTOPT) and optional debug filename. Default filename: AIRCRAFT.DBG.

CAUTION!! Use the DEBUGOPT keyword with extreme CAUTION: it can produce very large files!

Note that the model will overwrite the debug files, without warning, if they already exist.

3.2.19 Detailed error listing file

The ERRORFIL keyword on the CO pathway allows the user to request a detailed listing file of all the messages generated by the model. This includes the error and warning messages that are listed as part of the message summaries provided in the main output file and any informational messages (such as occurrences of calm winds) and quality assurance messages that are generated. The syntax and type of the ERRORFIL keyword are summarized below:

Syntax:	CO ERRORFIL (Errfil)
Type:	Optional, Non-repeatable

where the Errfil parameter is the name of the detailed message file. If the optional Errfil parameter is left blank, then the model will use a default filename of ERRORS.LST. A complete description of the error and other types of messages generated by the model is provided in APPENDIX B.

3.3 Source pathway inputs and options

The **SO**urce pathway contains the keywords that define the source information for a particular model run. The model currently handles six source types identified as point, volume, area sources (including non-buoyant line and open pit sources), non-buoyant line (e.g., roadway sources), buoyant line sources, and a newly added source type to research the sidewash effect from building downwash when the winds are oblique to the face of a building. The input parameters vary depending on the source type. For point sources, the user can also identify building dimensions for nearby structure that cause aerodynamic downwash influences on the source. The user can also identify groups of sources for which the model will combine the results.

The LOCATION keyword, which identifies the source type and location, must be the first keyword entered for each source. In general, the order of the keywords is not important. However, there are some exceptions such as, the SRCGROUP keyword must be the last keyword before the SO FINISHED keyword unless the PSDCREDIT keyword is specified on the MODELOPT card, in which case SRCGROUP is replaced with the PSDGROUP keyword. Additional exceptions are discussed in the sections specific to applicable keywords. The user may group all the LOCATION cards together, then group the source parameter cards together, or they may want to group all input cards for a particular source together. All sources are given a source ID by the user, which is used to link the source parameter inputs to the correct source or sources. The source ID can be any alphanumeric string of up to 12 characters.

The number of sources is allocated dynamically at the time AERMOD is run. This value, in concert with the other dynamically allocated arrays and input requirements, is limited only by the amount of available memory.

3.3.1 Identifying source types and locations

The LOCATION keyword is used to identify the source type and the location of each source to be modeled. The LOCATION card must be the first card entered for each source since it identifies the source type and dictates which parameters are needed and/or accepted. The syntax, type and order of the LOCATION keyword are summarized below:

Syntax:	**When Srctyp = POINT, POINTHOR, POINTCAP, VOLUME, AREA, AREAPOLY, AREACIRC, OPENPIT, or SWPOINT** SO LOCATION Srcid Srctyp Xs Ys (Zs) **When Srctyp = LINE, RLINE, or BUOYLINE** SO LOCATION Srcid Srctyp Xs1 Ys1 Xs2 Ys2 (Zs) **When Srctyp = RLINEXT** SO LOCATION Srcid Srctyp Xs1 Ys1 Zs1 Xs2 Ys2 Zs2 (Zs)
Type:	Mandatory, Repeatable
Order:	Must be first card for each source input

where the Srcid parameter is the alphanumeric source ID defined by the user (up to 12 characters), Srctyp is the source type, which is identified by one of the secondary keywords - POINT, POINTHOR, POINTCAP, VOLUME, AREA, AREAPOLY, AREACIRC, OPENPIT, LINE, RLINE, RLINEXT, BUOYLINE, or SWPOINT. Xs and Ys, are the x and y coordinates of the source location in meters for POINT, POINTHOR, POINTCAP, VOLUME, AREA, AREAPOLY, AREACIRC, OPENPIT, and SWPOINT source types. For the LINE and RLINE source type, Xs1 and Ys1 are the x and y coordinates for the midpoint of one end of the LINE or RLINE source while Xs2 and Ys2 are the x and y coordinates for the midpoint of the other end of the LINE or RLINE source. For the RLINEXT source type, Zs1 and Zs2 are the release heights for the endpoints of the source. For the OPENPIT source type, Zs is the elevation at the top of the pit, and the effective depth is calculated based on the lateral dimensions and volume of the pit.

Beginning with version 19191, the RLINE and RLINEXT source types were added to the SO pathway for roadway sources. Beginning with AERMOD version 24142, the RLINE source type was updated to a regulatory option while the RLINEXT source type is an ALPHA option and requires the ALPHA keyword with the MODELOPT keyword. The original implementation of RLINE and RLINEXT was based on the numerical integration and algorithms in the Research LINE-source model, version 1.2, for near-surface releases (Snyder et al., 2013). The implementation has since been updated to better harmonize the RLINE and RLINEXT source types with AERMOD similar to the POINT, AREA, and VOLUME source types as described in EPA's related TSD (EPA, 2023). The R-LINE model was formulated for flat terrain, and the original implementation in AERMOD required terrain to be specified as FLAT. Beginning in AERMOD version 23132, RLINE/RLINEXT can account for elevated terrain; however, when modeling for project level transportation conformity and hot-spot analyses, refer to the EPA's Office of Transportation and Air Quality (OTAQ) for the most up-to-date guidance on how to model roadway sources (https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses).

RLINEXT sources require the user to input the offset distance from road centerline, number of lanes, width per lane and initial vertical dispersion for each specified road link. These parameters are discussed in more detail in Section 3.3.2.10. Also, refer to the user's guide for R-LINE Model Version 1.2 (Snyder and Heist, 2013) and EPA's 2023 TSD (EPA, 2023) for detailed information about the original formulation of the RLINE source algorithms as well as the reformulation beginning in AERMOD version 23132.

Beginning with version 15181, the BUOYLINE source type was added to the SO pathway for buoyant line sources. The current implementation is based on the buoyant line source algorithm in the Buoyant Line and Point Source (BLP) dispersion model (Schulman and Scire, 1980) with very little modification and similar limitations. A buoyant line source is, comprised of one or multiple lines. Multiple lines are assumed to be parallel, though each line can have a different length, height, and base elevation. AERMOD will check to see if the lines in a single source are parallel, within a 5° tolerance, to the first line in the source. If an individual buoyant line exceeds the tolerance, AERMOD will issue a warning message, but will continue the model run. The BUOYLINE source type also requires the user to input average values of length, width, height, and separation distance for the set of lines that comprise the buoyant line source. These parameters are discussed in more detail in Section 3.3.2.11. Refer to the BLP user's guide (Schulman and Scire, 1980) for detailed information about the formulation of the buoyant line source algorithm.

Beginning with version 22112, the SWPOINT source type was added to the SO pathway as a research tool to study the sidewash effects of the recirculation cavity that forms on the lee side a building and shifts laterally when the wind is oblique to the face of the building. The SWPOINT source has been added for continued research and development and requires the ALPHA secondary keyword as a model option using the MODELOPT keyword on the CO pathway.

For the BUOYLINE source, the definitions of Xs1, Ys1, Xs2, and Ys2 are similar to the definitions for the LINE source, but there is a subtle difference due to the current implementation of the buoyant line source algorithm in AERMOD. When specifying a buoyant line source, the LOCATION keyword and parameters should be repeated for each individual line that comprises the buoyant line source. BUOYLINE should be specified as the source type (Srctyp), and each line should be given a unique source ID (Srcid). **Note that the order that the individual lines are entered using the LOCATION keyword in the control file is important.** Again, as in BLP, AERMOD assumes all of the buoyant lines are parallel. As noted above, AERMOD performs a check to see if the lines are within an allowable tolerance, currently 5°, and issues a warning message if a line exceeds this tolerance. For lines that are not oriented exactly north-south but are angled either southeast-to-northwest or southwest-to-northeast, the individual lines should be entered

in the order of there location from south to north. In other words, the southern most line should be defined first in the control file, followed by the adjacent line to the north and so on, ending with the northernmost line. For an individual line, the most westerly endpoint should be entered first followed by the easterly endpoint where Xs1 and Ys1 are the x and y coordinates of the most westerly endpoint of the line, and Xs2 and Ys2 are the x and y coordinates of the most easterly endpoint of the line. Zs is the optional elevation of the source above sea-level and is applicable for all source types.

In the case where the buoyant lines are parallel to the Y axis, the order that the lines should be entered is dependent on which endpoint is entered first, the southern or northern endpoint of the lines. **If the southern endpoint is entered first, the lines should be entered in the order of the eastern most line to the western most line. If the northern endpoint is entered first, lines should be ordered west to east.** The convention used for the first line should be used for all subsequent lines.

The three area source types (AREA, AREACIRC, and AREAPOLY), as well as the LINE source type use the same numerical integration algorithm for estimating impacts from area sources and are merely different options for specifying the shape of the area source. The AREA source keyword may be used to specify a rectangular-shaped area source with arbitrary orientation; the AREAPOLY source keyword may be used to specify an area source as an irregularly shaped polygon of up to 20 sides; and the AREACIRC source keyword may be used to specify a circular-shaped area source (modeled as an equal-area polygon of 20 sides). The LINE source type option allows users to specify line-type sources based on a start point and end point of the line and the width of the line, as an alternative to the current AREA source type for rectangular sources. The LINE source type utilizes the same routines as the AREA source type and will give identical results for equivalent source inputs. The LINE source type also includes an optional initial sigma-z parameter on the SRCPARAM keyword to account for initial dilution of the emissions. AREA, AREAPOLY, AREACIRC, LINE, and OPENPIT source types do not, by default, include the horizontal meander component in AERMOD. AREAMNDR was added in 23132 as an ALPHA option on the CO pathway which incorporates meander into the AREA, AREAPOLY, AREACIRC, and LINE sources if specified. Since the LINE source type utilizes the AREA source algorithms, the runtime optimizations associated with the FASTAREA option will also apply to LINE sources if included. The AREAMNDR option will not add meander to the AREA, AREAPOLY, AREACIRC, or LINE sources if the FASTAREA option has been included.

The RLINE and RLINEXT source types use the numerical integration algorithms described in Snyder et. al. 2013, intended mainly for roadway sources. Beginning with version 19191, the RLINE and

RLINEXT source types were added as an option to the SO pathway. Initial sigma-z (vertical dispersion/dilution) and width are specified using the SRCPARAM keyword on the SO pathway for an RLINE and RLINEXT source. The RLINEXT source requires an additional distance from the centerline parameter on the SRCPARAM keyword, used in the barrier and depressed roadway algorithms. The RLINE and RLINEXT source types contain a horizontal meander component for roadway sources.

The OPENPIT source algorithm can be used to model particulate or gaseous emissions from open pits, such as surface coal mines and rock quarries. The OPENPIT algorithm uses an effective area for modeling pit emissions, based on meteorological conditions, and then utilizes the numerical integration area source algorithm to model the impact of emissions from the effective area sources. A complete technical description of the OPENPIT source algorithm is provided in the ISC3 Model User's Guide - Volume II (EPA, 1995b).

Note that the source elevation, Zs, is an optional parameter. If the default option to include elevated terrain effects is used and the source elevation is omitted, a warning message will be generated, and the source elevation will be given a value of 0.0. The source elevation is not used by the model if the non-default FLAT terrain option is used. While the default units of Zs are meters, the user may also specify source elevations to be in feet by adding the SO ELEVUNIT FEET card immediately following the SO STARTING card. The x (east-west) and y (north-south) coordinates are for the center of the source for POINT, POINTHOR, POINTCAP, VOLUME, AREACIRC, SWPOINT sources, for one of the vertices of the source for AREA, AREAPOLY, and OPENPIT sources, and the endpoints for RLINE, RLINEXT, and BUOYLINE sources. The source coordinates may be input as Universal Transverse Mercator (UTM) coordinates or may be referenced to a user-defined origin.

Certain types of non-buoyant line sources can be handled in AERMOD using a string of volume sources, an elongated area source, or a roadway source. The volume source algorithms are most applicable to line sources with some initial plume depth, such as conveyor belts and rail lines. Section 1.2.2 of the ISC Model User's Guide - Volume II (EPA, 1995b) provides technical information on how to model a line source with multiple volume sources. The use of the AERMOD area source algorithm for elongated rectangles would be most applicable to near ground level line sources, such as a viaduct. The area source algorithm is applied identically to both AREA and LINE source types and AERMOD should produce the same results for an elongated area source defined as either an AREA or LINE source type.

The source ID entered on the LOCATION card identifies that source for the remainder of the SO pathway inputs. Since the model accepts alphanumeric strings of up to 12 characters for the source ID, the

sources can be identified with descriptive names, such as STACK1, STACK2, BOILER3, SLAGPILE, etc. This may also be useful if line sources are being modeled as multiple volume or areas, as discussed above. Since they are part of the same physical source, they can be given names that will identify them as being related, such as LINE1A, LINE1B, LINE1C, etc.

It should be noted that not all NO_2 conversion options have been implemented for all source types in AERMOD. Table 3-2 summarizes which NO_2 conversion options have been implemented for each of the AERMOD source types and which options have not.

3.3.2 Specifying source release parameters

The main source parameters are input on the SRCPARAM card, which is a mandatory keyword for each source being modeled. Since the input parameters vary depending on the source type, the different source types handled by the AERMOD model are discussed separately.

3.3.2.1 POINT, POINTHOR, and POINTCAP source inputs

The AERMOD POINT source algorithms are used to model releases from stacks and isolated vents, as well as other kinds of sources. The syntax, type and order for the SRCPARAM card for POINT, POINTHOR, and POINTCAP sources are summarized below:

Syntax:	SO SRCPARAM Srcid Ptemis Stkhgt Stktmp Stkvel Stkdia
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Ptemis - point emission rate in g/s,
Stkhgt - release height above ground in meters,
Stktmp - stack gas exit temperature in degrees K,
Stkvel - stack gas exit velocity in m/s, and
Stkdia - stack inside diameter in meters.

An example of a valid SRCPARAM input card for a point source is given below:

SO SRCPARAM	STACK1	16.71	35.0	444.0	22.7	2.74

where the source ID is STACK1, the emission rate is 16.71 g/s, the release height is 35.0 m, the exit temperature is 444.0 K, the exit velocity is 22.7 m/s, and the inside stack diameter is 2.74 m. All the parameters must be present on the input card.

If a value of 0.0 is input for the exit temperature, AERMOD will adjust the exit temperature for each hour to match the ambient temperature. This option allows the user to model a plume that is released at ambient temperature. The user may also model a plume with an exit temperature that exceeds the ambient temperature by a fixed amount by entering a negative value for exit temperature equal in magnitude to the temperature difference. The model will add the absolute value of a negative exit temperature to the ambient temperature for each hour to obtain the exit temperature used in computing the buoyancy flux of the plume. The AERMOD model does not include algorithms to model plumes that are released at temperatures below ambient temperature. Such releases should be modeled with a dense gas model.

AERMOD model uses direction-specific building dimensions for POINT, POINTHOR, and POINTCAP sources subject to building downwash. Building dimensions for these source types are entered on the BUILDHGT, BUILDWID, BUILDLEN, XBADJ, and YBADJ cards described below in Section 3.3.9. Offshore platform dimensions for these source types are entered for each source ID using the PLATFORM keyword as described below in Section 3.3.16.

3.3.2.2 VOLUME source inputs

The AERMOD VOLUME source algorithms are used to model releases from a variety of industrial sources, such as building roof monitors, multiple vents, and conveyor belts. Beginning with AERMOD version 23132, the input parameters for VOLUME (and AREA) source types were expanded to characterize aircraft emissions to account for the effects of buoyancy and momentum (see Section 3.2.12). The additional parameters are required to be input as hourly data in the hourly emissions file (see Section 3.3.12). Thus, aircraft sources can only be modeled as a VOLUME source using an hourly emissions file that includes the non-aircraft VOLUME source parameters described in Section 3.3.12, as well as the extended set of parameters required to characterize the aircraft source as a VOLUME source as described in Section 3.3.12. The syntax, type, and order for the SRCPARAM card for VOLUME sources are summarized below:

Syntax:	SO SRCPARAM Srcid Vlemis Relhgt Syinit Szinit
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Vlemis - volume emission rate in g/s,
Relhgt - release height (center of volume) above ground, in meters,
Syinit - initial lateral dimension of the volume in meters, and
Szinit - initial vertical dimension of the volume in meters.

Table 3-3, which is explained in more detail in Section 1.2.2 of the ISC Model User's Guide - Volume II, summarizes the suggested procedures to be used for estimating the initial lateral and vertical dimensions for various types of volume and line sources.

Table 3-3. Summary of Suggested Procedures for Estimating Initial Lateral Dimensions σyo and Initial Vertical Dimensions σzo for Volume and Line Sources

Type of Source	Procedure for Obtaining Initial Dimension	
(a) Initial Lateral Dimension (σ_{yo})		
Single Volume Source	σ_{yo} =	length of side divided by 4.3
Line Source Represented by Adjacent Volume Sources (see Figure 1-8 (a) in EPA, 1995a)	σ_{yo} =	length of side divided by 2.15
Line Source Represented by Separated Volume Sources (see Figure 1-8(b) in EPA, 1995a)	σ_{yo} =	center to center distance divided by 2.15
(b) Initial Vertical Dimension (σ_{zo})		
Surface-Based Source ($h_e \sim 0$)	σ_{zo} =	vertical dimension of source divided by 2.15
Elevated Source ($h_e > 0$) on or Adjacent to a Building	σ_{zo} =	building height divided by 2.15
Elevated Source ($h_e > 0$) not on or Adjacent to a Building	σ_{zo} =	vertical dimension of source divided by 4.3

3.3.2.3 AREA source type

The AERMOD area source algorithm is used to model low level or ground level releases with no plume rise (e.g., storage piles, slag dumps, and lagoons). The AERMOD model uses a numerical integration approach for modeling impacts from area sources. When the FASTAREA or FASTALL option is specified, the area source integration routine is optimized to reduce model runtime. This is accomplished by incorporation of a three-tiered approach using the Romberg numerical integration, a 2-point Gaussian Quadrature routine for numerical integration, or a point source approximation based on the location of the receptor relative to the source. In the regulatory default mode, the Romberg numerical integration is utilized for all receptors.

The AERMOD model includes various options for specifying the shape of an area source: the AREA source type may be used to specify rectangular areas that may also have a rotation angle specified relative to a north-south orientation; the LINE source type is a simplified representation of an elongated area source and does not utilize a rotation angle; the AREAPOLY source type may be used to specify an area source as an irregularly-shaped polygon of up to 20 sides; the AREACIRC source keyword may be used to specify a circular-shaped area source (modeled as an equal-area polygon of 20 sides); and the OPENPIT source type can be used to model open rectangular pits such as surface coal mines and rock quarries. The OPENPIT source type also includes an optional rotation angle. The source parameter inputs for each of the area source types is described below.

3.3.2.4 AREA source inputs

The rotation angle for rectangular AREA sources is specified relative to the vertex used to define the source location on the SO LOCATION card (e.g., the southwest corner). The syntax, type and order for the SRCPARAM card for AREA sources are summarized below:

Syntax:	SO SRCPARAM Srcid Aremis Relhgt Xinit (Yinit) (Angle) (Szinit)
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Aremis - area emission rate in g/(s-m^2),

Relhgt - release height above ground in meters,

Xinit - length of X side of the area (in the east-west direction if Angle is 0 degrees) in meters,

Yinit - length of Y side of the area (in the north-south direction if Angle is 0 degrees) in meters (optional),

Angle - orientation angle for the rectangular area in degrees from North, measured positive in the clockwise direction (optional), and

Szinit - initial vertical dimension of the area source plume in meters (optional).

It should be noted that the emission rate for the area source is an emission rate per unit area, which is different from the point and volume source emission rates, which are total emissions for the source.

If the optional Yinit parameter is omitted, then the model assumes that the area is a square, i.e., Yinit = Xinit. If the optional Angle parameter is omitted, then the model assumes that the area is oriented in the north-south and east-west directions, i.e., Angle = 0.0. If the Angle parameter is input, and the value does not equal 0.0, then the model will rotate the area clockwise around the vertex defined on the SO LOCATION card for this source. Figure 3-1 illustrates the relationship between the Xinit, Yinit, and Angle parameters and the source location, (Xs,Ys), for a rotated rectangle. The Xinit dimension is measured from the side of the area that is counterclockwise along the perimeter from the vertex defined by (Xs,Ys), while the Yinit dimension is measured from the side of the area that is clockwise from (Xs,Ys). The Angle parameter is measured as the orientation relative to North of the side that is clockwise from (Xs,Ys), i.e., the side with length Yinit. The Angle parameter may be positive (for clockwise rotation) or negative (for counterclockwise rotation), and a warning message is generated if the absolute value of Angle is greater than 180 degrees. The selection of the vertex to use for the source location is not critical, as long as the relationship described above for the Xinit, Yinit, and Angle parameters is maintained.

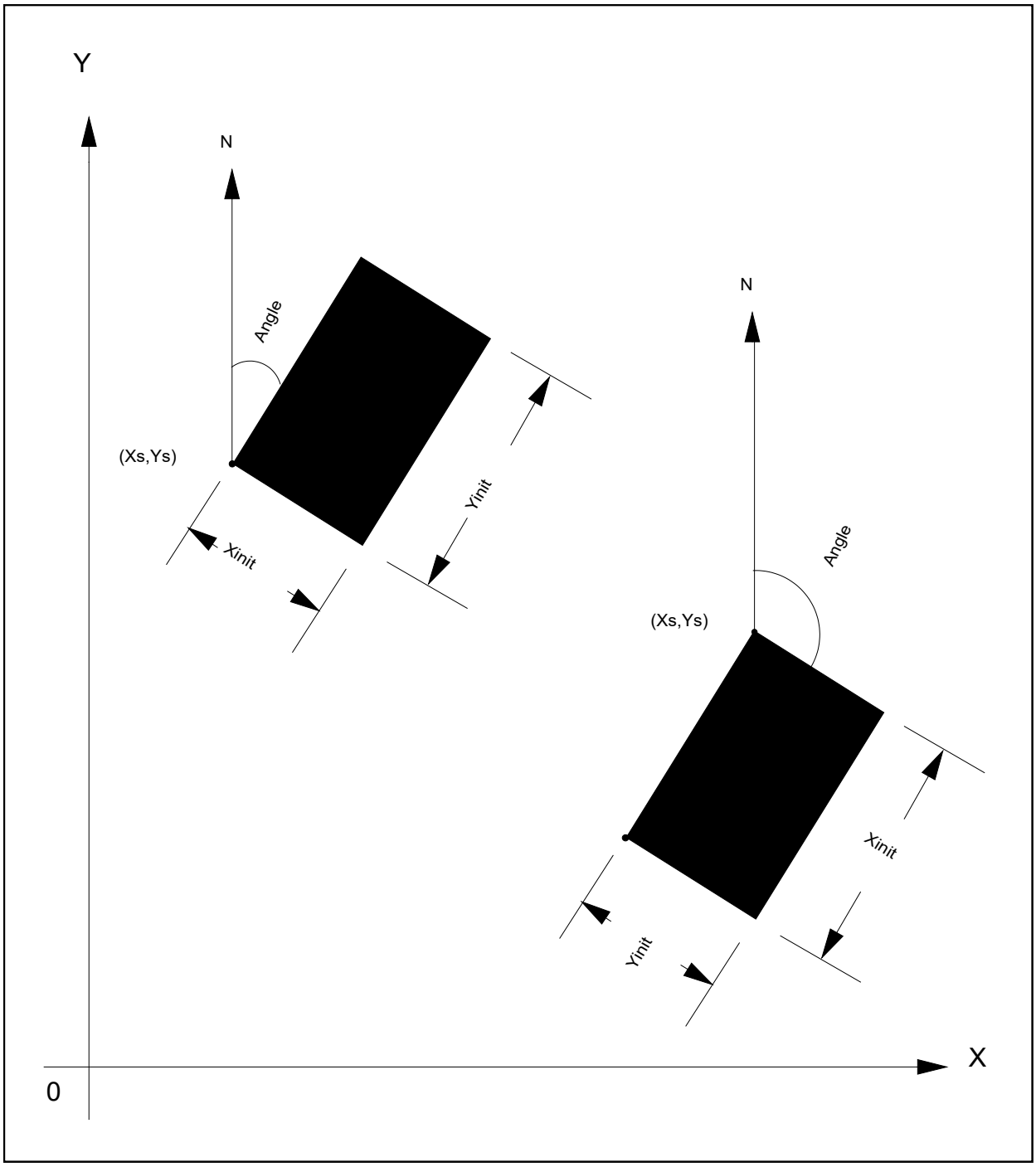


Figure 3-1. Relationship of Area Source Parameters for Rotated Rectangle

By making the Yinit and Angle parameters optional, the area source input data for the previous versions of the ISC model can be used with the AERMOD model. The aspect ratio (i.e., length/width) for area sources should generally be less than about 100 to 1. If this is exceeded, then the model will generate a non-fatal warning message, and the user should consider subdividing the area to achieve a 100 to 1 aspect ratio (or less) for all subareas.

The optional Szinit parameter may be used to specify an initial vertical dimension to the area source plume, similar to the use of the Szinit parameter for volume sources. This parameter may be important when the area source algorithm is used to model mechanically generated emission sources, such as mobile sources. In these cases, the emissions may be turbulently mixed near the source by the process that is generating the emissions, and therefore occupy some initial depth. For more passive area source emissions, such as evaporation or wind erosion, the Szinit parameter may be omitted, which is equivalent to using an initial sigma-z of zero.

An example of a valid SRCPARAM input card for a rectangular area source is given as

```
SO SRCPARAM        SLAGPILE  0.00155.0     50.0  100.0   30.0
```

where the source ID is SLAGPILE, the emission rate is 0.0015 g/(s-m^2), the release height is 5.0 m, the X-dimension is 50.0 m, the Y-dimension is 100.0 m, and the orientation angle is 30.0 degrees clockwise from North.

Since the numerical integration algorithm can handle elongated areas with aspect ratios of up to 100 to 1, the AERMOD area source algorithm may be useful for modeling certain types of line sources. User's now have the option of specifying a line-type source as either AREA or LINE. There are no restrictions on the placement of receptors relative to area sources for the AERMOD model. Receptors may be placed within the area and at the edge of an area. The AERMOD model will integrate over the portion of the area that is upwind of the receptor. However, since the numerical integration is not performed for portions of the area that are closer than 1.0 meter upwind of the receptor, caution should be used when placing receptors within or adjacent to areas that are less than a few meters wide. More technical information about the application of the AERMOD area source algorithm is provided in Sections 1.2.3 and 2.2.3 of the ISC Model User's Guide - Volume II (EPA, 1995b).

Beginning with AERMOD version 23132, the input parameters for AREA (and VOLUME) source types were expanded to characterize aircraft emissions to account for the effects of buoyancy and momentum (see Section 3.2.12). The additional parameters are required to be input as hourly values in the hourly emission rate file (see Section 3.3.12). Thus, aircraft sources can only be modeled using an hourly emissions file that that includes the standard non-aircraft AREA source parameters described in Section 3.3.12, as well as the extended set of parameters required to characterize the aircraft source as an AREA source as described in Section 3.3.12.

3.3.2.5 AREAPOLY source inputs

The AREAPOLY source type may be used to specify an area source as an arbitrarily- shaped polygon of between 3 and 20 sides (the number of sides allowed may be increased by modifying the NVMAX parameter in MODULE MAIN1). This source type option provides the user with considerable flexibility for specifying the shape of an area source. The syntax, type and order for the SRCPARAM card for AREAPOLY sources are summarized below:

Syntax:	SO SRCPARAM Srcid Aremis Relhgt Nverts (Szinit)
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Aremis - area emission rate in g/(s-m^2),

Relhgt - release height above ground in meters,

Nverts - number of vertices (or sides) of the area source polygon,

Szinit - initial vertical dimension of the area source plume in meters (optional).

As with AREA sources, the emission rate for the source is an emission rate per unit area, which is different from the point and volume source emission rates, which are total emissions for the source. The locations of the vertices are specified by use of the AREAVERT keyword, which applies only to AREAPOLY sources.

The syntax, type and order for the AREAVERT keyword used for AREAPOLY sources are summarized below:

Syntax:	SO AREAVERT Srcid Xv(1) Yv(1) Xv(2) Yv(2) ... Xv(i) Yv(i)
Type:	Mandatory for AREAPOLY sources, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Xv(i) and Yv(i) are the x-coordinate and y-coordinate values of the vertices of the area source polygon. There must by Nverts pairs of coordinates for the area source, where Nverts in the number of vertices specified for that source on the SRCPARAM card. The first vertex, Xv(1) and Yv(1), must also match the coordinates given for the source location on the LOCATION card, Xs and Ys. The remaining vertices may be defined in either a clockwise or counter- clockwise order from the point used for defining the source location.

Receptors may be placed within the area and at the edge of an area. The AERMOD model will integrate over the portion of the area that is upwind of the receptor. However, since the numerical integration is not performed for portions of the area that are closer than 1.0 meter upwind of the receptor, caution should be used when placing receptors within or adjacent to areas that are less than a few meters wide.

3.3.2.6 AREACIRC source inputs

The AREACIRC source type may be used to specify an area source as a circular shape. The model will automatically generate a regular polygon of up to 20 sides to approximate the circular area source. The polygon will have the same area as that specified for the circle. The syntax, type and order for the SRCPARAM card for AREACIRC sources are summarized below:

Syntax:	SO SRCPARAM Srcid Aremis Relhgt Radius (Nverts) (Szinit)
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Aremis - area emission rate in g/(s-m^2),

Relhgt - release height above ground in meters,

Radius - radius of the circular area in meters,

Nverts - number of vertices (or sides) of the area source polygon (optional, 20 sides will be used if omitted),

Szinit - initial vertical dimension of the area source plume in meters (optional).

As with AREA sources, the emission rate for the source is an emission rate per unit area, which is different from the point and volume source emission rates, which are total emissions for the source.

3.3.2.7 OPENPIT source inputs

The AERMOD model accepts rectangular pits with an optional rotation angle specified relative to a north-south orientation and the vertex used to define the source location on the SO LOCATION card (e.g., the southwest corner). The syntax, type and order for the SRCPARAM card for OPENPIT sources are summarized below:

Syntax:	SO SRCPARAM Srcid Opemis Relhgt Xinit Yinit Pitvol (Angle)
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Opemis - open pit emission rate in g/(s-m^2),

Relhgt - average release height above the base of the pit in meters,

Xinit - length of X side of the open pit (in the east-west direction if Angle is 0 degrees) in meters,

Yinit - length of Y side of the open pit (in the north-south direction if Angle is 0 degrees) in meters,

Pitvol - volume of open pit in cubic meters, and

Angle - orientation angle for the rectangular open pit in degrees from North, measured positive in the clockwise direction (optional).

The same emission rate is used for both concentration and deposition calculations in the AERMOD model. It should also be noted that the emission rate for the open pit source is an emission rate per unit area

as with the other area source types. This is different from the point and volume source emission rates, which are total emissions for the source. The Relhgt parameter cannot exceed the effective depth of the pit, which is calculated by the model based on the length, width, and volume of the pit. A Relhgt of 0.0 indicates emissions that are released from the base of the pit.

If the optional Angle parameter is input, and the value does not equal 0.0, then the model will rotate the open pit clockwise around the vertex defined on the SO LOCATION card for this source. The relationship between the Xinit, Yinit, and Angle parameters and the source location, (Xs,Ys), for a rotated pit is the same as for rectangular area sources. The Xinit dimension is measured from the side of the area that is counterclockwise along the perimeter from the vertex defined by (Xs,Ys), while the Yinit dimension is measured from the side of the open pit that is clockwise along the perimeter from (Xs,Ys). Unlike the area source inputs, the Yinit parameter is not optional for open pit sources. The Angle parameter is measured as the orientation relative to North of the side that is clockwise from (Xs,Ys), i.e., the side with length Yinit. The Angle parameter may be positive (for clockwise rotation) or negative (for counterclockwise rotation), and a warning message is generated if the absolute value of Angle is greater than 180 degrees. The selection of the vertex to use for the source location is not critical, as long as the relationship described above for the Xinit, Yinit, and Angle parameters is maintained.

The aspect ratio (i.e., length/width) of open pit sources should be less than 10 to 1. However, since the pit algorithm generates an effective area for modeling emissions from the pit, and the size, shape and location of the effective area is a function of wind direction, an open pit cannot be subdivided into a series of smaller sources. Aspect ratios of greater than 10 to 1 will be flagged by a warning message in the output file, and processing will continue. Since open pit sources cannot be subdivided, the user should characterize irregularly-shaped pit areas by a rectangular shape of equal area. **Receptors should not be located within the boundaries of the pit; concentration and/or deposition at such receptors will be set to zero.** Such receptors will be identified during model setup and will be flagged in the summary of inputs.

An example of a valid SRCPARAM input card for an open pit source is given below:

```
SO SRCPARAM  NORTHPIT  1.15E-4  0.0  150.0  500.0  3.75E+6  30.0
```

where the source ID is NORTHPIT, the emission rate is 1.15E-4 g/(s-m^2), the release height is 0.0 m, the X-dimension is 150.0 m, the Y-dimension is 500.0 m, the pit volume is 3.75E+6 cubic meters (corresponding to an effective pit depth of about 50 meters) and the orientation angle is 30.0 degrees clockwise from North.

Note, that unlike the ISC model formulation for OPENPIT sources, particle information (diameter, mass fraction, and density) are not needed by AERMOD except when modeling with particle deposition or depletion.

3.3.2.8 LINE source inputs

The syntax, type and order for the SRCPARAM card for LINE sources are summarized below:

Syntax:	SO SRCPARAM Srcid Lnemis Relhgt Width (Szinit)
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Lnemis - line source emission rate in g/(s-m^2),
Relhgt - average release height above ground in meters,
Width - width of the source in meters (with a minimum width of 1m),
Szinit - initial vertical dimension of the line source in meters (optional).

As noted above, the LINE source type option in AERMOD uses the same algorithms as used for the AREA source type for rectangular sources and will give identical results for equivalent source definitions. The LINE source emission rate is in g/(s-m^2) and the model assumes that emissions are uniformly distributed across the dimensions of the LINE source. As with the AREA source type, the LINE source type does not include the horizontal meander component that is incorporated for POINT and VOLUME sources unless the AREAMNDR and ALPHA keywords have been specified. Also, as with the AREA source type, the LINE source type will estimate concentrations (and/or deposition) at receptors located within the dimensions of the source.

3.3.2.9 RLINE source inputs

The AERMOD RLINE source algorithm is used to model near-surface releases from mobile sources and can be used to represent a travelled roadway with either single or multiple lanes of traffic. The AERMOD model simulates mobile source emissions using Romberg numerical integration of point sources,

with the number of points included in the integration determined by error analysis. Beginning with version 24142, the RLINE source type has been updated to a regulatory option and can be used with the DFAULT option.

RLINE was originally formulated as a flat terrain model, and in the original implementation, AERMOD required that the FLAT MODELOPT flag was specified. If FLAT and ELEV were both used, Zs for all RLINE sources needed to be = 0.0 or = 'FLAT'. Beginning with version 23132, the RLINE source type can account for terrain elevations. **However, when modeling for project level transportation conformity and hot-spot analyses, refer to the EPA's Office of Transportation and Air Quality (OTAQ) for current guidance on how to model and configure roadway sources (https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses).**

The syntax, type, and order for the SRCPARAM card for RLINE sources are summarized below:

Syntax:	SO SRCPARAM Srcid Lnemis Relhgt Width (Szinit)
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Lnemis[3] - line source emission rate in g/s/m^2,
Relhgt - average release height above ground in meters,
Width - width of the source in meters (with a minimum width of 1m),
Szinit - initial vertical dimension of the line source in meters (optional).

Notice these are identical to the LINE source type above, thus allowing the user to use the RLINE dispersion calculations by simply changing the source type from LINE to RLINE. The RLINE source emission rate is in grams/second/meter^2, and the model assumes that emissions are uniformly distributed. If the keyword RLEMCONV is used on the SO pathway, then the emission units for all RLINE sources should be in g/hr/link (see Section 3.3.13).

3 Alternatively, the user may specify emissions units of grams per link per hour for the RLINE and RLINEXT source types using the RLEMCONV keyword on the SO pathway (See Section 3.3.13.)

3.3.2.10 RLINEXT source inputs

Like the RLINE source type, the RLINEXT source type is used to model near-surface releases from mobile sources and can be used to represent a travelled roadway with either single or multiple lanes of traffic. Unlike RLINE, RLINEXT source type is a non-regulatory ALPHA option. The RLINEXT source type cannot be used with the DFAULT option and requires use of the non-regulatory ALPHA flag with the Control pathway MODELOPT keyword. RLINE and RLINEXT sources use the same dispersion calculations, but the parameter requirements to characterize each of the source types are different. Prior to version 23132, AERMOD also required that the FLAT MODELOPT flag was specified when using the RLINEXT source. If FLAT and ELEV were both used, Zs for all RLINEXT sources needed to be = 0.0 or = 'FLAT'. Beginning with version 23132, the RLINEXT source type can process terrain elevations as does the RLINE source type. **However, when modeling for project level transportation conformity and hot-spot analyses, refer to the EPA's Office of Transportation and Air Quality (OTAQ) for current guidance on how to model and configure roadway sources (https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses).**

The syntax, type, and order for the SRCPARAM card for RLINEXT sources are summarized below:

Syntax:	SO SRCPARAM Srcid Rlemis DCL Width Szinit
Type:	Mandatory, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Rlemis[3] - roadway source emission rate in g/s/m,

DCL - distance from the roadway centerline to the center of the source (e.g., the center of the lane of traffic for a one-lane source) in meters,

Width - width for each source in meters (e.g., for a one lane source, Width would be the width of the lane),

Szinit - initial vertical dimension of the line source in meters.

All parameters are required for an RLINEXT source type, however, the user may enter "0" for any unused parameters. The RLINEXT source emission rate is in grams/second/meter and the model assumes

that emissions are uniformly distributed across the dimensions of the RLINEXT source. If the keyword RLEMCONV is used on the SO pathway, then the emission units for all RLINEXT sources should be in g/hr/link (see Section 3.3.13).

The distance from the centerline (DCL) parameter determines the offset from the roadway centerline for a source representing a single lane of traffic, as shown in Figure 3-2. For example, in the case of a multi-lane, divided highway with traffic travelling in the northbound and southbound directions, the centerline would be defined as the midpoint of the highway median. The DCL would be the perpendicular distance from the midpoint of the median to the midpoint of each source, i.e., middle distance between source end points. If a source is one lane, the DCL would be the distance from the midpoint of the median to the center of the lane. A positive DCL value indicates the source is to the east of the median for a north-south oriented source, or to the north of the median for an east-west oriented source. A negative DCL value means the source is to the west of the median for a north-south oriented source, or to the south of the median for an east-west oriented source.

Most Orientations	(+DCL) Source **East** of median	(–DCL) Source **West** of median
Exception: East-West Orientation	(+DCL) Source **North** of median	(–DCL) Source **South** of median

DCL can be 0 for lanes of traffic with defined source coordinates, unless the user includes the RDEPRESS keyword, explained below, in which case DCL must represent the distance from the roadway centerline for each individual source. In the multi-lane, divided highway example where each lane is a unique source, each source would have a DCL reflecting the distance from the midpoint of the median to the middle of the individual lane of traffic, with the easternmost-lane having the largest-magnitude positive DCL value and the westernmost-lane having the largest-magnitude negative DCL value.

It should be noted that use of the RDEPRESS keyword requires that all RLINEXT sources have coordinates reflecting the roadway centerline coordinates, and not coordinates representing the individual lane of traffic. DCL with the RDEPRESS keyword must, therefore, define the distance of each source to a

common location. The user may apply similar source characterization to RLINEXT sources without the use of RDEPRESS, so that DCL defines the location of each lane from a common set of coordinates.

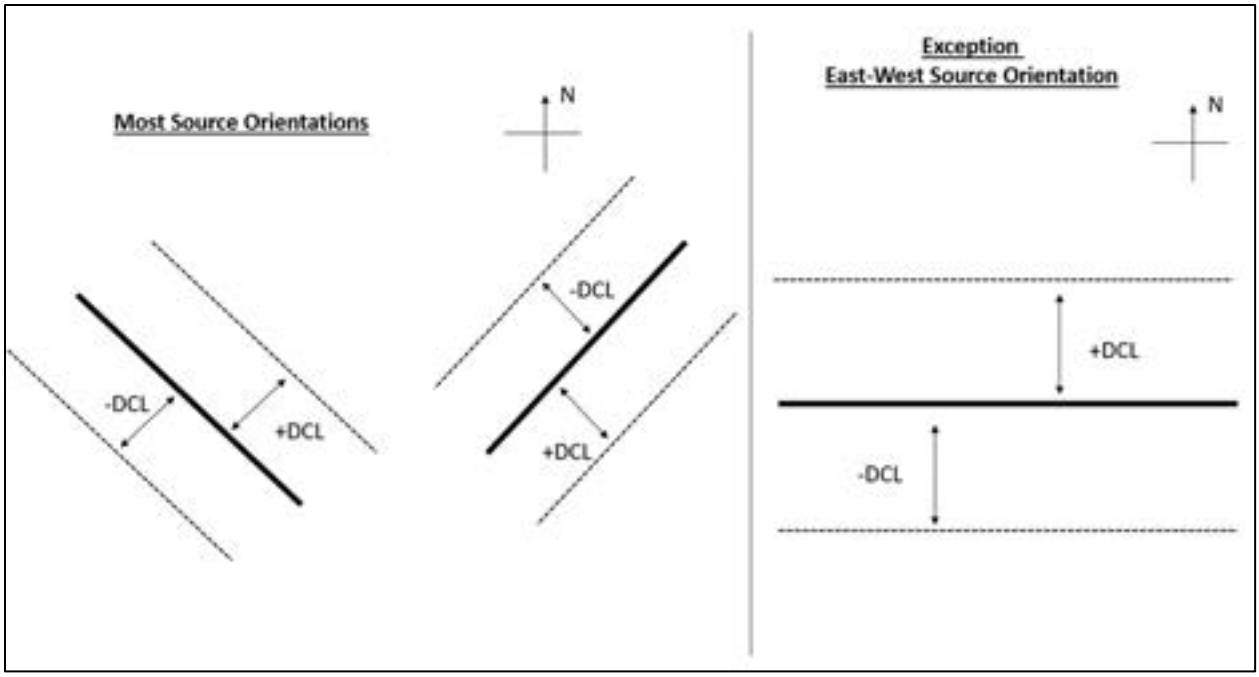


Figure 3-2. Definition of DCL for RLINEXT sources. Dashed lines represent lanes of a roadway with an offset (DCL) from the median (solid line).

The Width parameter specifies the width of the RLINEXT source (e.g., the width of a lane or multiple lanes, depending on how the source is defined). A warning message is issued if Width is less than zero.

Optionally, RLINEXT sources can also contain source configurations to represent solid barriers or a depressed location. A roadside barrier is specified with the RBARRIER keyword. The syntax, type, and order for the RBARRIER card for RLINEXT sources are summarized below:

Syntax:	SO RBARRIER Srcid Htwall DCLwall (Htwall2 DCLwall2)
Type:	Optional, Repeatable
Order:	Must follow the SRCPARAM card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Htwall - height of the solid barrier (wall) in meters,

DCLwall - the distance from the centerline of the source to the barrier (wall) in meters,

Htwall2 - height of a second solid barrier (wall) in meters, if present,

DCLwall2 - the distance from the centerline of the source to the second barrier (wall) in meters.

RBARRIER inputs should be on opposite sides of the RLINEXT source (DCLwall and DCLwall2). If two RBARRIERs are input that are on the same side of the source, a warning will be issued, the closest of the two barriers will be kept and the other will be ignored.

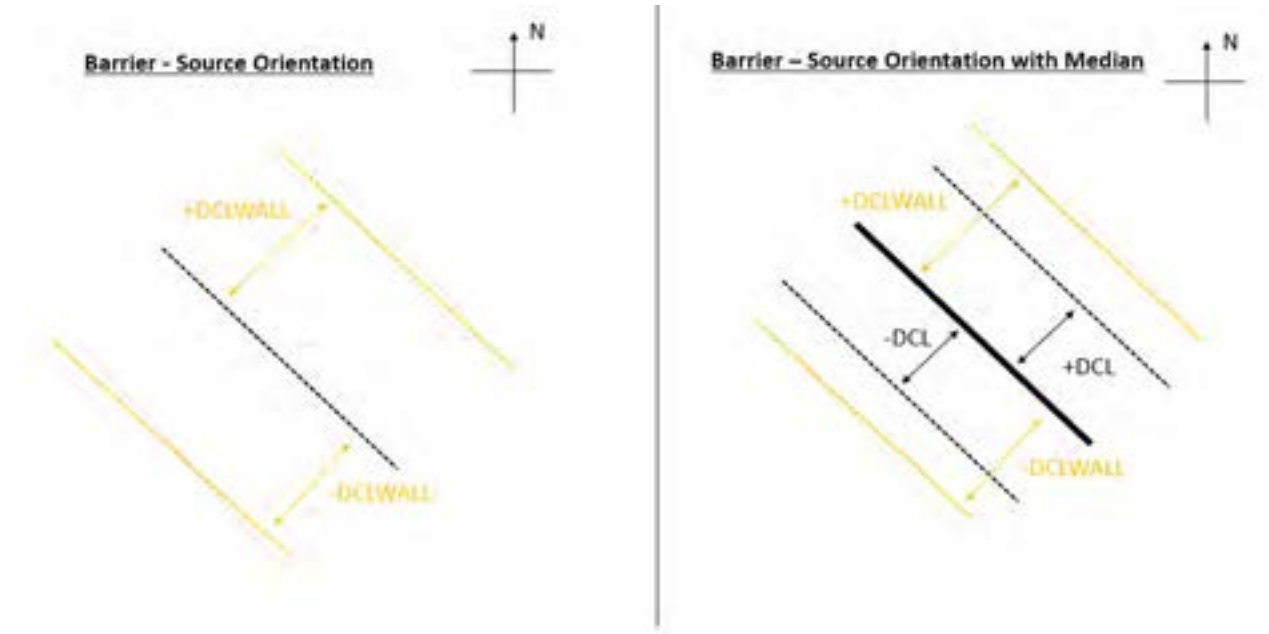


Figure 3-3. Definition of DCLWALL for RLINEXT sources. Dashed black lines represent roadway sources and dashed orange lines represent barriers with an offset (DCLWALL). The solid line in the right-hand panel represents the median

From Figure 3-2, the DCL is defined and the DCLWALL is defined when there is a median. This median DCL is subtracted from the DCLWALL within the RLINE barrier processing, so only the relative distance between each source and wall (barrier) is used when estimating concentrations.

A roadside located in a depression is specified with the RDEPRESS keyword. The syntax, type and order for the RDEPRESS card for RLINEXT sources are summarized below

Syntax:	SO RDEPRESS Srcid Depth Wtop Wbottom
Type:	Optional, Repeatable
Order:	Must follow the SRCPARAM card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source, and the other parameters are as follows:

Depth: depth of the depression in meters (should be negative),

Wtop: width of the top of the depression containing the RLINE source in meters,

Wbottom: width of the bottom of the depression containing the RLINE source in meters (must be less than, or equal to, Wtop).

The barrier and depressed roadway source configurations can only be used if the ALPHA flag is present with the MODELOPT keyword in the CO pathway.

Roadside barrier configurations are specified by the height of the barrier (Htwall) and the distance from the centerline to the wall (DCLwall). Currently, there is no limit to the Htwall parameter, but a fatal error message is issued if the height of the barrier is less than zero. If a second barrier is specified with Htwall2 and DCLwall2, this barrier should be on the opposite side of the roadway from barrier 1. Positive values of DCLwall (and DCLwall2) indicate barriers east of the roadway centerline (or north if the roadway runs directly east-west). Negative values indicate barriers west of the roadway centerline (or south if the roadway runs directly east-west).

Depressed roadway dimensions are specified by the Depth parameter, defining the depth of the roadway relative to surrounding terrain, in meters, and the Wtop and Wbottom parameters, defining the widths of the depression top and depression bottom, respectively. The Depth parameter must be a negative value, reflecting a lower elevation than the surrounding terrain. A fatal error is issued if the Depth parameter is greater than zero. A fatal error is issued if either the Wtop or Wbottom parameters are less than zero, or if the specified Wbottom parameter is greater than the Wtop parameter for the source. Wbottom can, however, have a greater value than the width of the roadway, if the inclusion of shoulders or other areas are considered within the depression.

3.3.2.11 BUOYLINE source inputs

The syntax, type and order for the SRCPARAM, BLPINPUT, and BLPGROUP cards for a BUOYLINE source are summarized below:

Syntax:	SO SRCPARAM Srcid Blemis Relhgt
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each line input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular line within the buoyant line source, and the other parameters are as follows:

Blemis - buoyant line emission rate in g/(s) for the individual line,

Relhgt - average release height of the individual line above ground in meters. Since the original BLP model was developed for elevated sources, a minimum release height of 2.0 m is enforced for the individual buoyant lines when AERMOD processes the buoyant line sources. If a release height less than 2.0 m is detected, AERMOD changes the height to 2.0 meters, issues a warning message, and continues processing.

The buoyant line source also requires the user to enter average values representative of a buoyant line source as a whole and not for the individual lines that comprise the buoyant line source.

As of version 21112, the user can specify multiple buoyant line groups (i.e., multiple buoyant line sources) each comprised of individual buoyant lines. Each buoyant line source group (previously referred to as a buoyant line source) requires the user to enter average values representative of the group using the BLPINPUT keyword. The average parameters are applied to the buoyant line group by associating each individual buoyant line with a buoyant line group using the BLPGROUP keyword (described below) through the BLPGrpID. The BLPGrpID is optional on the BLPINPUT keyword ***if only one buoyant line group is modeled***. Allowing BLPGrpID to be optional when a single buoyant line group is being modeled lets legacy control files run with AERMOD. These are entered as parameters on the BLPINPUT keyword:

Syntax:	SO BLPINPUT BLPGrpID Blavgblen Blavgbhgt Blavgbwid Blavglwid Blavgbsep Blavgfprm
Type:	Mandatory, Repeatable
Order:	BLPINPUT keywords must appear before the BLPGROUP keywords The order of the BLPINPUT records and their associated buoyant lines (as defined on the BLPGROUP keywords and linked through the BLPGrpIDs) must be in the same order as the lines on the SO LOCATION records

where the parameters are defined as follows (the order shown is the same as the input in BLP with the variable names used in BLP shown in parentheses):

BLPGrpID: buoyant line group ID,

Blavgblen (L): average building length (m),

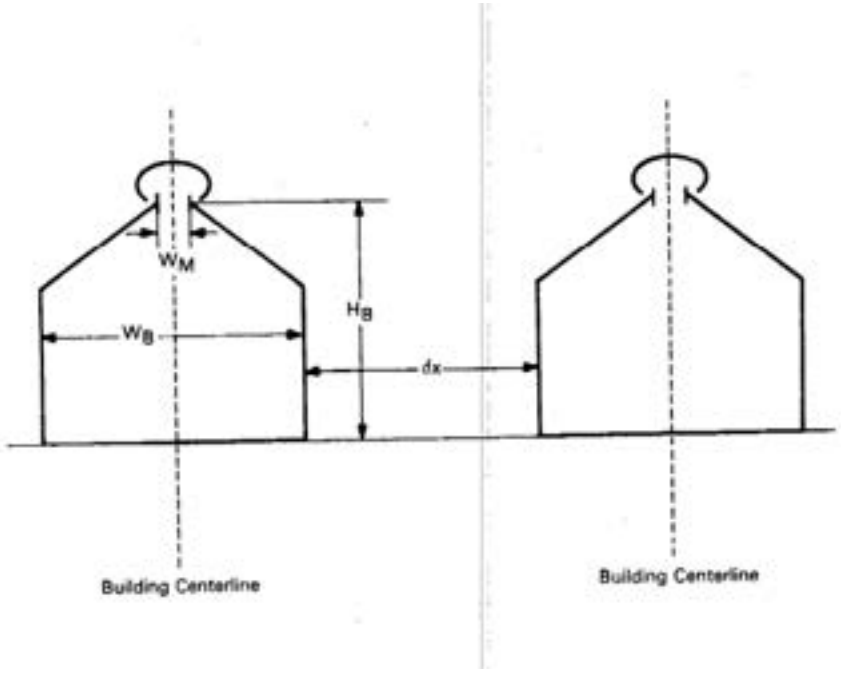
Blavgbhgt (HB): average building height (m),

Blavgbwid (WB): average building width (m),

Blavglwid (WM): average line source width (m) (of the individual lines),

Blavgbsep (DX): average building separation (m) (between the individual lines),

Blavgfprm (FPRIME): average buoyancy parameter (m^4/s^3).



When multiple buoyant line groups are in a model run, the order of the individual buoyant lines associated with the BLPINPUT keywords (as defined on the BLPGROUP keywords and linked via the

BLPGrpIDs) in the control file must be in the order of the individual buoyant lines defined by the SO LOCATION keywords. For example, assume a model run consists of SO LOCATION records for a 3-line buoyant line group followed by the SO LOCATION records for a 2-line buoyant line group (i.e., five total individual buoyant lines in two BL groups). The BLPINPUT records for the 3-line group must be specified before the BLPINPUT record for the 2-line group in the control file. If they are in the opposite order, AERMOD will issue an error message and fail to run.

The user should use caution in defining the average buoyancy parameter (FPRIME) above. This parameter should be calculated as in Equation 2-47 of the BLP user guide (Schulman and Scire, 1980), also shown below. The FPRIME parameter is dependent on BUOYLINE parameters listed above and additional source parameters that are not input to AERMOD such as the line source exit velocity and difference in exit and ambient temperatures.

$$\text{FPRIME} = \frac{\text{g L W}_m\text{w}\ (T_s - T_a)}{T_s}$$

Where:

FPRIME = average line source buoyancy parameter (m^4/s^3)
g = acceleration of gravity (9.81 m/s^2)
L = line source length (m)
W_m = line source width (m)
w = exit velocity (m/s)
T_s = exit temperature (◦K)
T_a = ambient air temperature (◦K)

Selection and computation of FPRIME should be done with caution and sufficiently justified before being used in an AERMOD BUOYLINE application. Also note, FPRIME should be computed for each line in a BUOYLINE and averaged for all lines in a BUOYLINE source and source group, as suggested in the BLP user guide (Schulman and Scire, 1980).

The BLPGROUP keyword associates one or more individual buoyant lines with a buoyant line group and a corresponding BLPINPUT keyword. To process two or more buoyant line sources this keyword is mandatory; for modeling a single buoyant line source the keyword is optional, i.e., when omitted all individual lines are treated as a single buoyant line source.

Syntax:	SO BLPGROUP BLPGrpID SrcID (or SrcRng) or SO BLPGROUP ALL
Type:	Mandatory, Repeatable
Order:	BLPGROUP keywords must appear after the BLPINPUT keywords

where BLPGrpID identifies a group individual buoyant lines to be treated as a single buoyant line source and the Srcid or Srcrng identifies the group of buoyant lines to be included in the BLP group. As with the SO SRCGROUP card, individual source IDs and source ranges may be used on the same record, and if more than one input record is needed to define the sources for a particular BLP group, then additional records may be input by repeating the pathway, keyword and BLPGrpID. A user can also specify a BLPGrpID of ALL, which means that all the individual line sources are to be treated as a single buoyant line source. There must be one, and only one, associated BLPINPUT record for BLPGrpID ALL. Another constraint for the BLPGROUP keyword is that a buoyant line source cannot be associated with more than one BLPGrpID. When using buoyant line sources in event processing the BLPGRPID must be equivalent to the SRCGROUP ID, and the source IDs in each must be the same.

Note: The secondary keyword, ALL, is used in different source grouping contexts (e.g., BLPGROUP, SRCGROUP, OLMGROUP). Refer to the appropriate section of this user's guide to see the usage of the secondary keyword, ALL, for the group of sources to be identified. For SRCGROUP see Section 3.3.15. For OLMGROUP, see Section 3.3.6.2.

3.3.2.12 SWPOINT source inputs

The SWPOINT source type has been added beginning with version 22112 as a research tool to further study the phenomena researchers have coined as "sidewash" which is a lateral shift of the building wake cavity that forms on the lee side a building that occurs when the wind is oblique to one of the longer sides of an elongated building. Yang et al. (2020) investigated the flow structures and concentration fields under oblique wind conditions. A key finding was that the flow is not only entrained downward (downwash) but also directed by the oblique wind along the building leeward surface (sidewash), which creates a sidewash-downwash (S-D) vortex. This S-D vortex causes the plume to shift in the lateral direction. The use of the SWPOINT source type requires the non-regulatory ALPHA flag to be entered as a model option with the MODELOPT keyword on the CO pathway. The syntax, type and order for the SRCPARAM cards for a SWPOINT source are summarized below:

Syntax:	SO SRCPARAM Srcid Swemis Stkhgt Bw Bl Bh Ba
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each line input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular SWPOINT source, and the other parameters are as follows:

Swemis	Sidewash point source emission rate in g/s,
Stkhgt	Release height above ground in meters,
Bw	Building width in meters,
Bl	Building length in meters,
Bh	Building height in meters, and
Ba	Building angle in decimal degrees measured clockwise where north is 0 degrees.

As a research tool, the SWPOINT source has a number of limitations in the implementation in version 23132 that need to be highlighted for the user who uses the SWPOINT source type to investigate and study the sidewash effect. These limitations include the following:

- Produces downwind concentrations from short stacks assumed to be centered along the leeward side of elongated buildings. Refer to Figure X below for an illustration of the assumed stack location with respect to the building and wind flow orientation.
- Model concentrations are limited to the building wake cavity. Impacts at receptors outside or in the transition zone from the building wake cavity are not calculated.
- Terrain impacts are not considered.
- Plume rise due to mechanical and thermal buoyancy is not considered.
- Building representation is assumed to be rectangular.
- PRIME downwash is not applied.
- SWPOINT sources have not been configured for use with EVENT processing, NO_X-to-NO_2 conversion methods, or the MAXDCONT source culpability processing.

- Stack top wind speeds below approximately 2 m/s have been shown to cause anomalously high concentrations. This parameter is quite sensitive and currently can shift from reasonable predicted concentrations to values several orders of magnitude with the adjustment of a few tenths of a meter per second.

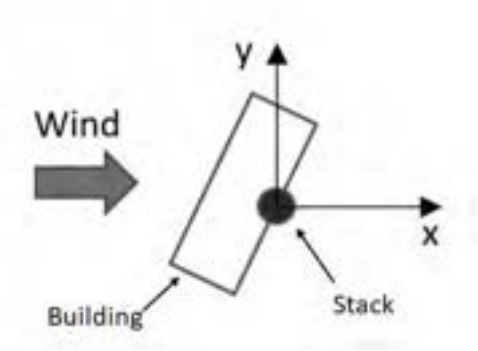


Figure 3-4.Fixed Stack location with respect to Building and Wind Flow Orientation

3.3.3 Specifying gas deposition parameters

3.3.3.1 Source parameters for gas deposition (dry and/or wet)

The input of source parameters for dry and wet deposition of gaseous pollutants is controlled by the GASDEPOS keyword on the SO pathway. The gas deposition variables may be input for a single source or may be applied to a range of sources.

The syntax, type, and order for the GASDEPOS keyword are summarized below:

Syntax:	SO GASDEPOS Srcid (or Srcrng) Da Dw rcl Henry
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid or Srcrng identify the source or sources for which the inputs apply, the parameter Da is the diffusivity in air for the pollutant being modeled (cm^2/s), Dw is the diffusivity in water for the pollutant being modeled (cm^2/s), rcl is the cuticular resistance to uptake by lipids for individual leaves (s/cm), and Henry is the Henry's Law constant (Pa m^3/mol). Values of the physical parameters for several common pollutants may be found in the appendices to the ANL report (Wesely, et. al, 2002).

As of version 21112, optional default gas deposition parameters (Da, Dw, rcl, Henry) are included for elemental mercury, divalent mercury, dioxins, polycyclic aromatic hydrocarbons (PAH), SO_2, and NO_2. There are two requirements to use the default gas deposition parameters. First, the POLLUTID keyword

must be set to a specific value, depending on the pollutant (see below). Second, the deposition parameter must be set to a value of 0 in the GASDEPOS keyword. If each parameter is to be a default value, a 0 must be entered for each parameter. The user can also specify a mix of default versus user-entered parameters. For example, the user can specify a value for diffusivity in air with the user entered value and a default value of diffusivity in water by entering a 0. If any default values are used for a particular source, the user will receive a message in the ERRORFIL.

The pollutants, POLLUTID, and default gas deposition parameters used are:

Pollutant	**POLLUTID**	**Diffusivity in air (Da)**	**Diffusivity in water (Dw)**	**Cuticular resistance (rcl)**	**Henry's Law (Henry)**
Elemental Mercury	HG0	0.055	6.4E-6	100000	719
Divalent Mercury	HGII	0.045	5.2E-6	100000	0.000072
Dioxin (as TCDD)	TCDD	0.05196	4.39E-6	9.67	1.46
PAH (as BaP)	BAP	0.0513	4.44E-6	0.441	0.046
SO_2	SO2	0.1122	1.83E-5	732	72
NO_2	NO2	0.1361	1.4E-5	12000	8444

Note, that for elemental mercury, the third character of the POLLUTID is a zero, not a capital O. The POLLUTID for SO2 and NO2 contains a capital O and not a zero.

3.3.3.2 Option for specifying the deposition velocity for gas dry deposition

An optional keyword is available on the Control (CO) pathway to allow the user to specify the dry deposition velocity for gaseous emissions. A single dry deposition velocity can be input for a given model run and is used for all sources of gaseous pollutants. Selection of this option will by-pass the algorithm for computing deposition velocities for gaseous pollutants and should only be used when sufficient data to run the algorithm are not available. Results of the AERMOD model based on a user-specified deposition velocity should be used with extra caution.

The syntax and type of the GASDEPVD keyword are summarized below:

Syntax:	CO GASDEPVD Uservd
Type:	Optional, Non-repeatable

where the parameter Uservd is the gaseous dry deposition velocity (m/s). A non-fatal warning message is generated by the model if a value of Uservd greater than 0.05 m/s (5 cm/s) is input by the user. When the GASDEPVD keyword is used, the GDSEASON, GDLANUSE, and GASDEPRF keywords for the CO pathway, and the GASDEPOS keyword for the SO pathway, are no longer applicable and cannot be used in the same model run. As a result, gas wet deposition processes (DEPOS, WDEP, and WETDPLT) cannot be simulated with the GASDEPVD option is used.

3.3.4 Specifying source parameters for particle deposition

The AERMOD model includes two methods for handling dry and/or wet deposition of particulate emissions. Method 1 is used when a significant fraction (greater than about 10 percent) of the total particulate mass has a diameter of 10 μm or larger, or when the particle size distribution is known. The particle size distribution must be known reasonably well in order to use Method 1. Method 2 may be used when the particle size distribution is not well known and when a small fraction (less than 10 percent of the mass) is in particles with a diameter of 10 μm or larger. The deposition velocity for Method 2 is calculated as the weighted average of the deposition velocity for particles in the fine mode (i.e., less than 2.5 μm in diameter) and the deposition velocity for the coarse mode (i.e., greater than 2.5 μm but less than 10 μm in diameter). As described in Section 3.2.2.2, use of the Method 2 option is considered a non-DFAULT option and cannot be used when the DFAULT keyword is specified.

3.3.4.1 Specifying particle inputs for Method 1

The input of source variables for particle deposition using Method 1 is controlled by three keywords on the SO pathway, PARTDIAM, MASSFRAX, and PARTDENS. These inputs are comparable to the particulate inputs used in the ISCST3 model (EPA,1995a). The particle variables may be input for a single source or may be applied to a range of sources.

The syntax, type and order for these three keywords are summarized below:

Syntax:	SO PARTDIAM Srcid (or Srcrng) Pdiam(i), i=1,Npd SO MASSFRAX Srcid (or Srcrng) Phi(i), i=1,Npd SO PARTDENS Srcid (or Srcrng) Pdens(i), i=1,Npd
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid or Srcrng identify the source or sources for which the inputs apply, and where the Pdiam array consists of the mass-mean aerodynamic particle diameter (microns) for each of the particle size categories, the Phi array is the corresponding mass fractions (between 0 and 1) for each of the categories, and the Pdens array is the corresponding particle density (g/cm^3) for each of the categories.

The number of particle size categories for a particular source is Npd. The user does not explicitly tell the model the number of categories being input, but if continuation cards are used to specify particle size variables, all inputs of a keyword for a particular source or source range must be contiguous, and the number of categories must agree for each of the three keywords input for a particular source. As many continuation cards as needed may be used to define the inputs for a particular keyword. The model checks the inputs to ensure that the mass fractions sum to 1.0 (within 2 percent) for each source input and issues a warning message if that range is exceeded. The model also ensures that mass fractions for each particle size category are within the proper range (between 0 and 1), and issues fatal error messages for any value exceeded that range.

3.3.4.2 Specifying particle inputs for Method 2

The Method 2 particle information is input through the METHOD_2 keyword on the SO pathway. The syntax, type, and order for the METHOD_2 keyword are summarized below:

Syntax:	SO METHOD_2 Srcid (or Srcrng) FineMassFraction Dmm
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid or Srcrng identify the source or sources for which the inputs apply, the parameter FineMassFraction is the fraction (between 0 and 1) of particle mass emitted in the fine mode, less than 2.5 microns, and Dmm is the representative mass-mean aerodynamic particle diameter in microns. Estimated values of fine particle fractions and mass mean diameters for various pollutants are provided in Appendix B of the ANL report (Wesely, et al, 2002).

As of version 21112, optional default Method 2 particle deposition parameters (FineMassFraction and Dmm) are included for arsenic, cadmium, lead, mercury, and polycyclic aromatic hydrocarbons (PAH). There are two requirements to use the default Method 2 particle deposition parameters. First, the POLLUTID keyword must be set to a specific value, depending on the pollutant (see below). Second, the deposition parameter must be set to a value of 0 in the METHOD_2 keyword. If each parameter is to be a default value, a 0 must be entered for each parameter. The user can also specify a mix of default versus user-entered parameters. For example, the user can specify a value for fine mass fraction with the user entered value and a default value of mean particle diametr by entering a 0. If any default values are used for a particular source, the user will receive a message in the ERRORFIL.

The pollutants, POLLUTID, and default Method 2 particle deposition parameters used are:

Pollutant	POLLUTID	Fine mass fraction	Mean particle diameter (Dmm)
Arsenic	AS	0.75	0.5
Cadmium	CD	0.70	0.6
Lead	PB	0.75	0.5
Mercury	HG	0.80	0.4
PAH (as POC)	POC	0.90	0.1

3.3.5 Specifying Emission and Output Units

Since the AERMOD model allows for both concentration and deposition to be output in the same model run, the EMISUNIT keyword (see Section 3.3.13) cannot be used to specify emission unit factors if more than one output type is being generated. The AERMOD model therefore allows for concentration and deposition units to be specified separately through the CONCUNIT and DEPOUNIT keywords, respectively. The syntax and type of the CONCUNIT keyword are summarized below:

Syntax:	SO CONCUNIT Emifac Emilbl Conlbl
Type:	Optional, Non-repeatable

where the parameter Emifac is the factor to convert emission rate input units to the desired output units, Emilbl is the label for the emission input units (up to 40 characters), and Conlbl is the output unit label (up to

40 characters) for concentration calculations. The default conversion is from g/s to μg/m^3 and the value is $1x10^6$. The conversion from g/s to mg/m^3 would simply be $1x10^3$ and the conversion from g/s to ppb is simply the grams/m^3 to ppb conversion factor for the pollutant. The syntax and type of the DEPOUNIT keyword are summarized below:

Syntax:	SO DEPOUNIT Emifac Emilbl Deplbl
Type:	Optional, Non-repeatable

where the parameter Emifac is the factor to convert emission rate input units to the desired output units, Emilbl is the label for the emission input units (up to 40 characters), and Deplbl is the output unit label (up to 40 characters) for deposition calculations. The default conversion is g/s to g/m2 and the value is 3600. To convert to units such as ng/m^2, the conversion would be $3.6x10^{12}$ (3600 *$1x10^9$) where $1x10^9$ is the conversion from g to nanograms.

3.3.6 Source input parameters for NO_2 conversion options

It should be noted that not all NO_2 conversion options have been implemented for all source types in AERMOD. Table 3-2 summarizes which NO_2 conversion options have been implemented for each of the AERMOD source types and which options have not.

3.3.6.1 Specifying in-stack NO_2/NO_x ratios by source for PVMRM, OLM, TTRM/TTRM2, and GRSM

As noted above, the PVMRM, OLM, TTRM/TTRM2, and GRSM options for modeling NO_2 conversion require in-stack NO_2/NO_x ratios to be specified for each source, i.e., AERMOD no longer assumes a default in-stack ratio of 0.10 for the OLM option. The user can specify in-stack NO_2/NO_x ratios through the optional NO2RATIO keyword on the SO pathway. The syntax of the NO2RATIO keyword is as follows:

Syntax:	SO NO2RATIO SrcID or SrcRange NO2Ratio
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the SrcID or SrcRange identify the source or sources for which the inputs apply, and where the NO2Ratio parameter specifies the in-stack ratio. In this way, the user can specify a single in-stack NO_2/NO_x ratio for a group of stacks. For example, the following input:

```
SO NO2RATIO  STACK1-STACK10   0.15
```

will apply the in-stack ratio of 0.15 to sources with IDs falling within the range STACK1 to STACK10. Any value specified on the SO NO2RATIO card will override the default ratio, if any, specified on the CO NO2STACK card. Users should note that while SO NO2RATIO is an optional keyword, the PVMRM and OLM options require the user to specify an in-stack NO_2/NO_x ratio for each source, using either the CO NO2STACK (Section 3.2.5.4) or SO NO2RATIO cards, or both.

3.3.6.2 Specifying combined plumes for OLM

The OLM option for modeling NO_2 conversion includes an option for specifying which sources are to be modeled as combined plumes, i.e., where the NOx within the plumes competes for the available ambient ozone. Sources which are not specified for modeling as combined plumes will be modeled as individual plumes, i.e., where all of the ambient ozone is available for conversion of NO to NO_2. The selection of individual or combined plume option for OLM is specified through the OLMGROUP keyword on the SO pathway. The syntax of the OLMGROUP card is as follows:

Syntax:	SO OLMGROUP OLMGrpID SrcID's and/or SrcRange's or SO OLMGROUP ALL
Type:	Optional, Repeatable (except for OLMGROUP ALL)
Order:	Must follow the LOCATION card for each source input; OLMGROUP ALL must follow the LOCATION card for all sources

where OLMGrpID identifies a group to be treated as a combined plume with OLM, and the SrcID's and/or SrcRange's identify the sources to be included in the OLM group. As with the SO SRCGROUP card, individual source IDs and source ranges may be used on the same record, and if more than one input card is needed to define the sources for a particular OLM group, then additional records may be input by repeating the pathway, keyword and OLM group ID. A user can also specify an OLMGrpID of ALL, which means that OLM will be applied on a combined plume basis to all sources. However, unlike the SO SRCGROUP card, the results will not be output for a specific OLM group unless the same group of sources is also identified on a SRCGROUP card. Another constraint for the OLMGROUP keyword is that a source cannot be included in more than one OLM group.

Note: The secondary keyword, ALL, is used in different source grouping contexts (e.g., BLPGROUP, SRCGROUP, OLMGROUP). Refer to the appropriate section of this user's guide to see

the usage of the secondary keyword, ALL, for the group of sources to be identified. For SRCGROUP see Section 3.3.15. For BLPGROUP, see Section 3.3.2.11.

If a source is not selected for an OLMGROUP card, then OLM will be applied to that source as an individual plume. Other than the similarity in syntax, there is no connection in the model between the groups defined on the OLMGROUP card and groups defined on the SRCGROUP card. The OLMGROUP card relates to how the results are processed within the model for the OLM option, and the SRCGROUP card simply controls how source impacts are grouped in the model outputs.

If the user identifies one or more groups of sources to apply OLM on a combined plume basis using the OLMGROUP card, the model will still need to calculate the concentration for individual plumes within the OLM group in order for the model to sum the results for the sources listed on the SRCGROUP card(s). The individual source concentrations are calculated by applying the ratio of the combined concentration for the OLM group with and without OLM to each source within the OLM group.

3.3.6.3 Specifying ambient NO_2/NO_x ratios for the ARM2 option

The ARM2 option in AERMOD is based on applying an ambient ratio of NO_2/NO_x to a modeled NO_x concentration to estimate ambient NO_2 concentrations. The ARM2 option applies an ambient ratio to the 1-hr modeled NO_x concentrations based on a formula derived empirically from ambient monitored ratios of NO_2/NO_x. The default upper and lower limits on the ambient ratio applied to the modeled NO_x concentration are 0.9 and 0.5, respectively. These limits can be modified using the optional ARMRATIO on the CO pathway as follows:

Syntax:	CO ARMRATIO ARM2_Min ARM2_Max
Type:	Optional, Non-Repeatable

When the regulatory DFAULT keyword is included on the MODELOPT line, the allowed range for the ARM2 ratio represented by ARM2_Min and ARM2_Max is 0.5 to 0.9, respectively. When the DFAULT keyword is not included, the allowed range is extended to a lower limit greater than 0 to an upper limit of 1.0.

3.3.7 Modeling NO_2 increment credits with PVMRM

Due to the ozone limiting effects of the PVMRM option, the predicted concentrations of NO_2 are not linearly proportional to the emission rate. Therefore, the approach of modeling NO_2 increment consumption with PSD credits through the use of a negative emission rate for credit sources cannot be used with the PVMRM option. However, the ALPHA PSDCREDIT option allows modeling PSD increment credits for NO_2 when the PVMRM option is specified. The PSDCREDIT option is currently implemented as an ALPHA option and requires that the PVMRM and ALPHA options be specified on the CO MODELOPT card (see Section 3.2.2). **As an ALPHA option, PSDCREDIT requires additional testing and evaluation before it should be considered for use in a regulatory application.** The PSDCREDIT option utilizes a the PSDGROUP keyword, described below, to identify which sources consume or expand increment. This option is not valid if the OLM, TTRM/TTRM2, or GRSM option is specified, and no comparable option is available for modeling increment credits with the any of those options. The user should check with the appropriate reviewing authority for further guidance on modeling increment credits for NO_2.

A general discussion of concepts related to modeling increment consumption is provided below, followed by a description of inputs required to use the ALPHA PSDCREDIT option for PVMRM.

3.3.7.1 Increment consuming and baseline sources

Increment is the maximum allowable increase in concentration of a pollutant above a baseline concentration for an area defined under the Prevention of Significant Deterioration (PSD) regulations. The PSD baseline area can be an entire State or a subregion of a State such as a county or group of counties. Increment consumption is the additional air quality impact above a baseline concentration.

The baseline concentration is the ambient concentration of the pollutant that existed in the area at the time of the submittal of the first complete permit application by any source in that area subject to PSD regulations. A baseline source is any source that existed prior to that first application and the baseline date is the date of the PSD application. This baseline date is referred to as the minor source baseline date in PSD regulations. By definition, baseline sources do not consume increment. However, any baseline source that retires from service after the baseline date expands the increment available to new sources. Therefore, a PSD modeling analysis performed for a new source may need to account for this increment expansion. Such an analysis may therefore involve identification of three groups of sources: 1) increment-consuming sources; 2) retired (increment-expanding) baseline sources; and 3) existing, non-retired, baseline sources.

3.3.7.2 Calculating increment consumption under the PSDCREDIT option

Calculating increment consumption under the PSDCREDIT option in AERMOD is not a simple arithmetic exercise involving the three groups of sources defined above. Since the amount of ozone available in the atmosphere limits the conversion of NO to NO_2, interactions of plumes from the existing and retired baseline sources with those from the increment consuming sources must be considered as part of the calculation of net increment consumption. Without the PSDCREDIT option, properly accounting for the potential interaction of plumes among the different source categories would require post-processing of results from multiple model runs. Internal "post"-processing algorithms have been incorporated in AERMOD under the PSDCREDIT option to account for the apportioning of the three groups of sources to properly calculate increment consumption from a single model run.

Define the following three source groupings for the discussion that follows:

A = increment-consuming sources;
B = non-retired baseline sources; and
C = retired baseline, increment-expanding sources.

The calculation of the amount of increment consumption by the **A** sources cannot simply be estimated by modeling the **A** sources alone because of the possible interaction of those plumes with the plumes from **B** sources. The PVMRM algorithm is designed to account for such plume interactions and calculate the total NO to NO_2 conversion in the combined plumes based on the amount of ozone available. Therefore, the total increment consumption by the **A** sources is given by the difference between (1) the total future impact of increment consuming sources and non-retired baseline sources (**A**+**B**) and (2) the total current impact (**B**), which can be expressed as (**A**+**B**) – (**B**). Here (**A**+**B**) represents the value that would be compared against the National Ambient Air Quality Standard (NAAQS) for NO_2 during PSD review of the **A** sources.

In a case where some of the baseline sources have been retired from service (**C** sources), the PSD regulations allow the consideration of increment expansion when assessing compliance with the PSD increment. However, the amount of increment expansion cannot be estimated by simply modeling the **C** sources alone because of the possible interaction of those plumes with the plumes from **B** sources. Therefore, the total increment expansion, i.e., PSD credit, is calculated as the difference between (1) the total impact prior to the retirement of **C** sources, i.e., (**B**+**C**), and (2) the total impact from existing (non-retired) baseline sources (**B**), which can be expressed as (**B**+**C**) – (**B**).

Finally, the net increment consumption is given by the difference between total increment consumption and the total increment expansion, or

$$[(\mathbf{A}+\mathbf{B}) - (\mathbf{B})] - [(\mathbf{B}+\mathbf{C}) - (\mathbf{B})] \qquad \text{(Equation 1)}$$

Note that in the absence of any increment expansion, the net increment consumption is equal to the total increment consumption [(**A**+**B**) – (**B**)], as described above.

These expressions of net increment consumption and expansion cannot be interpreted as algebraic equations. Instead, the terms within parentheses represent the results of separate model runs that account for the combined effects of NO_x conversion chemistry on specific groups of sources. The expression shown in Equation 1 above represents four model simulations: (**A**+**B**), (**B**), (**B**+**C**), and (**B**) again. In this case, the two (**B**) terms do cancel each other, and we are left with:

$$[(\mathbf{A}+\mathbf{B})] - [(\mathbf{B}+\mathbf{C})] \qquad \text{(Equation 2)}$$

The expression presented in Equation 2 summarizes how the net increment consumption calculation is performed under the PSDCREDIT option. Under this option, AERMOD first models the **A** and **B** groups together, then models the **B** and **C** groups together, and finally computes the difference to obtain the desired result, i.e., the value to compare to the PSD increment standard. For AERMOD to perform the special processing associated with this option, the user must define which sources belong to each of the groupings defined above. The next section describes how this is accomplished.

3.3.7.3 Specifying source groups under the PSDCREDIT option

The PSDCREDIT option introduces limitations on grouping sources to calculate increment consumption as described in the previous section. A new keyword, PSDGROUP, is used to group the sources to correctly calculate the increment consumption. The syntax, type, and order are similar to the regular SRCGROUP keyword and are summarized below:

Syntax:	SO PSDGROUP Grpid Srcid's and/or Srcrng's
Type:	Mandatory for PSDCREDIT option, Repeatable
Order:	Must follow the last keyword in the SO pathway before FINISHED

If the PSDCREDIT model option is specified, the PSDGROUP keyword must be used. The SRCGROUP keyword cannot be used with the PSDCREDIT option since results from other groupings beyond these three do not have any meaning when the PSDCREDIT option is invoked, and sources are allocated to the calculation of increment consumption. Special source groups for outputting model results are defined within AERMOD for the PSDCREDIT option, as described in the next section.

Only the following special PSD group ID's can be used. Failure to use these group ID's will result in a fatal error message during setup processing by AERMOD. The group ID's are:

INCRCONS – increment-consuming sources (group **A** above); these can be new sources or modifications to existing sources;

NONRBASE – existing, non-retired baseline sources (group **B** above); and

RETRBASE – retired (increment-expanding or PSD credit) baseline sources (group **C** above).

It is important to note that the source emission inputs for sources included in the RETRBASE PSD group must be entered as positive numbers, unlike other types of PSD credit modeling where negative emissions are input to simulate the impact of the credit sources on the increment calculation. The increment-expanding contribution from RETRBASE sources is accounted for within the AERMOD model under the PSDCREDIT option.

The group ID's can appear in any order, but these are the only three that can be specified. If there are no retired baseline sources (i.e., no baseline sources are retired), the keyword RETRBASE can be omitted. Likewise, if there are no non-retired baseline sources (i.e., all baseline sources have been retired), the NONRBASE keyword can be omitted. The special group ID 'ALL' that can be used with the SRCGROUP keyword **cannot** be used with the PSDGROUP keyword. As with the SRCGROUP keyword for non-PSDCREDIT applications, the group IDs are repeatable, and they must be the last keyword before FINISHED on the SO pathway when the PSDCREDIT option is specified.

Source ranges, which are described in more detail in Section 3.3.9, are input as two source IDs separated by a dash, e.g., STACK1-STACK10. Individual source IDs and source ranges may be used on the same card. If more than one input card is needed to define the sources for a particular group, then additional cards may be input, repeating the pathway, keyword and group ID. A source can appear in only one of these source groups and must be assigned to one of the groups.

The requirements for specifying sources and source groups under the PSDCREDIT option are summarized below:

- The SRCGROUP keyword cannot be used with the PSDCREDIT option;
- Special PSD group ID's must be used with the PSDGROUP keyword;
- The group ID ALL is not allowed when the PSDCREDIT option is specified;
- A source must appear in one, and only one, of the PSDGROUPs; and
- Emission rates for increment-expanding (RETRBASE) sources must be entered as positive values.

3.3.7.4 Model outputs under the PSDCREDIT option

Unlike the regular SRCGROUP keyword, the PSDGROUP keyword does not define how the source impacts are grouped for model output. As described in the previous sections, the PSDGROUP keyword defines the different categories of sources needed, in order to properly account for NO_x conversion chemistry under the PVMRM option.

The model outputs under the PSDCREDIT option in AERMOD are based on demonstrating compliance with the air quality standards, i.e., the NAAQS and PSD increment for NO_2. As a result, AERMOD uses hardcoded "SRCGROUP" names of 'NAAQS' and 'PSDINC' to label these two types of outputs. The results output under the 'NAAQS' source group label are based on the calculation of (**A**+**B**) as described above in Section 3.3.7.2. The results reported under the 'PSDINC' source group label are based on the expression presented above in Equation 2.

3.3.8 Background concentrations

Beginning with version 11059, users can specify uniform or temporally varying background concentrations using the BACKGRND keyword on the SO pathway and beginning with version 13350 users can vary background concentrations by wind sector. Background concentrations can be included with any source group to estimate cumulative ambient impacts. Background concentrations can be specified using a range of options, similar to those available with the EMISFACT keyword for source emissions, or on an hourly basis from a separate data file.

3.3.8.1 Defining background concentration sectors

For applications where multiple ambient monitors outside of the modeling domain are available and representative of background concentrations within the modeling domain depending on the wind direction, the user may define sector-varying background concentrations. The sectors are defined based on the SO BGSECTOR keyword, as follows:

Syntax:	SO BGSECTOR StartSect1 StartSect2 . . . StartSectN, where N ≤ 6
Type:	Optional, Non-Repeatable

3.3.8.2 For applications that include sector-varying background concentration the minimum sector width allowed is 30 degrees and warning messages will be issued for sector widths less than 60 degrees. **Sector-varying background concentrations will be selected based on the flow vector, i.e., the downwind direction, based on the wind direction specified in the surface meteorological data file. During periods of specific wind directions, the associated user input sector-varying background concentrations will be applied to the entire modeling domain (i.e., all receptors).**Specifying the background concentration

For applications that do not include sector-varying background concentrations, the syntax of the BACKGRND keyword is as follows:

Syntax:	SO BACKGRND BGflag BGvalue(i), i=1,n and/or SO BACKGRND HOURLY BGfilnam (BGformat)
Type:	Optional, Repeatable

where the BGflag parameter is the variable background concentration flag, BGvalue is the array of background concentration values associated with BGflag, HOURLY indicates use of an hourly background file, BGfilnam is the filename for the hourly background data, and BGformat is the optional Fortran format of the hourly background file ('free' format is used by default). The BGfilnam can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (") at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces.

For applications that include sector-varying background concentrations, the syntax of the BACKGRND keyword is as follows:

Syntax:	SO BACKGRND SECTx BGflag BGvalue(i), i=1, and x ≤ 6 and/or SO BACKGRND SECTx HOURLY BGfilnam (BGformat), where x ≤ 6

Type:	Optional, Repeatable

where the SECTx parameter identifies the applicable sector as defined on the SO BGSECTOR keyword. Implement as SECT1 or SECT2 …or SECTx where $x \leq 6$, and x is an integer and corresponds to the Nth sector defined by BGSECTOR. The other parameters are as defined above.

The HOURLY background file must include the year, month, day, and hour, followed by the background concentration, in that order (unless specified differently through the BGformat parameter). The year can be specified as either a 2-digit or 4-digit year. If an optional Fortran format is specified using the BGformat parameter, the year, month, day, and hour variables must be read as integers using the Fortran I format, and the background concentration must be read as a real variable, using the Fortran F, E, or D format, e.g., (4I2,F8.3). Note that background values that do not include decimal places can be read as Fx.0, where x is the length of the data field. The BGformat parameter must include the open and close parentheses as shown in the example and may also include embedded spaces if double quotes (“) are used to delimit the field. A warning message will be generated if the specified format does not meet these requirements, and AERMOD may also issue a fatal error message when reading the file in cases where real variables are read with an integer format, or vice versa.

If the optional BGformat parameter is missing, then the model will read the background data using a Fortran ‘free’ format, i.e., assuming commas or spaces separate the data fields, and that the fields are in the order given above. The date sequence in the background data file must also match the date sequence in the hourly meteorological data files.

Note that the HOURLY option and an option to specify values based on the BGflag parameter can both be specified in the same model run. This allows the user to specify background concentrations on a temporally varying basis, such as SEASHR, that can be used to substitute for missing values in an hourly background file. **NOTE: AERMOD will issue a fatal error message and abort processing if missing data are encountered in an HOURLY background file unless the user provides other temporally varying background concentrations (e.g., SEASHR, etc.) to substitute for missing data.** Background concentration units can be specified using the BACKUNIT keyword, described below. If the BACKUNIT keyword is omitted, default units of PPB are assumed for background NO_2 and SO_2, PPM for CO, and UG/M3 for all other pollutants. Background concentrations specified in units of PPB or PPM are converted to UG/M3 based on reference temperature (25 C) and pressure (1013.25 mb).

To include background concentrations with a particular source group, the reserved "source ID" of BACKGROUND (or BACKGRND) can be included on the SRCGROUP keyword, including source group ALL. **NOTE:** AERMOD will NOT automatically include background concentrations in source group ALL, but the user can specify that background be included in results for group ALL by including the BACKGROUND (or BACKGRND) keyword after 'ALL' on the SRCGROUP keyword. Users can also include the NOBACKGROUND (or NOBACKGRND) keyword after 'ALL' on the SRCGROUP keyword to explicitly indicate that BACKGROUND is NOT included with group 'ALL.' The contribution of background concentrations can also be tracked separately by including a source group with BACKGROUND as the only "source ID." **NOTE: The source of background concentrations and the method used to incorporate background concentrations in a cumulative impact assessment involves several considerations and should be documented and justified on a case-by-case basis.**

Background concentrations specified with the BACKGRND keyword are combined with source impacts on a temporally paired basis to estimate cumulative ambient impacts. However, since modeled concentrations are not calculated for hours with calm or missing meteorological data, background concentrations are also omitted for those hours. This may result in the background contribution being lower than expected for short-term averages of 3-hours up to 24-hours for periods when the denominator used to calculate the multi-hour average is adjusted in accordance with EPA's calms policy (see Section 8.4.6.2 of the Guideline, EPA, 2017b), which is implemented within the AERMOD model. Section 8.4.6.2 of the Guideline states:

> "Model predicted concentrations for 3-, 8-, and 24-hour averages should be calculated by dividing the sum of the hourly concentrations for the period by the number of valid or non-missing hours. If the total number of valid hours is less than 18 for 24-hour averages, less than 6 for 8-hour averages, or less than 3 for 3- hour averages, the total concentration should be divided by 18 for the 24-hour average, 6 for the 8-hour average, and 3 for the 3-hour average. For annual averages, the sum of all valid hourly concentrations is divided by the number of non-calm hours during the year."

For example, if 12 hours out of a 24-hour period are calm or missing, the calms policy dictates that the 24-hour average concentration would be based on the sum of the 12 non-calm/non-missing hours divided by 18. The contribution from background concentrations would also be based on the sum of background values for the 12 non-calm/non-missing hours, divided by 18. If background was specified as uniform during that 24-hour period, then the contribution from background would appear to be 33.3% lower than expected (i.e., 12/18).

The BGflag parameter must be specified as one of the following secondary keywords (the number in parentheses indicates the number of values required for each option):

ANNUAL - annual background value (n=1),

SEASON - background values vary seasonally (n=4),

MONTH - background values vary monthly (n=12),

HROFDY - background values vary by hour-of-day (n=24),

WSPEED - background values vary by wind speed (n=6),

SEASHR - background values vary by season and hour-of-day (n=96),

HRDOW - background values vary by hour-of-day, and day-of-week [M-F, Sat, Sun] (n=72),

HRDOW7 - background values vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n=168),

SHRDOW - background values vary by season, hour-of-day, and day-of-week [M-F, Sat, Sun] (n=288),

SHRDOW7 - background values vary by season, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n=672),

MHRDOW - background values vary by month, hour-of-day, and day-of-week [M-F, Sat, Sun] (n=864), and

MHRDOW7 - background values vary by month, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n=2,016).

The seasons are defined in the following order: Winter (Dec., Jan., Feb.), Spring (Mar., Apr., May), Summer (Jun., Jul., Aug.), and Fall (Sep., Oct., Nov.).[4] The wind speed categories used with the WSPEED option may be defined using the ME WINDCATS keyword. If the WINDCATS keyword is not used, the default wind speed categories are defined by the upper bound of the first five categories as follows (the sixth category is assumed to have no upper bound): 1.54, 3.09, 5.14, 8.23, and 10.8 m/s. The BACKGRND keyword may be repeated as many times as necessary to input all of the background values and repeat values may be used for the numerical inputs, e.g., 12*25.6 can be used to specify a value of 25.6 for 12 adjacent "cells" within the array of values.

4 Note that the seasons are based on northern hemisphere seasons. For applications in the southern hemisphere using the seasonal factors (SEASHR, SHRDOW, and SHRDOW7), background concentrations that would be associated with the southern hemisphere winter, for example, should be assigned to the summer seasonal background concentrations input to AERMOD. Similarly, spring southern hemisphere concentrations should be assigned to the fall season background concentrations input to AERMOD.

3.3.8.3 Specifying background concentration units

Background concentration units can be specified on the optional BACKUNIT keyword on the SO pathway. The syntax of the BACKUNIT keyword is as follows:

Syntax:	SO BACKUNIT BGUnits
Type:	Optional, Non-repeatable

where the BGUnits parameter specifies the units as parts-per-billion (PPB), parts-per-million (PPM), or micrograms/cubic-meter (UG/M3). Units specified on the BACKUNIT keyword are applied to HOURLY and temporally varying background values if both are included in the same model run. If the BACKUNIT keyword is omitted, default units of PPB are assumed for background NO_2 and SO_2, PPM for CO, and UG/M3 for all other pollutants. Background

concentrations specified in units of PPB or PPM are converted to UG/M3 based on reference temperature (25 C) and pressure (1013.25 mb). NOTE: When using the BACKUNIT keyword, PPB and PPM may only be used with the NO2, SO2, and CO POLLUTID. AERMOD will issue a fatal error if PPB and PPM are used with any other pollutant types. Use micrograms/cubic-meter (UG/M3) when specifying any other pollutant type.

3.3.9 Specifying building downwash information

As noted above, the AERMOD model include algorithms to model the effects of buildings downwash on emissions from nearby or adjacent point sources. The building downwash algorithms do not apply to volume or area sources. For a technical description of the building downwash algorithms in AERMOD, the user is referred to Schulman, et. al. (2000). The AERMOD model uses direction-specific information for all building downwash cases.

There are five keywords that are used to specify building downwash information: BUILDHGT, BUILDWID, BUILDLEN, XBADJ, YBADJ. The syntax, type and order for the BUILDHGT keyword, used to input direction specific building heights, are summarized below:

Syntax:	SO BUILDHGT Srcid (or Srcrng) Dsbh(i),i=1,36 (16 for LT)
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source. The user also has the option of specifying a range of sources (the Srcrng parameter) for which the building heights apply, instead of identifying a single source. This is accomplished by two source ID character strings separated by a dash, e.g., STACK1-STACK10. Since the model reads the source range as a single input field there must not be any spaces between the source IDs. The model then places the building heights that follow (the Dsbh(i) parameter) into the appropriate arrays for all Srcid's that fall within that range, including STACK1 and STACK10.

When comparing a source ID to the range limits for a Srcrng parameter, the model separates the source IDs into three parts: an initial alphabetical part, a numerical part, and then the remainder of the string. Each part is then compared to the corresponding parts of the source range, and all three parts must satisfy the respective ranges for the source ID to be included. If there is no numeric part, then the ID consists of only one alphabetical part. If the ID begins with a numeric character, then the initial alphabetical part defaults to a single blank. If there is no trailing alphabetical part, then the third part also defaults to a single blank part. If the trailing part consists of more than one alphabetical or numeric field, it is all lumped into one-character field. For example, the source ID 'STACK2' consists of the parts 'STACK' plus '2' plus a single trailing blank, ' '. By comparing the separate parts of the source IDs, it can be seen that STACK2 falls between the range 'STACK1-STACK10.' For a three-part example, it can also be seen that VENT1B falls within the range of VENT1A-VENT1C. However, VENT2 does not fall within the range of VENT1A to VENT3B, since the third part of VENT2 is a single blank, which does not fall within the range of A to C. This is because a blank character will precede a normal alphabetical character. Normally, the source ranges will work as one would intuitively expect for simple source names. Most importantly, for names that are made up entirely of numeric characters, the source ranges will be based simply on the relative numerical values. The user is strongly encouraged to check the summary of model inputs to ensure that the source ranges were interpreted as expected and to avoid using complex source names in ranges, such as AA1B2C-AB3A3C. Since the order of keywords within the SO pathway is quite flexible, it is also important to note that the building heights will only be applied to those sources that have been defined previously in the input file.

Following the Srcid or the Srcrng parameter, the user inputs 36 direction-specific building heights (Dsbh parameter) in meters, beginning with the 10-degree flow vector (wind blowing toward 10 degrees

from north), and incrementing by 10 degrees in a clockwise direction. Some examples of building height inputs are presented below:

```
SO BUILDHGT STACK1 34. 34. 34. 34. 34. 34. 34. 34. 34. 34. 34. 34.
SO BUILDHGT STACK1 34. 34. 34. 34. 34. 34. 34. 34. 34. 34. 34. 34.
SO BUILDHGT STACK1 34. 34. 34. 34. 34. 34. 34. 34. 34. 34. 34. 34.

SO BUILDHGT STACK1 36*34.0

SO BUILDHGT STACK1-STACK10 33*34.0 3*0.0

SO BUILDHGT STACK1 35.43  36.45  36.37  35.18  32.92  29.66  25.50  20.56
SO BUILDHGT STACK1 15.00  20.56  25.50  29.66  32.92  35.18  36.37  36.45
SO BUILDHGT STACK1 35.43  33.33  35.43  36.45   0.00  35.18  32.92  29.66
SO BUILDHGT STACK1 25.50  20.56  15.00  20.56  25.50  29.66  32.92  35.18
SO BUILDHGT STACK1 36.37  36.45  35.43  33.33
```

The first example illustrates the use of repeat cards if more than one card is needed to input all of the values. The values are processed in the order in which they appear in the input file and are identified as being repeat cards by repeating the Srcid parameter. The first and second examples produce identical results within the model. The second one illustrates the use of a repeat value that can simplify numerical input in some cases. The field "36*34.0" is interpreted by the model as "repeat the value 34.0 a total of 36 times." This is also used in the third example where the building height is constant for directions of 10 degrees through 330 degrees, and then is set to 0.0 (e.g., the stack may be outside the region of downwash influence) for directions 340 through 360. The third example also uses a source range rather than a single source ID. The last example illustrates building heights which vary by direction and shows that the number of values on each card need not be the same. For improved readability of the input file, the user may want to put the numerical inputs into "columns," but there are no special rules regarding the spacing of the parameters on this keyword.

The BUILDWID keyword is used to input direction-specific building widths for downwash analyses. The syntax for this keyword, which is very similar to the BUILDHGT keyword, is summarized below, along with the type and order information:

Syntax:	SO BUILDWID Srcid (or Srcrng) Dsbw(i),i=1,36	(16 for LT)
Type:	Optional, Repeatable	
Order:	Must follow the LOCATION card for each source input	

For a description of the Srcid and Srcrng parameters, and for a discussion and examples of the numeric input options, refer to the BUILDHGT keyword above. The Dsbw(i) parameter contains the 36 direction-specific building widths. The directions proceed in a clockwise direction, beginning with the 10-degree flow vector.

The BUILDLEN keyword is used to input direction-specific along-flow building lengths for downwash analyses. Figure 3-3 shows the relationship of the projected building to this dimension. The syntax for this keyword, which is very similar to the BUILDHGT keyword, is summarized below, along with the type and order information:

Syntax:	SO BUILDLEN Srcid (or Srcrng) Dsbl(i),i=1,36
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

For a description of the Srcid and Srcrng parameters, and for a discussion and examples of the numeric input options, refer to the BUILDHGT keyword above. The Dsbl(i) parameter contains the 36 direction-specific building lengths. The directions proceed in a clockwise direction, beginning with the 10-degree flow vector. Figure 3-3 shows the relationship of the projected building to these distances.

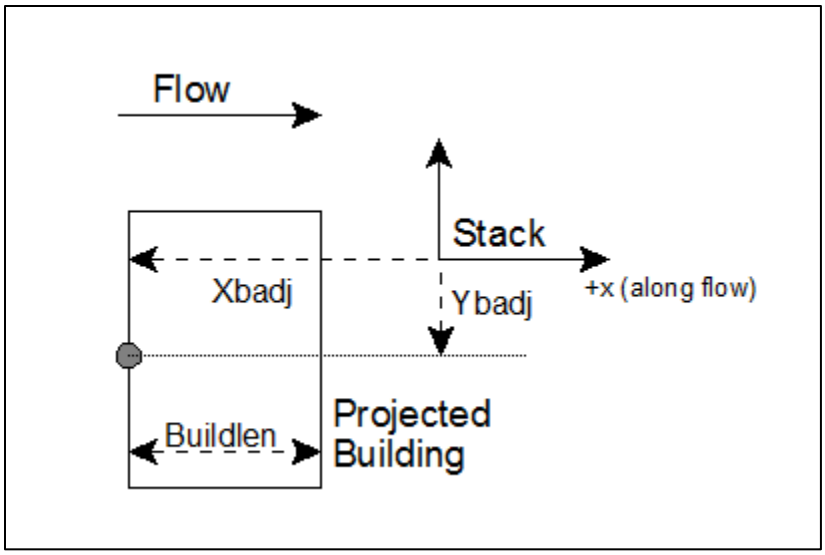


Figure 3-5. Schematic Diagram Identifying New Building Data for Prime Downwash

The XBADJ and YBADJ keywords are used to input direction-specific along-flow and across-flow distances from the stack to the center of the upwind face of the projected building, respectively. Figure 3-2 shows the relationship of the projected building to these distances. The syntax for these keywords, which is very similar to the BUILDHGT keyword, are summarized below, along with the type and order information:

Syntax:	SO XBADJ Srcid (or Srcrng) Xbadj(i),i=1,36
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

Syntax:	SO YBADJ Srcid (or Srcrng) Ybadj(i),i=1,36
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

For a description of the Srcid and Srcrng parameters, refer to the BUILDHGT keyword above. The Xbadj(i) parameter contains the 36 direction-specific along-flow distances from the stack to the center of the upwind face and the Ybadj(i) parameter contains the 36 direction-specific across-flow distances from the stack to the center of the upwind face. The directions proceed in a clockwise direction, beginning with the 10-degree flow vector.

3.3.10 Specifying urban sources

As discussed in Section 3.2.8, the AERMOD model allows the user to incorporate the effects of increased surface heating from an urban area on pollutant dispersion under stable atmospheric conditions. The user specifies the parameters for one or more urban areas on the CO URBANOPT card (see Section 3.2.8), and identifies which sources are to be modeled with urban effects and the urban area that will apply to each source affected using the SO URBANSRC card. If a source is not included on the URBANSRC card, it will be modeled without the urban effects. The syntax, type and order for the URBANSRC keyword are summarized below:

Syntax:	**For Multiple Urban Areas:** SO URBANSRC UrbanID SrcID's and/or SrcRng's **For Single Urban Areas:** SO URBANSRC SrcID's and/or SrcRng's or SO URBANSRC ALL (to specify all sources as URBAN)
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the UrbanID parameter is the alphanumeric urban ID (up to eight characters) defined by the user on the CO URBANOPT keyword when multiple urban areas are defined, and the SrcID's and SrcRng's are the individual source IDs and/or source ID ranges that are to be modeled with urban effects. Source ranges are described in more detail in Section 3.3.9. As with the URBANOPT keyword, the syntax of the URBANSRC keyword for applications with single urban areas has not changed from the previous version of AERMOD, so that existing input files will not require modification. However, beginning with version 12060, users can specify that all sources are to be treated as urban sources by specifying 'ALL' on the SO URBANSRC keyword for applications with a single urban area. Since the URBANSRC ALL option is identified during the pre-SETUP phase, there are no restrictions on the order of the URBANSRC ALL keyword within the SO pathway.

3.3.11 Specifying variable emission factors (EMISFACT)

The AERMOD model provides the option of specifying variable emission rate factors for individual sources or for groups of sources. The syntax, type and order of the EMISFACT keyword are summarized below:

Syntax:	SO EMISFACT SrcID or SrcRange Qflag Qfact(i), i=1,n
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the SrcID parameter is the same source ID that was entered on the LOCATION card for a particular source. The user also has the option of using the SrcRange parameter for specifying a range of sources for which the emission rate factors apply, instead of identifying a single source. This is accomplished by two source ID character strings separated by a dash, e.g., STACK1-STACK10. The use of the SrcRange parameter is explained in more detail in the description of the BUILDHGT keyword (see Section 3.3.9).

The parameter Qflag is the variable emission rate flag, and must be specified as one of the following secondary keywords (the number in parentheses indicates the number of values required for each option):

SEASON - emission rates vary seasonally (n=4),

MONTH - emission rates vary monthly (n=12),

HROFDY - emission rates vary by hour-of-day (n=24),

WSPEED - emission rates vary by wind speed (n=6),

SEASHR - emission rates vary by season and hour-of-day (n=96),

HRDOW - emission rates vary by hour-of-day, and day-of-week [M-F, Sat, Sun] (n=72),

HRDOW7 - emission rates vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n=168),

SHRDOW - emission rates vary by season, hour-of-day, and day-of-week [M-F, Sat, Sun] (n=288),

SHRDOW7 - emission rates vary by season, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n=672),

MHRDOW - emission rates vary by month, hour-of-day, and day-of-week [M-F, Sat, Sun] (n=864), and

MHRDOW7 - emission rates vary by month, hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun] (n=2,016).

The Qfact array is the array of factors, where the number of factors is shown above for each Qflag option. The seasons are defined in the following order: Winter (Dec., Jan., Feb.), Spring (Mar., Apr., May), Summer (Jun., Jul., Aug.), and Fall (Sep., Oct., Nov.).5 The wind speed categories used with the WSPEED

5 Note that the seasons are based on northern hemisphere seasons. For applications in the southern hemisphere using the seasonal factors (SEASHR, SHRDOW, and SHRDOW7), emission factors that would be associated with the

option may be defined using the ME WINDCATS keyword. If the WINDCATS keyword is not used, the default wind speed categories are defined by the upper bound of the first five categories as follows (the sixth category is assumed to have no upper bound): 1.54, 3.09, 5.14, 8.23, and 10.8 m/s. The EMISFACT card may be repeated as many times as necessary to input all of the factors and repeat values may be used for the numerical inputs. Examples for the more recent HRDOW and MHRDOW options are presented below, with column headers to indicate the order in which values are to be to input:

southern hemisphere winter, for example, should be assigned to the summer seasonal emission factors input to AERMOD. Similarly, spring southern hemisphere emission factors should be assigned to the fall season emission factors input to AERMOD.

```
SO EMISFACT STK1 HRDOW   enter 24 hourly scalars for each of the "days", first for Weekdays
                         (Monday-Friday), then for Saturdays, and finally for Sundays, e.g.,
** Weekdays:          Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW      5*0.3  0.5  11*1.0  0.5  6*0.3
** Saturdays:         Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW      5*0.3  0.5  11*1.0  0.5  6*0.3
** Sundays:           Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW      5*0.3  0.5  11*1.0  0.5  6*0.3
```

```
SO EMISFACT STK1 HRDOW7  enter 24 hourly scalars for each of the "days",
                         first for Mondays, then for Tuesdays, ..., then for Saturdays,
                         and finally for Sundays, e.g.,
** Mondays:            Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW7     5*0.3  0.5  11*1.0  0.5  6*0.3
** Tuesdays:           Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW7     5*0.3  0.5  11*1.0  0.5  6*0.3
       .
       .
       .
** Saturdays:          Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW7     5*0.3  0.5  11*1.0  0.5  6*0.3
** Sundays:            Hrs:   1-5    6    7-17   18   19-24
SO EMISFACT STK1 HRDOW7     5*0.3  0.5  11*1.0  0.5  6*0.3
```

```
SO EMISFACT STK1 MHRDOW  enter 24 hourly scalars for each of the twelve months, first for Weekdays
                         (Monday-Friday), then for Saturdays, and finally for Sundays, e.g.,
** Weekdays              JAN    FEB    MAR    APR    MAY    JUN  . . .  NOV    DEC
SO EMISFACT STK1 MHRDOW 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
** Saturdays:
SO EMISFACT STK1 MHRDOW 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
** Sundays:
SO EMISFACT STK1 MHRDOW 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
```

```
SO EMISFACT STK1 MHRDOW7 enter 24 hourly scalars for each of the twelve months,
                         first for Mondays, then for Tuesdays, ..., then for Saturdays,
                         and finally for Sundays, e.g.,
** Mondays                JAN    FEB    MAR    APR    MAY    JUN  . . .  NOV    DEC
SO EMISFACT STK1 MHRDOW7 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
** Tuesdays               JAN    FEB    MAR    APR    MAY    JUN  . . .  NOV    DEC
SO EMISFACT STK1 MHRDOW7 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
       .
       .
       .
** Saturdays:
SO EMISFACT STK1 MHRDOW7 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
** Sundays:
SO EMISFACT STK1 MHRDOW7 24*1.0 24*0.8 24*0.6 24*0.8 24*1.0 24*0.8      24*0.6 24*0.8
```

3.3.12 Specifying an hourly emission rate file (HOUREMIS)

The source (SO) pathway includes an option for inputting hourly emission rates for the AERMOD model, controlled by the HOUREMIS keyword. AERMOD currently allows for a single hourly emission file to be used with each model run. The syntax, type and order for this keyword are summarized below:

Syntax:	SO HOUREMIS Emifil Srcid's (and/or Srcrng's)
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Emifil parameter specifies the filename for the hourly emission file, and Srcid or Srcrng identify the source or sources for which hourly emission rates are included. The Emifil filename can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (“) at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces. Source ranges, which are described in more detail in Section 3.3.9, are input as two source IDs separated by a dash, e.g., STACK1-STACK10. The user may include more than one HOUREMIS card in a control file, if needed to specify additional sources, but there can be only one hourly emissions file, and therefore the filename must be the same on all HOUREMIS cards.

The format of each record of the hourly emissions file includes a pathway and keyword (SO HOUREMIS), followed by the Year, Month, Day, Hour, Source ID, and emission rate (in the appropriate units). For POINT/POINTHOR/POINTCAP sources, an hourly stack gas exit temperature (K) and stack gas exit velocity (m/s) are also required. Beginning with version 09292, the release heights and initial dispersion coefficients can also be varied on an hourly basis for AREA, AREAPOLY, AREACIRC, LINE, and VOLUME sources using the HOUREMIS option.

As discussed in Sections 3.2.12, 3.3.2.2, 3.3.2.4, and 3.3.18, the ALPHA option ARCFTOPT was added to AERMOD beginning in version 23132 to account for plume rise associated with aircraft emissions due to momentum and buoyancy when modeling aircraft as AREA (including AREAPOLY, AREACIRC, and LINE) and/or VOLUME source types. To characterize an aircraft source requires additional source parameters beyond those required for non-aircraft AREA and VOLUME source types. The additional aircraft source parameters **must be specified in an hourly emission rate file**. In addition to the required hourly emission rate for AREA and VOLUME source types, the following aircraft parameters must be included for each hour and aircraft source in the hourly emission rate file, appended to each record, in the following order:

- MFUEL: Fuel burn rate (g/s)
- THRUST: Aircraft thrust (newtons)

- VAA: Aircraft speed (m/s)
- AFR: Air-fuel ratio
- BYPR: Bypass ratio (> 0 for turbofan and -999 for shaft-based engines)
- RPWR: Rated power (kW) (-99999 for turbofan and > 0 for shaft-based)
- SRCANGLE: Landing/takeoff angle with the ground (degrees) (airborne sources)

The parameters listed above must be included each hour in the hourly emission rate file for all AREA and VOLUME sources identified as an aircraft source with the ARCFTSRC keyword. These parameters must not be included for any AREA or VOLUME source that is not identified as an aircraft source. If AERMOD determines there are too many or too few parameters a fatal error message will be issued, and processing will not complete.

Beginning with version 19191, release heights and initial dispersion can be varied for RLINE and RLINEXT sources. The user selects this enhanced option by including the additional source parameters in the hourly emissions file. AERMOD determines whether hourly release heights and initial dispersion coefficients are being used based on the first HOUREMIS record for each source, and these additional parameters must be included on all HOUREMIS records unless the emissions are missing, which is indicated by leaving the emission rate and all fields beyond the source ID blank.

When hourly emissions are specified for a buoyant line source, each of the individual lines (BUOYLINE sources) that comprise the buoyant line source must be represented in the hourly emissions file for every hour, and the buoyancy (m^4/s^3) of each line must be specified after the hourly emission rate. The buoyancy of each line can vary within an hour and from hour to hour. AERMOD computes an average buoyancy of the buoyant line source for each hour using the buoyancy values specified for each individual line that comprises the buoyant line source.

The hourly emissions file is processed using the same routines used to process the control file, therefore each of the parameters must be separated by at least one space, but otherwise the format is flexible. It is also not necessary to include the SO HOUREMIS on each line, as long as the parameters (Year, Month, etc.) do not begin before column 13. The data in the hourly emission file must also include the exact same dates as are included in the meteorological input files, and the source IDs must correspond to the source IDs defined on the SO LOCATION cards and be in the same order as defined in the ‘aermod.inp’ file.

The model will check for a date mismatch between the hourly emissions file and the meteorological data files. However, it is not necessary to process the entire hourly emissions file on each model run, i.e., the correct emissions data will be read if the ME DAYRANGE or the ME STARTEND cards (see Section 3.5.4) are used, as long as all the dates (including those that are processed and those that are skipped) match the meteorological data files.

An example of several lines from an hourly emissions file for two point sources is provided below:

```
SO HOUREMIS 88 8 16 1 STACK1  52.5  382.60  12.27
SO HOUREMIS 88 8 16 1 STACK2  44.3  432.33  22.17
SO HOUREMIS 88 8 16 2 STACK1  22.3  377.88   9.27
SO HOUREMIS 88 8 16 2 STACK2  42.2  437.68  19.67
SO HOUREMIS 88 8 16 3 STACK1  51.5  373.72  11.87
SO HOUREMIS 88 8 16 3 STACK2  41.3  437.28  18.77
SO HOUREMIS 88 8 16 4 STACK1  36.0  374.83   9.63
SO HOUREMIS 88 8 16 4 STACK2  43.7  437.68  18.23
```

The use of hourly varying release heights and initial dispersion coefficients for VOLUME and AREA sources is illustrated in the following example:

```
SO HOUREMIS 88  3  1   1   VOL1  500.0  2.0 2.0 2.0
SO HOUREMIS 88  3  1   1   AREA1 5.000  2.0 2.0
SO HOUREMIS 88  3  1   2   VOL1  500.0  2.0 2.0 3.0
SO HOUREMIS 88  3  1   2   AREA1 5.000  2.0 3.0
SO HOUREMIS 88  3  1   3   VOL1  500.0  2.0 2.0 4.0
SO HOUREMIS 88  3  1   3   AREA1 5.000  2.0 4.0
```

For POINT/POINTHOR/POINTCAP sources, the model will use the stack release height and stack inside diameter defined on the SO SRCPARAM card, but will use the emission rate, exit temperature and exit velocity from the hourly emission file. As noted above regarding VOLUME and AREA sources, if the emission rate, exit temperature and exit velocity are not included for a particular hour, i.e., any or all of those fields are blank, the model will interpret emissions data for that hour as missing and will set the parameters to zero. Since the emission rate will be zero, there will be no calculations made for that hour and that source.

3.3.13 Adjusting the emission rate units for output

The default emission rate units for the AERMOD model are grams per second (g/s) for POINT/POINTHOR/POINTCAP, VOLUME, and BUOYLINE sources, grams per second per meter (g/s/m) for RLINEXT sources, and grams per second per square meter ($g/s/m^2$) for AREA, LINE, OPENPIT, and RLINE sources. By default, the model converts these input units to output units of micrograms per cubic meter ($\mu g/m^3$) for concentration calculations. This is accomplished by applying a default emission rate unit factor of 1.0E06 for concentration.

The EMISUNIT keyword on the SO pathway allows the user to specify a different unit conversion factor, and to specify the appropriate label for the output units for either concentration calculations. The syntax and type of the EMISUNIT keyword are summarized below:

Syntax:	SO EMISUNIT Emifac Emilbl Conlbl
Type:	Optional, Non-repeatable
Order:	Must follow the LOCATION card for each source input

where the parameter Emifac is the emission rate unit factor, Emilbl is the label for the emission units (up to 40 characters), and Conlbl is the output unit label (up to 40 characters) for concentration calculations. For example, to produce output concentrations in milligrams per cubic meter, assuming input units of grams per sec, the following card could be input:

```
SO EMISUNIT 1.0E3   GRAMS/SEC   MILLIGRAMS/M**3
```

since there are 1.0E3 milligrams per gram. The emission rate unit factor applies to all sources for a given run. Since the model uses one or more spaces to separate different fields on the input control file commands, it is important that there not be any spaces within the label fields on this card. Thus, instead of entering 'GRAMS PER SECOND' for the emission label, a label of 'GRAMS/SECOND', or 'GRAMS-PER-SECOND' or an equivalent variation should be used.

For the RLINE or RLINEXT source types, an additional keyword was introduced in version 19191to allow alternate units of grams per link per hour. These alternate units can be used if the keyword RLEMCONV (RLine EMission CONVersion) is used on the SO card. This keyword has no additional inputs, but when present, emissions for all RLINE and RLINEXT sources are assumed to be in grams per

link per hour. The model converts such units internally to its native units for each source and the computation proceeds as normal. The syntax and type of the RLEMCONV keyword are summarized below:

Syntax:	SO RLEMCONV
Type:	Optional, Non-repeatable
Order:	Can be present anywhere on the SO card

3.3.14 Including source data from an external file

The user has the option of including source data from an external file by using the INCLUDED keyword on the source (SO) pathway. A SO INCLUDED card may be placed anywhere within the source pathway, after the STARTING card and before the FINISHED card (i.e., the SO STARTING and SO FINISHED cards cannot be included in the external file). The data in the included file will be processed as though it were part of the control file. The syntax and type of the INCLUDED keyword are summarized below:

Syntax:	SO INCLUDED Incfil
Type:	Optional, Repeatable

where the Incfil parameter is a character field of up to 200 characters that identifies the filename for the included file. The contents of the included file must be valid control file commands for the source pathway. If an error is generated during processing of the included file, the error message will report the line number of the included file (see APPENDIX B). If more than one INCLUDED file is specified for the source pathway, the user will first need to determine which file the error occurred in. If the starting column of the main control input file is shifted from column 1 (see Section 2.4.8), then the control file commands in the included file must be offset by the same amount.

3.3.15 Using source groups

The AERMOD model allows the user to group contributions from particular sources together. Several source groups may be setup in a single run, and they may, for example, be used to model impacts from the source being permitted, the group of increment consuming PSD sources, and the group of all sources for comparison to a NAAQS in a single run. There is always at least one source group in a run, which may consist of all sources, so the SRCGROUP keyword has been made mandatory in the AERMOD

model unless the PSDGROUP is specified, which is mandatory when using the PSDCREDIT keyword with the PVMRM NO to NO_2 conversion option (See Section 3.3.7). The SRCGROUP keyword cannot be used when the PSDGROUP keyword is used. The syntax, type and order of the SRCGROUP keyword are summarized below:

Syntax:	SO SRCGROUP Grpid Srcid's and/or Srcrng's
Type:	Mandatory (conditional), Repeatable
Order:	Must be the last keyword in the SO pathway before FINISHED

where the Grpid parameter is an alphanumeric string of up to eight characters that identifies the group name. The Srcid's and Srcrng's are the individual source IDs and/or source ranges that make up the group of sources. Source ranges, which are described in more detail in the description of the BUILDHGT keyword (Section 3.3.9), are input as two source IDs separated by a dash, e.g., STACK1-STACK10. Individual source IDs and source ranges may be used on the same card. If more than one input card is needed to define the sources for a particular group, then additional cards may be input, repeating the pathway, keyword and group ID.

A special group ID has been reserved for use in specifying the group of all sources. When Grpid = ALL, the model will automatically setup a source group called ALL that includes all sources modeled for that particular run. If desired, the user can setup a group of all sources with a different group ID by explicitly specifying all sources on the input card(s).

Note: The secondary keyword, ALL, is used in different source grouping contexts (e.g., BLPGROUP, SRCGROUP, OLMGROUP). Refer to the appropriate section of this user's guide to see the usage of the secondary keyword, ALL, for the group of sources to be identified. For BLPGROUP see Section 3.3.2.11. For OLMGROUP, see Section 3.3.6.2.

The number of source groups is allocated dynamically at the time AERMOD is run. This value, in concert with the other dynamically allocated arrays and input requirements, is limited only by the amount of available memory.

As discussed in Sections 1.2.9 and 3.2.14, it is sometimes important for a user to know the contribution of a particular source to the total result for a group. These source contribution analyses are

facilitated for short-term averages by the use the EVENT processing capabilities in the AERMOD model. EVENT processing uses the same source groups that are identified by AERMOD (when the input file is generated using the CO EVENTFIL option), but the model is structured in a way that it retains individual source results for particular events. Refer to the sections noted above for a more complete description of EVENT processing and its uses.

With respect to buoyant line sources, note that the SRCGROUP keyword treats the individual lines (BUOYLINE) that comprise a buoyant line source as if they are individual sources. A SRCGROUP can consist of all or a subset of the individual lines by specifying the source IDs from the LOCATION keyword for those lines that should make up the SRCGROUP.

Note that when modeling with Tier 2 or Tier 3 NO_2 conversion and using source groups, the conversion mechanism will be based on the total NOx at each receptor for all sources rather than the NOx concentration just for each source group.

3.3.16 Specifying platform downwash information (POINT, POINTHOR, POINTCAP sources ONLY)

The Offshore and Coastal Dispersion (OCD) Model is the EPA's preferred model for estimating near field air pollutant impacts from overwater emission sources, for both deep water and shoreline applications. The original platform downwash algorithms were developed by Petersen (1984) and adapted when implemented into OCD by Hanna and Dicristofaro (1988). The platform downwash algorithms from OCD were integrated into AERMOD for POINT/POINTHOR/POINTCAP source types ONLY.

The SRCPARAM input for stack height is used with inputs via a new PLATFORM keyword to simulate a platform's influence on the dispersion from a POINT or POINTHOR or POINTCAP source. When the PLATFORM keyword is included in the AERMOD control file, platform downwash will be applied to the source identified by the source ID. The syntax, type, and order for the PLATFORM keyword are summarized below:

Syntax:	SO PLATFORM Srcid Zelp Hb Wb
Type:	Optional, Repeatable
Order:	Must follow the LOCATION card for each source input

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular POINT/POINTHOR/POINTCAP source, and the other parameters are as follows:

Zelp - Base height (in meters) defined as the height of the bottom of the platform above the sea surface. NOTE: This input is consistent with the input for OCD, but this input is not currently used in the AERMOD implementation of platform downwash specific algorithms, because the full height of the source as defined for the POINT/POINTHOR/POINTCAP source is used, no adjustment is made for the height of the platform.

Hb - Total height (in meters), above the sea surface, of the tallest solid or "influential" building (i.e., the sum of the height of the base of the platform above the sea surface and the height of the building above the base of the platform)

Wb - The **lesser of the two distances (in meters)** from outer edges of the leftmost and rightmost buildings on top of the platform that can influence downwash when comparing the side and end views of the platform as shown in Figure 3-7. The platform downwash influence is not adjusted for platform dimension normal to the wind, the influence will be identical for all wind directions.

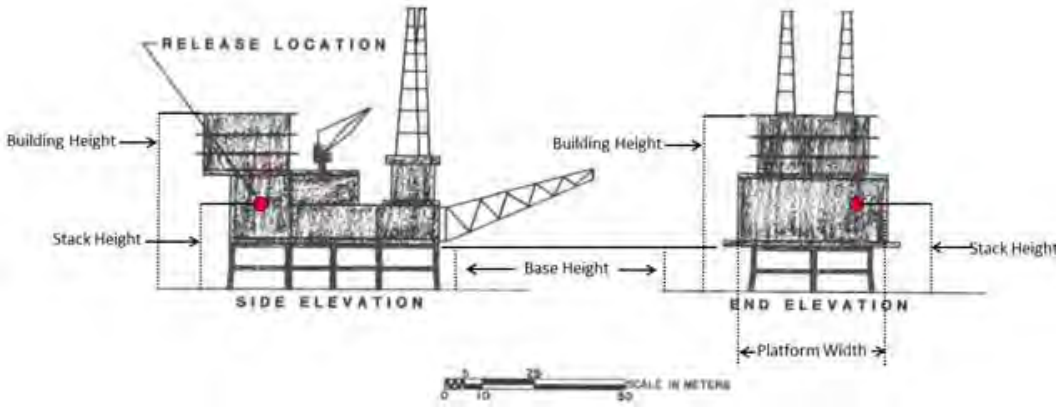


Figure 3-6. New platform parameter figure with correct parameter definitions. Adapted from Petersen (1984)

All parameters are required for a POINT or POINTHOR or POINTCAP source located on a platform. POINT or POINTHOR or POINTCAP sources located on a platform are NOT subject to the PRIME building downwash options. An ERROR message will occur if the same source ID is used with the building downwash keywords.

3.3.17 Specifying highly buoyant point sources for HBP option (POINT, POINTHOR, POINTCAP sources ONLY)

Beginning with version 23132, HBP, specified with the MODELOPT keyword in the CO pathway (see Section 3.2.2), was added as an ALPHA option for highly buoyant plumes that penetrate the top of the convective mixed layer (Weil, 2020; Warren et. al., 2022). The HBP option is only applicable to POINT, POINTHOR, and POINTCAP source types. When the HBP option is specified with the MODELOPT keyword, the sources to which the HBP option should be applied must be identified using the HBPSRCID keyword on the SO pathway.

Syntax:	SO HBPSRCID Srcid's and/or Srcrng's or SO HBPSRCID ALL
Type:	Mandatory (conditional), Repeatable

where the Srcid's and Srcrng's are the individual source IDs and/or source ranges that make up the group of sources. Source ranges, which are described in more detail in the description of the BUILDHGT keyword (Section 3.3.9), are input as two source IDs separated by a dash, e.g., STACK1-STACK10. Individual source IDs and source ranges may be used on the same card. If more than one input card is needed to define the sources for a particular group, then additional cards may be input, repeating the pathway (SO), keyword (HBPSRCID), and source IDs and/or ranges. The secondary keyword ALL can be entered in the place of specific source IDs or ranges to apply the HBP option to all POINT, POINTHOR, and POINTCAP source types. Any source types other than POINT, POINTHOR, and POINTCAP that are included in the model simulation and specified with the HBPSRCID keyword, either by source ID or by specifying ALL, will be ignored. In that case, AERMOD will generate an informational message to indicate the non-POINT source type that was ignored.

3.3.18 Specifying aircraft sources (AREA and VOLUME sources ONLY)

As discussed in Section 3.2.12, the ALPHA option ARCFTOPT was added to AERMOD version 23132 to account for plume rise from aircraft emissions when aircraft are modeled as either VOLUME or AREA source types. Because additional parameters are required to characterize an aircraft source, all aircraft sources must be identified in the AERMOD control file using the ARCFTSRC primary keyword in the SO pathway, followed by a list of source IDs or ranges of source IDs. The syntax for the ARCFTSRC keyword is shown here

Syntax:	SO ARCFTSRC Srcid's and/or Srcrng's or SO ARCFTSRC ALL
Type:	Mandatory (conditional), Repeatable

where the Srcid parameter is the same source ID that was entered on the LOCATION card for a particular source. The user also has the option of specifying a range of sources (the Srcrng parameter) instead of identifying a single source or a list of single sources.

Source ranges, which are described in more detail in the description of the BUILDHGT keyword (Section 3.3.9), are input as two source IDs separated by a dash, e.g., STACK1-STACK10. Individual source IDs and source ranges may be used on the same card. If more than one input card is needed to identify all aircraft sources, then additional cards may be input, repeating the pathway, keyword, and group ID. The secondary keyword ALL can be entered in the place of specific source IDs or ranges to apply the AIRCFTOPT option to all AREA and VOLUME source types. Source types other than AREA and VOLUME sources that are included in the model simulation and specified with the ARCFTSRC keyword, either by source ID or by specifying ALL, will be ignored. The ARCFTSRC keyword is mandatory when the ARCFTOPT keyword is included in the CO pathway as described in Section 3.2.12. Failure to identify aircraft sources in the SO pathway with the ARCFTSRC keyword will generate a fatal error and processing will stop.

3.4 Receptor pathway inputs and options

The **RE**ceptor pathway contains keywords that define the receptor information for a particular model run. The RE pathway contains keywords that allow the user to define Cartesian grid receptor networks and/or polar grid receptor networks, with either uniform or non-uniform grid spacing, as well as discrete receptor locations referenced to a Cartesian or a polar system. The number of receptors and receptor networks are allocated dynamically at the time AERMOD is run. This value, in combination with the other dynamically allocated arrays and input requirements, is limited only by the amount of available memory.

All of the receptor options in AERMOD allow the user to input terrain elevations and hill height scales for each receptor, both of which are needed when applying AERMOD in an elevated terrain situation. To facilitate the generation of hill height scales for AERMOD, a terrain preprocessor, called AERMAP, has been developed (EPA, 2004c). The AERMAP terrain preprocessor, which can process U.S. Geological Survey (USGS) Digital Elevation Model (DEM) data and data from the National Elevation Dataset (NED), may also be used to generate the terrain elevations for the receptor locations. The AERMAP program

generates an output file that contains the receptor pathway data for AERMOD in the format described below. This file may be cut and pasted into the AERMOD control file or included as an external file using the RE INCLUDED card (see Section 3.4.4).

The default units for receptor elevations for the AERMOD model are in meters; however, the user may specify receptor elevations to be in units of feet by adding the RE ELEVUNIT FEET card immediately after the RE STARTING card. Since the AERMAP terrain preprocessor outputs elevations in meters and includes the RE ELEVUNIT METERS card as the first record, the AERMAP data must be placed at the beginning of the receptor pathway.

3.4.1 Defining networks of gridded receptors

Two types of receptor networks are allowed by the AERMOD model. A Cartesian grid network, defined through the GRIDCART keyword, includes an array of points identified by their x (east-west) and y (north-south) coordinates. A polar network, defined by the GRIDPOLR keyword, is an array of points identified by direction and distance from a user-defined origin. Each of these keywords has a series of secondary keywords associated with it that are used to define the network, including any receptor elevations for elevated terrain and flagpole receptor heights. The GRIDCART and GRIDPOLR keywords can be thought of as "sub-pathways," since their secondary keywords include a STArt and an END card to define the start and end of inputs for a particular network.

3.4.1.1 Cartesian grid receptor networks

Cartesian grid receptor networks are defined by use of the GRIDCART keyword. The GRIDCART keyword may be thought of as a "sub-pathway," in that there are a series of secondary keywords that are used to define the start and the end of the inputs for a particular network, and to select the options for defining the receptor locations that make up the network. The syntax and type of the GRIDCART keyword are summarized below:

Syntax:	RE GRIDCART Netid STA XYINC Xinit Xnum Xdelta Yinit Ynum Ydelta XPNTS Gridx1 Gridx2 Gridx3 .... Gridxn, and or YPNTS Gridy1 Gridy2 Gridy3 .... Gridyn ELEV Row Zelev1 Zelev2 Zelev3 ... Zelevn HILL Row Zhill1 Zhill2 Zhill3 ... Zhilln FLAG Row Zflag1 Zflag2 Zflag3 ... Zflagn END
Type:	Optional, Repeatable

where the parameters are defined as follows:

Netid	Receptor network identification code (up to eight alphanumeric characters)
STA	Indicates the STArt of GRIDCART inputs for a particular network, repeated for each new Netid
XYINC Xinit Xnum Xdelta Yinit Ynum Ydelta	Keyword identifying uniform grid network generated from x and y increments Starting x-axis grid location in meters Number of x-axis receptors Spacing in meters between x-axis receptors Starting y-axis grid location in meters Number of y-axis receptors Spacing in meters between y-axis receptors
XPNTS Gridx1 Gridxn	Keyword identifying grid network defined by a series of discrete x and y coordinates (used with YPNTS) Value of first x-coordinate for Cartesian grid (m) Value of 'nth' x-coordinate for Cartesian grid (m)
YPNTS Gridy1 Gridyn	Keyword identifying grid network defined by a series of discrete x and y coordinates (used with XPNTS) Value of first y-coordinate for Cartesian grid (m) Value of 'nth' y-coordinate for Cartesian grid (m)
ELEV Row Zelev	Keyword to specify that receptor elevations follow (optional) Indicates which row (y-coordinate fixed) is being input (Row=1 means first, i.e., southmost row) An Array of receptor terrain elevations (m) for a particular Row (default units of meters may be changed to feet by use of RE ELEVUNIT keyword), number of entries per row equals the number of x-coordinates for that network

HILL Row Zelev	Keyword to specify that hill height scales follow (optional) Indicates which row (y-coordinate fixed) is being input (Row=1 means first, i.e., southmost row) An Array of hill height scales (m) for a particular Row (default units of meters may be changed to feet by use of RE ELEVUNIT keyword), number of entries per row equals the number of x-coordinates for that network
FLAG Row Zflag	Keyword to specify that flagpole receptor heights follow (optional) Indicates which row (y-coordinate fixed) is being input (Row=1 means first, i.e., southmost row) An array of receptor heights (m) above local terrain elevation for a particular Row (flagpole receptors), number of entries per row equals the number of x-coordinates for that network
END	Indicates the END of GRIDCART inputs for a particular network, repeated for each new Netid

The ELEV, HILL, and FLAG keywords are optional inputs, and are only needed if elevated terrain or flagpole receptor heights are to be used. If elevated terrain is being used, then both the ELEV and HILL inputs are needed for each receptor. If the ELEV and HILL keywords are used and the model is being run with the flat terrain option (see Section 3.2.2), then the elevated terrain height inputs will be ignored by the model, and a non-fatal warning message will be generated. If the elevated terrain option is selected, and no elevated terrain heights are entered, the elevations will default to 0.0 meters, and warning messages will also be generated. The model handles flagpole receptor height inputs in a similar manner.

The order of cards within the GRIDCART subpathway is not important, as long as all inputs for a particular network are contiguous and start with the STA secondary keyword and end with the END secondary keyword. It is not even required that all ELEV cards be contiguous, although the input file will be more readable if a logical order is followed. The network ID is also not required to appear on each control file command (except for the STA card). The model will assume the previous ID if none is entered, similar to the use of continuation cards for pathway and keywords. Thus, the following two examples produce the same 8 X 4 Cartesian grid network:

```
RE GRIDCART CAR1 STA
RE GRIDCART CAR1 XPNTS  -500.  -400.  -200.  -100. 100.  200.  400.  500.
RE GRIDCART CAR1 YPNTS  -500.  -250.  250.  500.
RE GRIDCART CAR1 ELEV 1  10.  10.  10.  10.  10.  10.  10.  10.
RE GRIDCART CAR1 ELEV 2  20.  20.  20.  20.  20.  20.  20.  20.
RE GRIDCART CAR1 ELEV 3  30.  30.  30.  30.  30.  30.  30.  30.
RE GRIDCART CAR1 ELEV 4  40.  40.  40.  40.  40.  40.  40.  40.
RE GRIDCART CAR1 HILL 1  50.  50.  50.  50.  50.  50.  50.  50.
RE GRIDCART CAR1 HILL 2  60.  60.  60.  60.  60.  60.  60.  60.
RE GRIDCART CAR1 HILL 3  70.  70.  70.  70.  70.  70.  70.  70.
RE GRIDCART CAR1 HILL 4  80.  80.  80.  80.  80.  80.  80.  80.
RE GRIDCART CAR1 FLAG 1  10.  10.  10.  10.  10.  10.  10.  10.
RE GRIDCART CAR1 FLAG 2  20.  20.  20.  20.  20.  20.  20.  20.
RE GRIDCART CAR1 FLAG 3  30.  30.  30.  30.  30.  30.  30.  30.
RE GRIDCART CAR1 FLAG 4  40.  40.  40.  40.  40.  40.  40.  40.
RE GRIDCART CAR1 END
```

```
RE GRIDCART CAR1 STA
                 XPNTS -500. -400. -200. -100. 100. 200. 400. 500.
                 YPNTS -500. -250. 250. 500.
                 ELEV 1 8*10.
                 HILL 1 8*50.
                 FLAG 1 8*10.
                 ELEV 2 8*20.
                 HILL 2 8*60.
                 FLAG 2 8*20.
                 ELEV 3 8*30.
                 HILL 3 8*70.
                 FLAG 3 8*30.
                 ELEV 4 8*40.
                 HILL 4 8*80.
                 FLAG 4 8*40.
RE GRIDCART CAR1 END
```

The Row parameter on the ELEV, HILL, and FLAG inputs may be entered as either the row number, i.e., 1, 2, etc., or as the actual y-coordinate value, e.g., -500., -250., etc. in the example above. The model

sorts the inputs using Row as the index, so the result is the same. The above example could therefore be entered as follows, with the same result:

```
RE GRIDCART CAR1 STA
                  XPNTS  -500.  -400.  -200.  -100.  100.  200.  400.  500.
                  YPNTS  -500.  -250.  250.  500.
                  ELEV   -500.  8*10.
                  FLAG   -500.  8*10.
                  ELEV   -250.  8*20.
                  FLAG   -250.  8*20.
                  ELEV    250.  8*30.
                  FLAG    250.  8*30.
                  ELEV    500.  8*40.
                  FLAG    500.  8*40.
RE GRIDCART CAR1 END
```

Of course, one must use either the row number or y-coordinate value consistently within each network to have the desired result.

The following simple example illustrates the use of the XYINC secondary keyword to generate a uniformly spaced Cartesian grid network. The resulting grid is 11 x 11, with a uniform spacing of 1 kilometer (1000. meters), and is centered on the origin (0., 0.). No elevated terrain heights or flagpole receptor heights are included in this example.

```
RE GRIDCART CG1 STA
                XYINC  -5000.  11  1000.  -5000.  11  1000.
RE GRIDCART CG1 END
```

3.4.1.2 Polar grid receptor networks

Polar receptor networks are defined by use of the GRIDPOLR keyword. The GRIDPOLR keyword may also be thought of as a "sub-pathway," in that there are a series of secondary keywords that are used to define the start and the end of the inputs for a particular network, and to select the options for defining the receptor locations that make up the network. The syntax and type of the GRIDPOLR keyword are summarized below:

Syntax:	RE GRIDPOLR Netid STA ORIG Xinit Yinit, or ORIG Srcid DIST Ring1 Ring2 Ring3 ... Ringn DDIR Dir1 Dir2 Dir3 ... Dirn, or GDIR Dirnum Dirini Dirinc ELEV Dir Zelev1 Zelev2 Zelev3 ... Zelevn HILL Dir Zhill1 Zhill2 Zhill3 ... Zhilln FLAG Dir Zflag1 Zflag2 Zflag3 ... Zflagn END
Type:	Optional, Repeatable

where the parameters are defined as follows:

Netid	Receptor network identification code (up to eight alphanumeric characters)
STA	Indicates STArt of GRIDPOLR inputs for a particular network, repeat for each new Netid
ORIG Xinit Yinit Srcid	Keyword to specify the origin of the polar network (optional) x-coordinate for origin of polar network y-coordinate for origin of polar network Source ID of source used as origin of polar network
DIST Ring1 Ringn	Keyword to specify distances for the polar network Distance to the first ring of polar coordinates Distance to the 'nth' ring of polar coordinates
DDIR Dir1 Dirn	Keyword to specify discrete direction radials for the polar network First direction radial in degrees (1 to 360) The 'nth' direction radial in degrees (1 to 360)
GDIR Dirnum Dirini Dirinc	Keyword to specify generated direction radials for the polar network Number of directions used to define the polar system Starting direction of the polar system Increment (in degrees) for defining directions
ELEV Dir Zelev	Keyword to specify that receptor elevations follow (optional) Indicates which direction is being input An array of receptor terrain elevations for a particular direction radial (default units of meters may be changed to feet by use of RE ELEVUNIT keyword), number of entries per radial equals the number of distances for that network

HILL Dir Zelev	Keyword to specify that hill height scales follow (optional) Indicates which direction is being input An array of receptor hill height scales for a particular direction radial (default units of meters may be changed to feet by use of RE ELEVUNIT keyword), number of entries per radial equals the number of distances for that network
FLAG Dir Zflag	Keyword to specify that flagpole receptor heights follow (optional) Indicates which direction is being input An array of receptor heights above local terrain elevation for a particular direction (flagpole receptors)
END	Indicates END of GRIDPOLR subpathway, repeat for each new Netid

The ORIG secondary keyword is optional for the GRIDPOLR inputs. If omitted, the model assumes a default origin of (0.,0.) in x,y coordinates. The ELEV, HILL, and FLAG keywords are also optional inputs, and are only needed if elevated terrain or flagpole receptor heights are to be used. If elevated terrain is being used, then both the ELEV and HILL inputs are needed for each receptor. If the ELEV and HILL keywords are used and the model is being run with the flat terrain option (see Section 3.2.2), then the elevated terrain height inputs will be ignored by the model, and a non-fatal warning message will be generated. If the elevated terrain option is selected, and no elevated terrain heights are entered, the elevations will default to 0.0 meters, and warning messages will also be generated. The model handles flagpole receptor height inputs in a similar manner.

As with the GRIDCART keyword described above, the order of cards within the GRIDPOLR subpathway is not important, as long as all inputs for a particular network are contiguous and start with the STA secondary keyword and end with the END secondary keyword. It is not even required that all ELEV cards be contiguous, although the input file will be more readable if a logical order is followed. The network ID is also not required to appear on each control file command (except for the STA card). The model will assume the previous ID if none is entered, similar to the use of continuation cards for pathway and keywords.

The following example of the GRIDPOLR keyword generates a receptor network consisting of 180 receptor points on five concentric distance rings centered on an assumed default origin of (0.,0.). The receptor locations are placed along 36 direction radials, beginning with 10. degrees and incrementing by 10. degrees in a clockwise fashion.

```
RE GRIDPOLR POL1 STA
                DIST  100.  300.  500.  1000.  2000.
                GDIR  36  10.  10.
RE GRIDPOLR POL1 END
```

Another example is provided illustrating the use of a non-zero origin, discrete direction radials and the specification of elevated terrain and flagpole receptor heights:

```
RE GRIDPOLR POL1 STA
                ORIG  500.  500.
                DIST  100.  300.  500.  1000.  2000.
                DDIR   90.  180.  270.  360.
                ELEV   90.  5. 10. 15. 20. 25.
                ELEV  180.  5. 10. 15. 20. 25.
                ELEV  270.  5. 10. 15. 20. 25.
                ELEV  360.  5. 10. 15. 20. 25.
                HILL   90. 50. 60. 75. 80. 95.
                HILL  180. 50. 60. 75. 80. 95.
                HILL  270. 50. 60. 75. 80. 95.
                HILL  360. 50. 60. 75. 80. 95.
                FLAG   90.  5. 10. 15. 20. 25.
                FLAG  180.  5. 10. 15. 20. 25.
                FLAG  270.  5. 10. 15. 20. 25.
                FLAG  360.  5. 10. 15. 20. 25.
RE GRIDPOLR POL1 END
```

The user has the option of specifying the radial number (e.g., 1, 2, 3, etc.) on the ELEV, HILL, and FLAG inputs, or the actual direction associated with each radial.

For purposes of model calculations, all receptor locations, including those specified as polar, are stored in the model arrays as x, y and z coordinates and flagpole heights. For the purposes of reporting the results by receptor in the main print file, the tables are labeled with the polar inputs, i.e., directions and distances.

3.4.2 Using multiple receptor networks

For some modeling applications, the user may need a fairly coarsely spaced network covering a large area to identify the area of significant impacts for a plant, and a denser network covering a smaller area to identify the maximum impacts. To accommodate this modeling need, the AERMOD model allows the user to specify multiple receptor networks in a single model run. The user can define either Cartesian grid networks or polar networks, or both. With the use of the ORIG option in the GRIDPOLR keyword, the user can easily place a receptor network centered on the facility being permitted, and also place a network centered on another background source known to be a significant contributor to high concentrations. Alternatively, the polar network may be centered on a receptor location of special concern, such as a nearby Class I area.

As noted in the introduction to this section (3.4), the model dynamically allocates array storage based on the number of receptors and receptor networks when the AERMOD model is run, up to the maximum amount of memory available on the computer.

3.4.3 Specifying discrete receptor locations

In addition to the receptor networks defined by the GRIDCART and GRIDPOLR keywords described above, the user may also specify discrete receptor points for modeling impacts at specific locations of interest. This may be used to model critical receptors, such as the locations of schools or houses, nearby Class I areas, or locations identified as having high concentrations by previous modeling analyses. The discrete receptors may be input as either Cartesian x,y points (DISCCART keyword) or as polar distance and direction coordinates (DISCPOLR keyword). Both types of receptors may be identified in a single run. In addition, for discrete polar receptor points the user specifies the source whose location is used as the origin for the receptor.

3.4.3.1 Discrete Cartesian receptors.

Discrete Cartesian receptors are defined by use of the DISCCART keyword. The syntax and type of this keyword are summarized below:

Syntax:	RE DISCCART Xcoord Ycoord (Zelev Zhill) (Zflag)
Type:	Optional, Repeatable

where the Xcoord and Ycoord parameters are the x-coordinate and y-coordinate (m), respectively, for the receptor location. The Zelev parameter is an optional terrain elevation (m) and Zhill is a corresponding hill height scale for the receptor for use in elevated terrain modeling. Both the Zelev and Zhill parameters must be specified for use with the elevated terrain algorithms and are referenced to the same reference elevation (e.g., mean sea level) used for source elevations. The Zflag parameter is the optional receptor height above ground (m) for modeling flagpole receptors. All of the parameters are in units of meters, except for Zelev and Zhill, which default to meters but may be specified in feet by use of the RE ELEVUNIT keyword.

If neither the elevated terrain option (Section 3.2.2) nor the flagpole receptor height option (Section 3.2.11) are used, then the optional parameters are ignored if present. In other words, the FLAGPOLE keyword is required on the CO pathway if Zflag values are to be used and, the ELEV option must be specified with the MODELOPT keyword on the CO pathway if Zelev and Zhill values are to be used. If only the elevated terrain height option is used (no flagpoles), then the third parameter (the field after the Ycoord) is read as the Zelev parameter. If only the flagpole receptor height option is used (no elevated terrain), then the third parameter is read as the Zflag parameter. If both options are used, then the parameters are read in the order indicated for the syntax above. If the optional parameters are left blank, then default values will be used. The default value for Zelev is 0.0, and the default value for Zflag is defined by the CO FLAGPOLE card (see Section 3.2.11). Note: If both the elevated terrain and flagpole receptor height options are used, then the third parameter will always be used as Zelev, and it is not possible to use a default value for Zelev while entering a specific value for the Zflag parameter.

3.4.3.2 Discrete polar receptors

Discrete polar receptors are defined by use of the DISCPOLR keyword. The syntax and type of this keyword are summarized below:

Syntax:	RE DISCPOLR Srcid Dist Direct (Zelev Zhill) (Zflag)
Type:	Optional, Repeatable

where the Srcid is the alphanumeric source identification for one of the sources defined on the SO pathway which will be used to define the origin for the polar receptor location. The Dist and Direct parameters are the

distance in meters and direction in degrees for the discrete receptor location. Degrees are measured clockwise from north. The Zelev parameter is an optional terrain elevation for the receptor and Zhill is the corresponding hilltop elevation (m) for use in elevated terrain modeling. Both the Zelev and Zhill parameters must be specified for use with the elevated terrain algorithms and are referenced to the same reference elevation (e.g., mean sea level) used for source elevations. The units of Zelev and Zhill are in meters, unless specified as feet by the RE ELEVUNIT keyword. The Zflag parameter is the optional receptor height above ground (meters) for modeling flagpole receptors.

If neither the elevated terrain option (Section 3.2.2) nor the flagpole receptor height option (Section 3.2.11) are used, then the optional parameters are ignored if present. If only the elevated terrain height option is used (no flagpoles), then the third parameter (the field after the Ycoord) is read as the Zelev parameter. If only the flagpole receptor height option is used (no elevated terrain), then the third parameter is read as the Zflag parameter. If both options are used, then the parameters are read in the order indicated for the syntax above. If the optional parameters are left blank, then default values will be used. The default value for Zelev is 0.0, and the default value for Zflag is defined by the CO FLAGPOLE card (see Section 3.2.11). Note: If both the elevated terrain and flagpole receptor height options are used, then fourth parameter will always be used as Zelev, and it is not possible to use a default value for Zelev while entering a specific value for the Zflag parameter.

3.4.3.3 Discrete Cartesian receptors for evalfile output

The EVALCART keyword is used to define discrete Cartesian receptor locations, similar to the DISCCART keyword, but it also allows for grouping of receptors, e.g., along arcs. It is designed to be used with the EVALFILE option, described later for the output pathway, which outputs arc maxima values to a separate file for evaluation purposes. The EVALCART keyword can be used without the use of the EVALFILE option, in which case the receptor groupings are ignored. The syntax and type for the modified EVALCART keyword are summarized below:

Syntax:	RE EVALCART Xcoord Ycoord Zelev Zhill Zflag Arcid (Name)
Type:	Optional, Repeatable

where the Xcoord and Ycoord parameters are the x-coordinate and y-coordinate (m), respectively, for the receptor location. The Zelev parameter is the terrain elevation (m) for the receptor and Zhill is the corresponding hilltop elevation (m) for use in elevated terrain modeling. Both the Zelev and Zhill parameters must be specified for use with the elevated terrain algorithms and are referenced to the same

reference elevation (e.g., mean sea level) used for source elevations. The elevation (Zelev) and hill heights (Zhill) inputs are set to zero, by default, if ELEV is NOT specified as a MODELOPT on the CO card. The Zflag parameter is the receptor height above ground (m) for modeling flagpole receptors and must be specified for use with the receptor flagpole option. The flagpole height (Zflag) inputs are set to zero, by default, if CO FLAGPOLE is NOT specified on the CO card. All of the parameters are in units of meters, except for Zelev and Zhill, which default to meters but may be specified in feet by use of the RE ELEVUNIT keyword. The Arcid parameter is the receptor grouping identification, which may be up to eight characters long, and may be used to group receptors by arc. The Name parameter is an optional name field that may be included to further identify a particular receptor location. The Name parameter is ignored by the model. Unlike the DISCCART keyword, all of the parameters (except for the Name) must be present on each card with the EVALCART keyword. The elevation, hill height, and flagpole height are set to zero, by default, if the appropriate options are not specified the CO card.

3.4.4 Including receptor data from an external file

The user has the option of including receptor data from an external file by using the INCLUDED keyword on the receptor pathway. A RE INCLUDED card may be placed anywhere within the source pathway, after the STARTING card and before the FINISHED card (i.e., the RE STARTING and RE FINISHED cards cannot be included in the external file). The data in the included file will be processed as though it were part of the control file. The syntax and type of the INCLUDED keyword are summarized below:

Syntax:	RE INCLUDED Incfil
Type:	Optional, Repeatable

where the Incfil parameter is a character field of up to 200 characters that identifies the filename for the included file. The contents of the included file must be valid control file commands for the receptor pathway. If an error is generated during processing of the included file, the error message will report the line number of the included file (see APPENDIX B). If more than one INCLUDED file is specified for the receptor pathway, the user will first need to determine which file the error occurred in. If the starting column of the main control input file is shifted from column 1 (see Section 2.4.8), then the control file commands in the included file must be offset by the same amount. The INCLUDED option allows the user to include receptor data that have been generated by the AERMOD Terrain Preprocessor, AERMAP, in the control file without having to cut and paste the AERMAP output file. Since AERMAP generates terrain elevations in meters and includes the RE ELEVUNIT METERS card as the first record, an AERMAP file must be

INCLUDED at the beginning of the receptor pathway, immediately following the RE STARTING card. If more than one AERMAP output file is INCLUDED on the receptor pathway, the RE ELEVUNIT METERS card must be deleted from all but the first one.

3.5 Meteorology pathway inputs and options

The **Me**teorology pathway contains keywords that define the input meteorological data for a particular model run.

3.5.1 Specifying the input data files and formats

The AERMOD model uses hourly meteorological data from separate surface and profile data files as one of the basic model inputs. These input meteorological data filenames for AERMOD are identified by the SURFFILE and PROFFILE keywords on the ME pathway. The syntax and type of these keywords are summarized below:

Syntax:	ME SURFFILE Sfcfil (Format) ME PROFFILE Profil (Format)
Type:	Optional, Repeatable

where the Srcfil and Profil parameters are character fields of up to 200 characters that identify the filenames for the input meteorological data files. For running the model on an IBM-compatible PC, the filename parameters may include the complete DOS pathname for the file or will assume the current directory if only the filename is given. The optional Format parameter specifies the format of the meteorological data files. The default formats for the surface and profile data files corresponds with the format of the files generated by the AERMET meteorological preprocessor program. The user also has the option of specifying the Fortran read format for each of these files. The contents of the meteorological data files are described below, and the file formats are documented in APPENDIX C.

The surface meteorological data file consists of a header record containing information on the meteorological station locations, and one record for each hour of data. These data are delimited by at least one space between each element, i.e., the data may be read as free format. The contents of the surface file are as follows:

- Year
- Month (1 – 12)

- Day of Month (1 – 31)
- Julian Day (Day of Year) (1 – 366)
- Hour of Day (1 – 24)
- Heat Flux (W/m2)
- Surface Friction Velocity, u* (m/s)
- Convective Velocity Scale, w* (m/s)
- Lapse Rate above Mixing Height (K/m)
- Convective Mixing Height (m)
- Mechanical Mixing Height (m)
- Monin-Obukhov Length, L (m)
- Surface Roughness Length, zo (m)
- Bowen Ratio
- Albedo
- Reference Wind Speed (m/s)
- Reference Wind Direction (degrees)
- Reference Height for Wind (m)
- Ambient Temperature (K)
- Reference Height for Temperature (m)
- Precipitation Code (0-45)
- Precipitation Amount (mm)
- Relative Humidity (%)
- Surface Pressure (mb)
- Cloud Cover (tenths)
- Wind Speed Adjustment and Data Source Flag

The sensible heat flux, Bowen ratio and albedo are not used by the AERMOD model but are passed through by AERMET for information purposes only.

The profile meteorological data file consists of one or more records for each hour of data. As with the surface data file, the data are delimited by at least one space between each element and may be read as Fortran free format. The contents of the profile meteorological data file are as follows:

- Year
- Month (1 – 12)
- Day (1 – 31)
- Hour (1 – 24)
- Measurement height (m)
- Top flag = 1, if this is the last (highest) level for this hour,
  0, otherwise
- Wind direction for the current level (degrees)
- Wind speed for the current level (m/s)
- Temperature at the current level (°C)
- Standard deviation of the wind direction, σ_2 (degrees)
- Standard deviation of the vertical wind speed, σ_w (m/s)

The data in this file include the on-site meteorological data that are processed by AERMET. Since AERMET was designed to be able to perform dispersion parameter calculations with NWS data only, i.e., no on-site data, the profile data may consist of a one-level "profile" based on the NWS winds and temperature.

3.5.2 Specifying station information

Three keywords are used to specify information about the meteorological stations, SURFDATA for the surface meteorological station, UAIRDATA for the upper air station, and the optional SITEDATA for any on-site meteorological data that may be used. The syntax and type of these keywords are summarized below:

Syntax:	ME SURFDATA	Stanum Year	(Name) (Xcoord) (Ycoord)
Syntax:	ME UAIRDATA	Stanum Year	(Name) (Xcoord) (Ycoord)
Syntax:	ME SITEDATA	Stanum Year	(Name) (Xcoord) (Ycoord)
Type:	Mandatory, Non-repeatable for SURFDATA and UAIRDATA Optional, Non-repeatable for SITEDATA		

where Stanum is the station number, e.g., the 5-digit WBAN number for NWS stations; Year is the year of data being processed (either 2 or 4 digits); Name is an optional character field (up to 40 characters with no blanks) specifying the name of the station; and Xcoord and Ycoord are optional parameters for specifying the x and y coordinates for the location of the stations. **Note: The Year should indicate the first year of data that are present in the meteorological data, regardless if only a subset of complete temporal period will be modeled by AERMOD using the STARTEND keyword (Section 3.5.4).** The station locations are not utilized in the model. Therefore, no units are specified for Xcoord and Ycoord, although meters are suggested for consistency with the source and receptor coordinates. The AERMOD model compares the station numbers that are input using these keywords with the numbers in the header record of the surface meteorological data file, and issues non-fatal warning messages if there are any mismatches.

3.5.3 Specifying the base elevation for potential temperature profile

The AERMOD model generates a gridded vertical profile of potential temperatures for use in the plume rise calculations. Since potential temperature is dependent on the elevation above mean sea level (MSL), the user must define the base elevation for the profile with the PROFBASE keyword. The syntax and type for the PROFBASE keyword are summarized below:

Syntax:	ME PROFBASE BaseElev (Units)
Type:	Mandatory, Non-repeatable

where the BaseElev parameter specifies the base elevation above MSL for the potential temperature profile, and the optional Units parameter specifies the units of BaseElev. Valid inputs of Units are the secondary keywords METERS or FEET. The default units for BaseElev are in meters if Units is left blank. The base elevation should correspond with the base elevation of the primary meteorological tower.

3.5.4 Specifying a data period to process

There are two keywords that allow the user to specify particular days or ranges of days to process from the sequential meteorological file input for the AERMOD model. The STARTEND keyword controls which period within the meteorological data file is read by the model, while the DAYRANGE keyword controls which days or ranges of days (of those that are read) for the model to process. When the STARTEND keyword is omitted from the control file, the default for the model is to read the entire meteorological data file and to process all days within that period.

The syntax and type for the STARTEND keyword are summarized below:

Syntax:	ME STARTEND Strtyr Strtmn Strtdy (Strthr) Endyr Endmn Enddy (Endhr)
Type:	Optional, Non-repeatable

where the Strtyr Strtmn Strtdy parameters specify the year, month and day of the first record to be read (e.g., 87 01 31 for January 31, 1987), and the parameters Endyr Endmn Enddy specify the year, month and day of the last record to be read. The Strthr and Endhr are optional parameters that may be used to specify the start and end hours for the data period to be read. If either Strthr or Endhr is to be specified, then both must be specified. Any records in the data file that occur before the start date are ignored, as are any records in the data file that occur after the end date. In fact, once the end date has been reached, the model does not read any more data from the meteorological file. If Strthr and Endhr are not specified, then processing begins with hour 1 of the start date, and ends with hour 24 of the end date, unless specific days are selected by the DAYRANGE card described below.

Any PERIOD averages calculated by the model will apply only to the period of data actually processed. Therefore, if someone wanted to calculate a six-month average, they could select PERIOD averages on the CO AVERTIME card, and then specify the period as follows:

```
ME STARTEND   87 01 01      87 06 30
```

for the period January 1, 1987 through June 30, 1987.

The syntax and type for the DAYRANGE keyword are summarized below:

Syntax:	ME DAYRANGE Range1 Range2 Range3 … Range*N*
Type:	Optional, Repeatable

where the Range parameters specify particular days or ranges of days to process. The days may be specified as individual days (e.g., 1 2 3 4 5) or as a range of days (e.g., 1-5). The user also has the option of specifying Julian day numbers, from 1 to 365 (366 for leap years), or specifying month and day (e.g., 1/31 for January 31). Any combination of these may also be used. For example, the following card will tell the model to process the days from January 1 (Julian day 1) through January 31 (1/31):

```
ME DAYRANGE   1-1/31
```

The DAYRANGE keyword is also repeatable, so that as many cards as needed may be included in the ME pathway.

As with the STARTEND keyword, any PERIOD averages calculated by the model will apply only to the period of data actually processed. If the STARTEND keyword is also used, then only those days selected on the DAYRANGE cards that fall within the period from the start date to the end date will be processed. Thus, if the ME pathway included the following two cards:

```
ME STARTEND  87 02 01   87 12 31
ME DAYRANGE  1-31
```

then no data would be processed, since the days 1 through 31 are outside the period 2/1 to 12/31.

3.5.5 Correcting wind direction alignment problems

The WDROTATE keyword allows the user to correct the input meteorological data for wind direction alignment problems. All input wind directions or flow vectors are rotated by a user-specified

amount. Since the model results at particular receptor locations are often quite sensitive to the transport wind direction, this optional keyword should be used only with extreme caution and with clear justification.

The syntax and type of this keyword are summarized below:

Syntax:	ME WDROTATE Rotang
Type:	Optional, Non-repeatable

where the Rotang parameter specifies the angle in degrees to rotate the input wind direction measurements. The value of Rotang is subtracted from the wind direction measurements. It may be used to correct for known (and documented) calibration errors, or to adjust for the alignment of a valley if the meteorological station is located in a valley with a different alignment than the source location.

3.5.6 Specifying wind speed categories

Variable emission rate factors may be input to the model that vary by wind speed category. The model uses six wind speed categories, and these are defined by the upper bound wind speed for the first five categories (the sixth category is assumed to have no upper bound). The default values for the wind speed categories are as follows: 1.54, 3.09, 5.14, 8.23, and 10.8 m/s. The syntax and type of the WINDCATS keyword, which may be used to specify different category boundaries, are summarized below:

Syntax:	ME WINDCATS Ws1 Ws2 Ws3 Ws4 Ws5
Type:	Optional, Non-repeatable

where the Ws1 through Ws5 parameters are the upper bound wind speeds of the first through fifth categories in meters per second. The upper bound values are inclusive, i.e., a wind speed equal to the value of Ws1 will be placed in the first wind speed category.

3.5.7 Specifying SCIM parameters

The SCIM parameters on the SCIMBYHR card specify the starting hour and sampling interval for the regular sample and an optional file name. The syntax and type of the SCIMBYHR keyword are summarized below:

Syntax:	ME SCIMBYHR NRegStart NRegInt NwetStart NwetInt (SfcFilnam PflFilnam)
Type:	Optional, Non-repeatable

where the NRegStart and NRegInt parameters specify the first hour to be sampled and the sampling interval, respectively, when performing the regular sampling. The NWetStart and NWetInt parameters are used to specify the first wet hour (i.e., with non-zero precipitation) and the wet sampling interval for wet sampling. However, since the AERMOD model currently does not include wet deposition algorithms, the wet sampling option is not operational, and the user should enter a value of zero (0) for bot NWetStart and NWetInt. Optionally, the user can create output files containing the surface and profile meteorological data for the sampled hours by specifying the SfcFilnam and PflFilnam parameters. These output files are in the same format used in the summary of the first 24 hours of data included in the main output file.

In order to use the SCIM option, the user must specify the non-DFAULT SCIM option on the CO MODELOPT card. Although the ME SCIMBYHR is an optional card, it is required when using the SCIM option. NRegStart is required to have a value from 1 through 24, i.e., the first sampled hour must be on the first day in the meteorological data file. There are no restrictions for NRegInt; however, NRegInt would generally be greater than one. For example, NRegInt could be based on the formula (24n+1), where "n" is the number of days to skip between samples, in order to ensure a regular diurnal cycle to the sampled hours (e.g., 25 or 49).

3.5.8 Specify the number of years to process

The NUMYEARS keyword on the ME pathway allows the user to specify the number of years of data being processed for purposes of allocating array storage for the MAXDCONT option (see Section 3.7.2.8), with a default value of five (5) years being assumed if the optional NUMYEARS keyword is omitted. The syntax of the optional NUMYEARS keyword is summarized below:

Syntax:	ME NUMYEARS NumYrs
Type:	Optional, Non-repeatable

where NumYrs specifies the number of (full) years of meteorological data being processed.

3.5.9 Specify turbulence treatment options

Beginning with version 21112, the user can prompt AERMOD to set non-missing values for turbulence (σ_θ or σ_w) from the profile file to missing for certain conditions. These options were included to facilitate the use of meteorological data with turbulence under certain conditions. For example, these options allow for the user to use an urban meteorological site with turbulence data with the URBAN option in AERMOD without rerunning AERMET to ignore the site-specific turbulence as discussed Section 3.3 of the AERMOD Implementation Guide (EPA, 2024b). The syntax of the turbulence options is summarized below:

Syntax:	ME TurbOpt
Type:	Optional, Non-repeatable

Where TurbOpt is defined as:

- NOTURB: set σ_θ and σ_w to missing for all hours
- NOTURBST: set σ_θ and σ_w for stable hours only
- NOTURBCO: set σ_θ and σ_w for convective hours only
- NOSA: set σ_θ to missing for all hours
- NOSW: set σ_w to missing for all hours
- NOSAST: set σ_θ to missing for stable hours only
- NOSWST: set σ_w to missing for stable hours only
- NOSACO: set σ_θ to missing for convective hours only
- NOSWCO set σ_w to missing for convective hours only

Where stable (convective) hours are defined as hours where the Monin-Obukhov length is positive (negative). The options NOTURB and NOTURBST can be used with the DFAULT keyword on the MODELOPT pathway. The remaining options cannot be used with the DFAULT keyword and if they are used with the DFAULT keyword, AERMOD will warn the user that the option can not be used with the DFAULT keyword and the option will not set the appropriate turbulence parameters to missing, i.e., AERMOD will ignore the turbulence option. For the options that only reset turbulence under stable conditions only or convective conditions only, AERMOD will report the day and hour and turbulence parameter that is being reset to the file specified with the ERRORFIL keyword.

3.6 Event pathway inputs and options

EVENT processing is specifically designed to facilitate analysis of source contributions to specific events for short-term averages (less than or equal to 24 hours). These events may be design concentrations generated by the AERMOD model, occurrences of violations of an air quality standard, or user-specified events. These events are input to the AERMOD model through the **EV**ent pathway. Each event is defined by an averaging period and specific data period, a source group, and a receptor location. Since the locations are only of interest in combination with particular averaging and data periods, the REceptor pathway is not used with EVENT processing.

There are two keywords that are used to define the events on the EV pathway. The EVENTPER keyword defines the averaging period, data period and source group, while the EVENTLOC keyword defines the receptor location for the event. Each event is also given an alphanumeric name that links the two input cards for that event.

The syntax and type of the EVENTPER and EVENTLOC keywords are summarized below:

Syntax:	EV EVENTPER Evname Aveper Grpid Date
Syntax:	EV EVENTLOC Evname XR= Xr YR= Yr (Zelev) (Zflag) Or Evname RNG= Rng DIR= Dir (Zelev) (Zflag)
Type:	Mandatory, Repeatable

where the parameters are as follows:

Evname - event name (an alphanumeric string of up to 8 characters),

Aveper - averaging period for the event (e.g., 1, 3, 8, 24 hr)

Grpid - source group ID for the event (must be defined on SO pathway),

Date - date for the event, input as an eight-digit integer for the ending hour of the data period (YYMMDDHH), e.g., 84030324 defines a data period ending at hour 24 on March 3, 1984. The length of the period corresponds to Aveper.

XR= - X-coordinate (m) for the event location, referenced to a Cartesian coordinate system

YR= - Y-coordinate (m) for the event location, referenced to a Cartesian coordinate system

RNG= - distance range (m) for the event location, referenced to a polar coordinate system with an origin of (0., 0.)

DIR= - radial direction (deg.) for the event location, referenced to a polar coordinate system with an origin of (0., 0.)

Zelev - optional terrain elevation for the event location (m)

Zflag - optional receptor height above ground (flagpole receptor) for the event location (m)

Each event is defined by the two input cards EVENTPER and EVENTLOC, and these inputs are linked by the event name, which must be unique among the events being processed in a given run. There is no particular requirement for the order of cards on the EV pathway. Note that the location for the event may be specified by either Cartesian coordinates or by polar coordinates, however, the polar coordinates must be relative to an origin of (0,0).

3.6.1 Using events generated by the AERMOD model

The AERMOD model has an option (CO EVENTFIL described in Section 3.2.14) to generate an input file for the AERMOD EVENT processing. When this option is used, the AERMOD model copies relevant inputs from the AERMOD control input file to the Event processing input file and generates the inputs for the EVent pathway from the results of the modeling run. These events are the design concentrations identified by the OU RECTABLE keyword (see Section 2.1.1.1), such as the highest and high-second-high 24-hour averages, etc., and any threshold violations identified by the OU MAXIFILE keyword (see Section 2.1.1.2). The inputs generated by the AERMOD model correspond to the syntax described above for the EVENTPER and EVENTLOC keywords. The locations for events generated by the AERMOD model are always provided as Cartesian coordinates.

To easily identify the events generated by the AERMOD model, and to provide a mechanism for the AERMOD model to manage the events generated from the model run, a naming convention is used for the EVNAME parameter. The following examples illustrate the event names used by the AERMOD model:

H1H01001 - High-first-high 1-hour average for source group number 1

H2H24003 - High-second-high 24-hour average for source group number 3

TH030010 - Threshold violation number 10 for 3-hour averages

TH240019 - Threshold violation number 19 for 24-hour averages

The high value design concentrations are listed first in the EVENT processing input file, followed by the threshold violations (grouped by averaging period). To make it easier for the user to review the EVENT processing input file generated by the AERMOD model, and determine which events are of most concern, the actual concentration value associated with the event is included as the last field on the EVENTPER card. This field is ignored by the AERMOD model and is included only for informational purposes. The user should be aware that the same event may appear in the AERMOD model input file as both a design value and as a threshold violation, depending on the options selected and the actual results. Since the model processes the events by date sequence and outputs the results for each event as it is processed, the order of events in the output file will generally not follow the order of events in the input file, unless all of the events were generated by the MAXIFILE option.

3.6.2 Specifying discrete events

The user can specify discrete events by entering the EVENTPER and EVENTLOC cards as described above. The averaging period and source group selected for the event must be among those specified on the CO AVERTIME and SO SRCGROUP cards. If the EVENT processing input file was generated by the AERMOD model, the user may include additional events for those averaging periods and source groups used in the original AERMOD model run. They may also add averaging periods or define new source groups in the Event processing input file in order to define additional events.

3.6.3 Including event data from an external file

The user has the option of including event data from an external file by using the INCLUDED keyword on the source (EV) pathway. An EV INCLUDED card may be placed anywhere within the event pathway, after the STARTING card and before the FINISHED card (i.e., the EV STARTING and EV FINISHED cards cannot be included in the external file). The data in the included file will be processed as though it were part of the control file. The syntax and type of the INCLUDED keyword are summarized below:

Syntax:	EV INCLUDED Incfil
Type:	Optional, Repeatable

where the Incfil parameter is a character field of up to 40 characters that identifies the filename for the included file. The contents of the included file must be valid control file commands for the event pathway. If an error is generated during processing of the included file, the error message will report the line number

of the included file (see APPENDIX B). If more than one INCLUDED file is specified for the event pathway, the user will first need to determine which file the error occurred in. If the starting column of the main control input file is shifted from column 1 (see Section 2.4.8), then the control file commands in the included file must be offset by the same amount.

3.7 Output pathway inputs and options

The **OU**tput pathway contains keywords that define the output options for the model runs. Beginning with version 11059, a number of enhancements have been incorporated in AERMOD to more fully support the form of more recent 1-hour NO_2 and SO_2 standards, as well as the 24-hour $PM_{2.5}$ standard. The form of these NAAQS is similar in that they are based on a ranked percentile value averaged over the number of years processed.

The options on the **OU**tput pathway have been divided into five categories: 1) options that control different types of tabular output in the main output files of the model; 2) output files for specialized purposes that that can be generated for any pollutant and averaging period; 3) options that are specific to more recent 24-hour $PM_{2.5}$, 1-hour NO_2, and/or 1-hour SO_2 standards; 4) options related to EVENT processing; and 5) miscellaneous options. The user may select any combination of output option for a particular application.

3.7.1 Selecting options for tabular printed outputs

The three tabular printed output options are controlled by the following keywords:

RECTABLE:	Controls output option for high value summary tables by receptor;
MAXTABLE:	Controls output option for overall maximum value summary tables; and
DAYTABLE:	Controls output option for tables of concurrent values summarized by receptor for each day processed.

The keywords are described in more detail in the order listed above.

The syntax and type for the RECTABLE keyword are summarized below:

Syntax:	OU RECTABLE Aveper FIRST SECOND ... SIXTH ... TENTH and/or 1ST 2ND ... 6TH .... [1]0TH and/or 1 2 ... 6 ... 10 .... *N* 999
Type:	Optional, Repeatable

where the Aveper parameter is the short-term averaging period (e.g., 1, 3, 8 or 24 hr or MONTH) for which the receptor table is selected, and the secondary keywords, FIRST, SECOND, etc., indicate which high values are to be summarized by receptor for that averaging period. The RECTABLE card may be repeated for each averaging period. For cases where the user wants the same RECTABLE options for all short-term averaging periods being modeled, the input may be simplified by entering the secondary keyword ALLAVE for the Aveper parameter.

In order to support the implementation of recent guidance regarding modeling to demonstrate compliance with these NAAQS, the RECTABLE keyword had been modified to allow user-specified ranks of short-term averages (for all pollutants) up to the 999th highest value. The previous version of AERMOD was limited to the 10th-highest value and also restricted the rank for the 24-hour $PM_{2.5}$ NAAQS to the 8th highest value (corresponding to the 98th percentile of daily values during a year).

The following example will select summaries of the highest, second highest and third highest values by receptor for all averaging periods:

```
OU RECTABLE ALLAVE FIRST  SECOND  THIRD
```

The model will also recognize a range of high values on the RECTABLE input card, and therefore the following card will have the effect:

```
OU RECTABLE ALLAVE FIRST-THIRD
```

The output file will include tables for only the high values selected. Tables for all source groups for a particular averaging period are grouped together, and the averaging periods are output in the order that they appear the CO AVERTIME card. For each averaging period and source group combination, the tables of high values for the receptor networks (if any) are printed first, followed by any discrete Cartesian receptors, and any discrete polar receptors.

If the CO EVENTFIL keyword has been used to generate an input file for EVENT processing, then the design values identified by the RECTABLE options, e.g., the high-second-high 24-hour average, are included in the events that are defined in the EVENT processing input file.

If the PLOTFILE (3.7.2.3) and/or MAXDCONT (0) keywords are used, the RECTABLE keyword is required and must be specified prior to these keywords in the OU pathway. The rank or high value (e.g., FIRST, SECOND, etc.) specified for each PLOTFILE must also be included on the RECTABLE keyword. There will need to be a RECTABLE entry that includes each of the high values and averaging periods for which a PLOTFILE is generated, or a single RECTABLE entry with the ALLAVE keyword and each high value specified can be used. However, because the RECTABLE only relates to short-term averaging periods, a RECTABLE entry is not required for a PLOTFILE that is generated for either an ANNUAL or a PERIOD average. When the MAXDCONT keyword is used, the UpperRank and LowerRank values of the MAXDCONT file must be within the range of ranks specified on the RECTABLE keyword. The MAXDCONT THRESH value analysis is limited to the range of ranks specified on the RECTABLE keyword (but not the individual ranks that are specified). Read more about the requirements of the of RECTABLE as it relates to the PLOTFILE and MAXDCONT keywords in Sections 3.7.2.3 and 0, respectively.

The syntax and type for the MAXTABLE keyword are summarized below:

Syntax:	OU MAXTABLE Aveper Maxnum
Type:	Optional, Repeatable

where the Aveper parameter is the short-term averaging period (e.g., 1, 3, 8 or 24 hr or MONTH) for which the receptor table is selected, and the Maxnum parameter specifies the number of overall maximum values to be summarized for each averaging period. The MAXTABLE card may be repeated for each averaging period. As with the RECTABLE keyword, for cases where the user wants the same MAXTABLE options for all short-term averaging periods being modeled, the input may be simplified by entering the secondary keyword ALLAVE for the Aveper parameter. The following example will select the maximum 50 table for all averaging periods:

```
OU MAXTABLE   ALLAVE 50
```

A separate maximum overall value table is produced for each source group. The maximum value tables follow the RECTABLE outputs in the main print file. All source group tables for a particular averaging period are grouped together, and the averaging periods are output in the order that they appear on the CO AVERTIME card.

The syntax and type for the DAYTABLE keyword are summarized below:

Syntax:	OU DAYTABLE Avper1 Avper2 Avper3 . . .
Type:	Optional, Non-repeatable

where the Avper*n* parameters are the short-term averaging periods (e.g., 1, 3, 8 or 24 hr or MONTH) for which the daily tables are selected. The DAYTABLE card is non-repeatable, but as with the RECTABLE and MAXTABLE keywords, for cases where the user wants daily tables for all short-term averaging periods being modeled, the input may be simplified by entering the secondary keyword ALLAVE for the first parameter. The following example will select the daily tables for all averaging periods:

```
OU DAYTABLE    ALLAVE
```

For each averaging period for which the DAYTABLE option is selected, the model will print the concurrent averages for all receptors for each day of data processed. The receptor networks (if any) are printed first, followed by any discrete Cartesian receptors, and any discrete polar receptors. Results for each source group are output. For example, if 1, 3, and 24-hour averages are calculated, and the OU DAYTABLE ALLAVE option is used, then for the first day of data processed, there will be 24 sets of tables of hourly averages (one for each hour in the day), eight sets of 3-hour averages (one for each 3-hour period in the day), and one set of 24-hour averages. The averages are printed as they are calculated by the model, but for hours where more than one averaging period is calculated (e.g., hour 24 is the end of an hourly average, a 3-hour average, and a 24-hour average), the order in which the averages are output will follow the order used on the CO AVERTIME card. Note: This option can produce very large output files, especially when used with a full year of data and very short period averages, such 1-hour and 3-hour. It should therefore be used with CAUTION.

3.7.2 Selecting options for special purpose output files

The AERMOD model provides options for seven types of output files for specialized purposes. These options are controlled by the following keywords that create the output file described:

MAXIFILE - Occurrences of violations of user-specified threshold value;

POSTFILE - Concurrent (raw) results at each receptor suitable for post-processing;

PLOTFILE - Design values that can be imported into graphics software for plotting contours;

TOXXFILE - Unformatted files of raw results above a threshold value with a special structure for use with the TOXX model component of TOXST;

RANKFILE - Output values by rank for use in Q-Q (quantile) plots;

EVALFILE - Output values, including arc-maximum normalized concentrations, suitable for model evaluation studies;

SEASONHR - Output values by season and hour-of-day;

MAXDCONT - Ranked values for individual source groups to determine source contributions for 24-hour $PM_{2.5}$, 1-hour NO_2 and 1-hour SO_2 standards;

MAXDAILY - Daily maximum 1-hour concentrations for a specified source group, for each day in the data period processed, useful for analyzing the 1-hour NO_2 and SO_2 NAAQS; and

MAXDYBY–R - Summary of daily maximum 1-hour concentrations by year for each rank specified on the RECTABLE keyword.

The keywords are described in more detail in the order listed above.

3.7.2.1 MAXIFILE

The syntax and type for the MAXIFILE keyword are summarized below:

Syntax:	OU MAXIFILE Aveper Grpid Thresh Filnam (Funit)
Type:	Optional, Repeatable

where the Aveper parameter is the short-term averaging period (e.g., 3, 8, 24 for 3, 8 and 24-hour averages, or MONTH for monthly averages) and Grpid is the source group ID for which the MAXIFILE option is selected. The Thresh parameter is the user-specified threshold value, and Filnam is the name of the file where the MAXIFILE results are to be written. The optional Funit parameter allows the user the option of specifying the Fortran logical file unit for the output file. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are

reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. By specifying the same filename and unit for more than one MAXIFILE card, results for different source groups and/or averaging periods may be combined into a single file. If the Funit parameter is omitted, then the model will dynamically allocate a unique file unit for this file (see Section 2.1.2).

The MAXIFILE card may be repeated for each combination of averaging period and source group, and a different filename should be used for each file. The resulting maximum value file will include several header records identifying the averaging period, source group and the threshold value for that file, and a listing of every occurrence where the result for that averaging period/source group equals or exceeds the threshold value. Each of these records includes the averaging period, source group ID, date for the threshold violation (ending hour of the averaging period), the x, y, z and flagpole receptor height for the receptor location where the violation occurred, and the concentration value.

Each of the threshold violations, except for monthly averages, identify events that may be modeled for source contribution information with EVENT processing by selecting the CO EVENTFIL option (see Sections 3.2.14 and 2.1). Each of the threshold violations is included as an event on the EV pathway and is given a name of the form THxxyyyy, where xx is the averaging period, and yyyy is the violation number for that averaging period. For example, an event name of TH240019 identifies the 19th threshold violation for 24-hour averages. Monthly average threshold violations are included in the file specified on the MAXIFILE card but are not included in the EVENT processing input file since the AERMOD model currently handles only averaging periods of up to 24 hours.

The following examples illustrate the use of the MAXIFILE option:

```
OU MAXIFILE   24     ALL    364.0   MAX24ALL.OUT
OU MAXIFILE   24     PSD     91.0   MAXPSD.OUT    50
OU MAXIFILE   3      PSD    365.0   MAXPSD.OUT    50
OU MAXIFILE   3      PLANT   25.0   C:\OUTPUT\MAXI3HR.FIL
OU MAXIFILE   MONTH  ALL     10.0   MAXMONTH.OUT
```

where the 3-hour example illustrates the use of a DOS pathname for the PC, and the last example illustrates the use of monthly averages. The FILNAM parameter may be up to 200 characters in length. It should also be noted that only one MAXIFILE card may be used for each averaging period/source group combination.

Note: The MAXIFILE option may produce very large files for runs involving a large number of receptors if a significant percentage of the results exceed the threshold value.

3.7.2.2 POSTFILE

The syntax and type for the POSTFILE keyword are summarized below:

Syntax:	OU POSTFILE Aveper Grpid Format Filnam (Funit)
Type:	Optional, Repeatable

where the Aveper parameter is the averaging period (e.g., 3, 8, 24 for 3, 8 and 24-hour averages, MONTH for monthly averages, PERIOD for period averages, or ANNUAL for annual averages) and Grpid is the source group ID for which the POSTFILE option is selected. The Format parameter specifies the format of the POSTFILE output and may either be the secondary keyword UNFORM for unformatted concentration files, or the secondary keyword PLOT to obtain formatted files of receptor locations (x- and y-coordinates) and concentrations suitable for plotting contours of concurrent values. The Filnam parameter is the name of the file where the POSTFILE results are to be written. The optional Funit parameter allows the user the option of specifying the Fortran logical file unit for the output file. Please note, when specifying the FUNIT, 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. By specifying the same filename and unit for more than one POSTFILE card, results for different source groups and/or averaging periods may be combined into a single file. If the Funit parameter is omitted, then the model will dynamically allocate a unique file unit for this file (see Section 2.1.2).

The POSTFILE card may be repeated for each combination of averaging period and source group, and a different filename should be used for each file. If UNFORM is specified for the Format parameter, then the resulting unformatted file includes a constant-length record for each of the selected averaging periods calculated during the model run. The first variable of each record is an integer variable (4 bytes) containing the ending date (YYMMDDHH) for the averages on that record. The second variable for each record is an integer variable (4 bytes) for the number of hours in the averaging period. The third variable for each record is a character variable of length eight containing the source group ID. The remaining variables of each record contain the calculated average concentration values for all receptors, in the order in which they were defined in the input runstream.

The following examples illustrate the use of the POSTFILE option:

```
OU POSTFILE  24   ALL   UNFORM  PST24ALL.BIN
OU POSTFILE  24   PSD   UNFORM  PST24PSD.BIN
OU POSTFILE  3    PLANT UNFORM  C:\BINOUT\PST3HR.FIL
OU POSTFILE  MONTH ALL  PLOT    PSTMONTH.PLT
OU POSTFILE  PERIOD ALL PLOT    PSTANN.PLT
```

where the 3-hour example illustrates the use of a DOS pathname for the PC, and the last example illustrates the use of monthly averages. The Filnam parameter may be up to 200 characters in length. The use of separate files for each averaging period/source group combination allows the user flexibility to select only those results that are needed for post-processing for a particular run, and also makes the resulting unformatted files manageable. Note: The POSTFILE option can produce very large files and should be used with some caution. For a file of hourly values for a full year (8760 records) and 400 receptors, the resulting file will use about 14 megabytes of disk space. To estimate the size of the file (in bytes), use the following equation:

$$File\ Size\ (bytes) = \frac{\#\ Hrs/Yr}{\#\ Hrs/Ave} * (\#\ Rec + 4) * 4$$

Divide the result by 1000 to estimate the number of kilobytes (KB) and divide by 1.0E6 to estimate the number of megabytes (MB).

3.7.2.3 PLOTFILE

The syntax and type for the PLOTFILE keyword are summarized below:

Syntax:	OU PLOTFILE Aveper Grpid Hivalu Filnam (Funit), or OU PLOTFILE PERIOD Grpid Filnam (Funit) OU PLOTFILE ANNUAL Grpid Filnam (Funit)
Type:	Optional, Repeatable

where the Aveper parameter is the averaging period (e.g., 3, 8, 24 for 3, 8 and 24-hour averages, MONTH for monthly averages, PERIOD for period averages, or ANNUAL for annual averages), Grpid is the source group ID for which the PLOTFILE option is selected, and Hivalu specifies which short-term high values are to be output (FIRST for the first highest at each receptor, SECOND for the second highest at each receptor,

etc.) Note that the Hivalu parameter is not specified for PERIOD or ANNUAL averages, since there is only one period or annual average for each receptor. The Filnam parameter is the name of the file where the PLOTFILE results are to be written. The optional Funit parameter allows the user the option of specifying the Fortran logical file unit for the output file. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. By specifying the same filename and unit for more than one PLOTFILE card, results for different source groups and/or averaging periods may be combined into a single file. If the Funit parameter is omitted, then the model will dynamically allocate a unique file unit for this file (see Section 2.1.2).

Note: The averaging period and high value for which a PLOTFILE is generated must also be included on the RECTABLE keyword (see Section 3.7.1). The RECTABLE keyword entry must be specified on the OU pathway prior to the PLOTFILE entry. However, a RECTABLE entry is not required for a PLOTFILE generated for the ANNUAL or PERIOD average.

The PLOTFILE card may be repeated for each combination of averaging period, source group, and high value, and a different filename should be used for each file. The resulting formatted file includes several records with header information identifying the averaging period, source group and high value number of the results, and then a record for each receptor which contains the x and y coordinates for the receptor location, the appropriate high value at that location, and the averaging period, source group and high value number. The data are written to the file in the order of x-coord, y-coord, concentration so that the file can easily be imported into a graphics package designed to generate contour plots. Many such programs will read the PLOTFILEs directly without any modification, ignoring the header records, and produce the desired plots.

The following examples illustrate the use of the PLOTFILE option:

```
OU  PLOTFILE   24    ALL   FIRST   PLT24ALL.FST
OU  PLOTFILE   24    ALL  SECOND   PLT24ALL.SEC
OU  PLOTFILE   24    PSD    2ND   PLTPSD.OUT  75
OU  PLOTFILE    3    PSD    2ND   PLTPSD.OUT  75
OU  PLOTFILE    3    PLANT  1ST   C:\PLOTS\PLT3HR.FIL
```

```
OU  PLOTFILE  MONTH  ALL  THIRD    PLTMONTH.OUT
OU  PLOTFILE  PERIOD  ALL          PSTANN.PLT
```

where the 3-hour example illustrates the use of a DOS pathname for the PC, and the last example illustrates the use of monthly averages. As illustrated by the second and third examples, the high value parameter may also be input as secondary keywords using the standard abbreviations of 1ST, 2ND, 3RD . . . 10TH. The Filnam parameter may be up to 40 characters in length. The use of separate files for each averaging period, source group, high value combination allows the user flexibility to select only those results that are needed for plotting from a particular run.

3.7.2.4 TOXXFILE

The syntax and type for the TOXXFILE keyword are summarized below:

Syntax:	OU TOXXFILE Aveper Cutoff Filnam (Funit)
Type:	Optional, Repeatable

where the Aveper parameter is the short-term averaging period (e.g., 1, 3, 8, 24 for 1, 3, 8 and 24-hour averages, or MONTH for monthly averages) for which the TOXXFILE option has been selected. The Cutoff (threshold) parameter is the user-specified threshold cutoff value in g/m^3, and Filnam is the name of the file where the TOXXFILE results are to be written. It is important to note that the units of the Cutoff parameter are g/m^3, regardless of the input and output units selected with the SO EMISUNIT card. The optional Funit parameter allows the user the option of specifying the Fortran logical file unit for the output file. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. If the Funit parameter is omitted, then the model will dynamically allocate a unique file unit for this file (see Section 2.1.2). While the TOXXFILE option may be specified for any of the short-term averaging periods that are identified on the CO AVERTIME card for a particular run, a non-fatal warning message will be generated if other than 1-hour averages are specified. This is because the TOXST model currently supports only 1-hour averages.

The TOXXFILE card may be repeated for each averaging period, but a different filename should be used for each file since the structure of the output file generated by the TOXXFILE option does not allow for a clear way to distinguish between results for different averaging periods. The resulting output file for the AERMOD model is an unformatted file with several header records identifying the title, averaging period, receptor information, and the threshold value for that file, followed by records listing every occurrence where the result for any source group for that averaging period equals or exceeds the threshold value. When one of the source groups exceeds the threshold value, the results for all source groups for that averaging period and receptor location are output. Each concentration that is output through the TOXXFILE option is paired with an integer ID variable that identifies the averaging period (hour number of the year), the source group number, and the receptor number corresponding to that value. The concentration values and corresponding ID variables are stored in buffer arrays, and the arrays are then written to the unformatted output file when full. The size of the arrays is controlled by the NPAIR PARAMETER defined in MODULE MAIN1 and is initially set at 100. At the end of the modeling run, any values remaining in the buffer arrays are written to the file, padded to the right with zeroes. The structure of the output file generated by the TOXXFILE option is described in more detail in Section 2.1.2 and in APPENDIX C. When using the TOXXFILE option, the user will normally place a single source in each source group. The user should refer to the user's guide for TOXST for further instructions on the application of the TOXXFILE option of the AERMOD model.

The following examples illustrate the use of the TOXXFILE option:

```
OU TOXXFILE   1  1.0E-5  TOXX1HR.BIN

OU TOXXFILE  24  2.5E-3  TOXX24HR.BIN  50
```

The Filnam parameter may be up to 200 characters in length. It should be noted that only one TOXXFILE card may be used for each averaging period. Note: The TOXXFILE option may produce very large files for runs involving a large number of receptors if a significant percentage of the results exceed the threshold value.

3.7.2.5 RANKFILE

The RANKFILE keyword outputs values by rank for use in Q-Q (quantile) plots. The MAXTABLE option must be specified first in order to use the RANKFILE option for a particular averaging period. However, the RANKFILE output differs from the results in the MAXTABLE output in that duplicate date/hour occurrences are removed. The syntax and type for the RANKFILE keyword are summarized below:

Syntax:	OU RANKFILE Aveper Hinum Filnam (Funit)
Type:	Optional, Repeatable

where the Aveper parameter is the averaging period (e.g., 3, 8, 24 for 3, 8, and 24-hour averages, or MONTH for monthly averages), and Hinum is the number of high values to be ranked. The RANKFILE keyword cannot be used with PERIOD averages. As noted above, the MAXTABLE option must be specified first for the particular Aveper, and the Hinum parameter on the RANKFILE card must be less than or equal to the Maxnum parameter on the corresponding MAXTABLE card. Since duplicate dates are removed from the RANKFILE output, the output file may contain less than the number of requested high values. The NMAX parameter, which controls the maximum number of values that can be stored, has been set initially to 400. The Filnam parameter is the name of the file (up to 200 characters) where the RANKFILE results are to be written. The optional Funit parameter allows the user the option of specifying the Fortran logical file unit for the output file. Please note, when specifying the FUNIT, 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one.By specifying the same filename and unit for more than one RANKFILE card, results for different averaging periods may be combined into a single file. If the Funit parameter is omitted, the model will dynamically allocate a unique file unit for this file according to the following formula:

IRKUNT = 100 + IAVE

where IRKUNT is the Fortran unit number and IAVE is the averaging period number (the order of the averaging period as specified on the CO AVERTIME card).

3.7.2.6 EVALFILE

The EVALFILE option is specifically designed for use in generating residuals for model evaluation studies. The EVALFILE output consists of the arc-maximum normalized concentration values for each hour of meteorology and for each source specified. The arc groupings of the receptors must be specified using the RE EVALCART keyword described above. The syntax and type for the EVALFILE keyword are summarized below:

Syntax:	OU EVALFILE Srcid Filnam (Funit)
Type:	Optional, Repeatable

where the Srcid parameter is the source ID for which EVALFILE results are requested, the Filnam parameter is the name of the file (up to 200 characters) where the EVALFILE results are to be written, and the optional Funit parameter allows the user the option of specifying the Fortran logical file unit for the output file. Please note, when specifying the FUNIT, 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. By specifying the same filename and unit for more than one EVALFILE card, results for different sources may be combined into a single file. If the Funit parameter is omitted, the model will dynamically allocate a unique file unit for this file according to the following formula:

IELUNT = 400 + ISRC*5

where IELUNT is the Fortran unit number and ISRC is the source number (the order of the source as specified on the SO pathway).

For each hour of meteorological data processed and for each receptor grouping (e.g., arc), the EVALFILE option outputs five records containing the source ID, date, arc ID, arc-maximum normalized concentration (P/Q), emission rate, and other plume dispersion and meteorological variables associated with the arc-maximum. Since the EVALFILE option looks at receptor groupings, it must be used in conjunction with the EVALCART keyword described above for the RE pathway, and a fatal error is generated if no receptor groups are identified.

3.7.2.7 SEASONHR

The SEASONHR option is used to output a file containing the average results by season and hour-of-day. To select this option, the user must include the SEASONHR keyword on the OU pathway. The syntax, type, and order for the SEASONHR keyword are summarized below:

Syntax:	OU SEASONHR GroupID Filenam (FUnit)
Type:	Optional, Repeatable

where the GroupID parameter specifies the source group to be output, FileName specifies the name of the output file, and the optional FileUnit parameter specifies an optional file unit. Please note, when specifying the FUNIT, 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. If FileUnit is left blank, then the model will dynamically assign a file unit based on the formula 302+IGRP*10, where IGRP is the group index number. A sample from a SEASONHR output file is shown below:

```
* MODELING OPTIONS USED:
*  CONC                   WDEP   RURAL   FLAT        TOXICS
*         FILE OF SEASON/HOUR VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   216 RECEPTORS.
*         FORMAT: (4(1X,F13.5),1X,F8.2,2X,A8,2X,I4,2X,I4,2X,I4,2X,A8)
*        X             Y      AVERAGE CONC   ZELEV     GRP     NHRS  SEAS  HOUR  NET ID
*  ___________   ___________   ___________   ______   ______  _____ _____  ____ _________
     8.68241       49.24039       0.00000     0.00   ALL        87     1     1  POL1
    17.36482       98.48077       0.00000     0.00   ALL        87     1     1  POL1
    86.82409      492.40387       0.18098     0.00   ALL        87     1     1  POL1
   173.64818      984.80774       2.52520     0.00   ALL        87     1     1  POL1
   868.24091     4924.03857       2.07470     0.00   ALL        87     1     1  POL1
  1736.48181     9848.07715       0.93252     0.00   ALL        87     1     1  POL1
    17.10101       46.98463       0.00000     0.00   ALL        87     1     1  POL1
    34.20201       93.96926       0.00000     0.00   ALL        87     1     1  POL1
   171.01007      469.84631       0.15772     0.00   ALL        87     1     1  POL1
   342.02014      939.69263       2.48554     0.00   ALL        87     1     1  POL1
  1710.10071     4698.46289       6.09119     0.00   ALL        87     1     1  POL1
  3420.20142     9396.92578       4.49830     0.00   ALL        87     1     1  POL1
    25.00000       43.30127       0.00000     0.00   ALL        87     1     1  POL1
    50.00000       86.60254       0.00000     0.00   ALL        87     1     1  POL1
   250.00000      433.01270       0.10114     0.00   ALL        87     1     1  POL1
   500.00000      866.02539       2.12970     0.00   ALL        87     1     1  POL1
  2500.00000     4330.12695       2.79993     0.00   ALL        87     1     1  POL1
  5000.00000     8660.25391       1.97200     0.00   ALL        87     1     1  POL1
```

The NHRS column in the output file contains the number of non-calm and non-missing hours used to calculate the season-by-hour-of-day averages. The SEAS column is the season index, and is 1 for winter, 2 for spring, 3 for summer and 4 for fall. The records loop through hour-of-day first, and then through the seasons.

3.7.2.8 MAXDCONT

Beginning with version 11059, three output options have been incorporated on the OU pathway to support the 1-hour NO_2 and SO_2 standards, especially the analyses that may be required to determine a source's (or group of sources) contributions to modeled violations of the NAAQS for comparison to the Significant Impact Level (SIL). The form of the standards, based on averages of ranked values across years, complicates this analysis, especially for the 1-hour NO_2 and SO_2 standards which are based on ranked values from the distribution of daily maximum 1-hour averages. One of the options (MAXDCONT) can also be used for the 24-hour $PM_{2.5}$ NAAQS.

The MAXDCONT option, applicable to 24-hour $PM_{2.5}$, 1-hour NO_2 and 1-hour SO_2 standards, can be used to determine the contribution of each user-defined source group to the high ranked values for a target source group, paired in time and space. This is accomplished as an internal post-processing routine after the main model run is completed. The user can specify the range of ranks to analyze, or can specify an upper bound rank, e.g., 8th-highest for 1-hour NO_2 (note that "upper bound" rank implies a higher concentration, while "lower bound" rank implies a lower concentration), and a threshold value, such as the NAAQS, for the target source group. The model will process each rank within the range specified but will stop after the first rank (in descending order of concentration) that is below the threshold.

The syntax, type and order of the optional MAXDCONT keyword are summarized below:

Syntax:	OU MAXDCONT GrpID UpperRank LowerRank FileName (FileUnit) or OU MAXDCONT GrpID UpperRank THRESH ThreshValue FileName (FileUnit)
Type:	Optional, Repeatable

where GrpID is the target or reference source group toward which contributions are being determined, UpperRank and LowerRank are the upper bound and lower bound ranks (where upper bound rank implies higher concentrations and lower bound rank implies lower concentrations), THRESH indicates that the lower bound rank is determined based on a lower concentration threshold, ThreshValue is the user-specified concentration threshold for GrpID impacts which serves as a lower bound on the range of ranks analyzed, FileName is the output file name, and (FileUnit) is the optional file unit. The filename can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (") at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces. Please note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units

range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one. When the THRESH option is selected AERMOD will skip the contribution analysis for any receptor where the target GrpID impact is less than the threshold and will stop processing completely after the first rank where the target GrpID values are below the threshold for all receptors. **NOTE: It is important note that the range of ranks that can be analyzed under the MAXDCONT option is limited to the range of ranks (not the individual ranks) specified on the OU RECTABLE keyword, even when the THRESH option is used in lieu of specifying a LowerRank value. AERMOD will issue a fatal error if the THRESH option is used and the range of ranks is less than or equal to 8 for the 1-hr SO_2 NAAQS, or less than or equal to 12 for the 1-hr NO_2 and 24-hr $PM_{2.5}$ NAAQS. Non-fatal warning messages will be generated if the THRESH option is used and the range of ranks is less than or equal to 24 for the 1-hr SO_2 NAAQS, or less than or equal to 28 for the 1-hr NO_2 and 24-hr $PM_{2.5}$ NAAQS. The RECTABLE keyword entry must be specified on the OU pathway prior to the MAXDCONT entry.**

When the MAXDCONT option is specified, AERMOD stores all meteorological variables in memory for each hour during the initial stage of processing in order to optimize the model runtime during the post-processing stage. Any temporally varying emissions and background concentrations, including background ozone concentrations for the OLM and PVMRM options, are also stored in memory for each hour. While optimizing runtime for the post-processing, this approach may also significantly increase the memory storage requirements of the model. In addition, since the MAXDCONT option extracts meteorological variables and other temporally-varying data stored in memory to optimize runtime, the MAXDCONT option cannot be used with the model "re-start" option using the INITFILE and SAVEFILE keywords (Section 3.2.15) on the CO pathway, or with the MULTYEAR option (Section 3.2.7) on the CO pathway.

3.7.2.9 MAXDAILY

The MAXDAILY option, introduced with version 11059, is applicable to 1-hour NO_2 and 1-hour SO_2 NAAQS and generates a file of daily maximum 1-hour concentrations for a specified source group, for each day in the data period processed. The MAXDAILY file provides an interim output that may be useful for analyzing the 1-hour NO_2 and SO_2 NAAQS. The syntax, type and order of the optional MAXDAILY keyword are summarized below:

Syntax:	OU MAXDAILY GrpID FileName (FileUnit)
Type:	Optional, Non-repeatable

where GrpID is the source group selected for daily maximum 1-hour values, FileName is the name of the MAXDAILY output file, and FileUnit is the optional file unit. The filename can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (“) at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces. Please note, when specifying the FUNIT, 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one.

3.7.2.10 MAXDYBYYR

Another option applicable to 1-hour NO_2 and 1-hour SO_2 NAAQS introduced with version 11059, the MXDYBYYR keyword, generates a summary of daily maximum 1-hour concentrations by year for each rank specified on the RECTABLE keyword. The ranks included in the MXDYBYYR file are the ranks used in the MAXDCONT postprocessing option. The syntax, type and order of the optional MXDYBYYR keyword are summarized below:

Syntax:	OU MXDYBYYR GrpID FileName (FileUnit)
Type:	Optional, Non-repeatable

where GrpID is the source group selected for daily maximum 1-hour values summarized by year, FileName is the name of the MXDYBYYR output file, and FileUnit is the optional file unit. The filename can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (“) at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces. Please

note, when specifying the FUNIT 1 to 32 are reserved for input/output files, internally computed file units range 100 to 730, and the following are reserved for debug files: 731, 931, 932, 933, 937, 938, 939, 941, 8837, 8932, 9937, 9938, 9939, 9940. Therefore, to ensure there will be no file conflicts, it is recommended that user-specified units begin at a large integer value such as 10,000 and increment by one.

3.7.3 EVENT processing options

EVENT processing in the AERMOD model is designed specifically to perform source contribution analyses for short-term average (less than or equal to 24-hour) events. The events may either be generated by the AERMOD model, or they may be user-specified events, or both. Because of this rather narrow focus of applications, the output options are limited to a single keyword. The EVENTOUT keyword controls the level of detail in the source contribution output from the EVENT model. The syntax and type of the EVENTOUT keyword are summarized below:

Syntax:	OU EVENTOUT SOCONT DETAIL
Type:	Mandatory, Non-repeatable

where the SOCONT secondary keyword specifies the option to produce only the source contribution information in the output file, and the DETAIL secondary keyword specifies the option to produce more detailed summaries in the output file. The SOCONT option provides the average concentration (or total deposition) value (i.e., the contribution) from each source for the period corresponding to the event for the source group. The basic source contribution information is also provided with the DETAIL option. In addition, the DETAIL option provides the hourly average concentration (or total deposition) values for each source for every hour in the averaging period, and a summary of the hourly meteorological data for the event period. In general, the DETAIL option produces a larger output file than the SOCONT file, especially if there are a large number of sources. There is no default setting for the EVENTOUT options.

3.7.4 Miscellaneous output options

The optional SUMMFILE keyword can be used to generate a separate formatted output file containing the summary of high ranked values included at the end of the standard ‘aermod.out’ file. The optional FILEFORM keyword can be used to specify the use of exponential notation, rather than fixed format as currently used, for results that are output to separate result files. The optional NOHEADER keyword can be used to suppress file headers in formatted output file options. These new options are described below.

The syntax, type, and order of the optional SUMMFILE keyword are summarized below:

Syntax:	OU SUMMFILE SummFileName
Type:	Optional, Non-repeatable

where the SummFileName is the name of the external file containing the summary of high ranked values. The SUMMFILE filename can be up to 200 characters in length based on the default parameters in AERMOD. Double quotes (“) at the beginning and end of the filename can also be used as field delimiters to allow filenames with embedded spaces. In addition to the summary of high ranked values, the SUMMFILE also includes the “MODEL SETUP OPTIONS SUMMARY” page from the main ‘aermod.out’ file.

The syntax, type, and order of the optional FILEFORM keyword are summarized below:

Syntax:	OU FILEFORM EXP or FIX
Type:	Optional, Non-repeatable

where the EXP parameter specifies that output results files will use exponential-formatted values, and the FIX parameter specifies that the output results files will use fixed-formatted values. The default option is to use fixed-formatted results, so use of FILEFORM = ‘FIX’ is extraneous. Note that AERMOD only examines the first three characters of the input field, so that the full terms of ‘EXPONENTIAL’ or ‘FIXED’ can also be used. The format specified on this optional keyword is applicable to PLOTFILEs, plot formatted POSTFILEs, MAXIFILEs, RANKFILEs, and SEASONHR files, but will not affect the format of results in the standard ‘aermod.out’ file or the optional SUMMFILE. The FILEFORM optional may be useful to preserve precision in applications with relatively small impacts, especially for the purpose of post-processing hourly concentrations using the POSTFILE option. The option may also be useful for applications with relatively large impacts that may overflow the Fortran format specifier of F13.5 used for fixed-formatted outputs. AERMOD will issue a warning message if values that exceed the range allowed for fixed format are detected unless the FILEFORM EXP option has been selected.

The syntax, type, and order of the optional NOHEADER keyword are summarized below:

Syntax:	OU NOHEADER FileType1 FileType2 FileType3 … FileTypeN or OU NOHEADER ALL
Type:	Optional, Non-repeatable

where FileTypeN identifies the keywords for formatted output files for which the file headers will be suppressed, which may include the includes the following file types: POSTFILE, PLOTFILE, MAXIFILE, RANKFILE, SEASONHR, MAXDAILY, MXDYBYYR, and MAXDCONT. The keyword ALL may be used to specify that header records will be suppressed for ALL applicable output file types.

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Note: Many of the references listed can be found on the U.S. EPA SCRAM website at the following url: https://www.epa.gov/scram.

APPENDIX A. Functional keyword/parameter reference

This appendix provides a functional reference for the primary keywords and related secondary keywords and parameters used by the input control files for the AERMOD model. The keywords are organized by functional pathway. Except where noted, there is not a required order that the primary keywords within a pathway must be specified. Similarly, there is not a required order in which secondary keywords that follow a primary keyword must be specified, unless noted. However, AERMET assumes that user-entered values for parameters following a primary keyword are specified in the order listed in the tables below. The pathways used by the model are as follows, in the order in which they appear in the control file and in the tables that follow:

CO - for specifying overall job **CO**ntrol options;
SO - for specifying **SO**urce information;
RE - for specifying **RE**ceptor information;
ME - for specifying **ME**teorology information and options;
EV - for specifying **EV**ent information and options;
OU - for specifying **OU**tput options.

The pathways and keywords are presented in the same order as in the Detailed Keyword Reference in Section 3.0, and in the Quick Reference at the end of the manual.

Two types of tables are provided for each pathway. The first table lists all of the keywords for that pathway, identifies each keyword as to its type (either mandatory or optional and either repeatable or non-repeatable), and provides a brief description of the function of the keyword. The second type of table, which takes up more than one page for most pathways, presents the parameters for each keyword, in the order in which they should appear in the control file where order is important, and describes each parameter in detail.

The following convention is used for identifying the different types of input parameters. Parameters corresponding to secondary keywords which should be input "as is" are listed on the tables with all capital letters and are underlined, although none of the inputs to AERMOD are treated as case sensitive. Other parameter names are given with an initial capital letter and are not input "as is." In all cases, the parameter names are intended to be descriptive of the input variable being represented, and they often correspond to the Fortran variable names used in the AERMOD code. Parentheses around a parameter indicate that the parameter is optional for that keyword. The default that is taken when an optional parameter is left blank is explained in the discussion for that parameter.

Table A-1. Description of Control Pathway Keywords

CO Keywords	Type	Keyword Description
STARTING	M – N	Identifies the start of CONTROL pathway inputs
TITLEONE	M – N	First line of title for output
TITLETWO	O – N	Optional second line of title for output
MODELOPT	M – N	Job control and dispersion options
AVERTIME	M – N	Averaging time(s) to process
URBANOPT	O – R	Specifies parameters for urban dispersion option
POLLUTID	M – N	Identifies type of pollutant being modeled
HALFLIFE[1]	O – N	Optional half life used for exponential decay
DCAYCOEF[1]	O – N	Optional decay coefficient
GASDEPDF	O – N	Option to override default parameters for gas dry deposition
GASDEPVD	O – N	Option to specify deposition velocity for gas dry deposition
GDLANUSE	O – N	Specify land use categories by sector for gas dry deposition
GDSEASON	O – N	Specify seasonal definitions for gas dry deposition
LOW_WIND	O – N	ALPHA option for low wind conditions that allows user to specify values for minimum sigma-v, minimum wind speed, and maximum meander factor
AWMADWNW	O – N	Specifies downwash options developed by AWMA
ORD_DWNW	O – N	Specifies downwash options developed by ORD
NO2EQUIL	O – N	Option to override default NO_2/NO_x equilibrium ratio for PVMRM, OLM, or TTRM/TTRM2
NO2STACK	O – N	Option to specify default in-stack NO_2/NO_x equilibrium ratio for PVRM, OLM, TTRM/TTRM2, and GRSM options; may be overridden by NO2RATIO option on SO pathway
NOX_FILE	O – N	Specifies hourly NO_X file for the GSRM option
NOX_UNIT	O – N	Option to specify units for temporally varying NO_X concentrations for the NOX_VALS keyword used with the GSRM option for estimating NO_2
NOXVALUE	O – N	Specifies background value of NO_X for the GSRM option for estimating NO_2
NOXSECTR	O – N	Option to specify wind sectors for use in varying background NO_X concentrations by wind direction for use with the GSRM option for estimating NO_2; can be used with the NOX_FILE, NOXVALUE, and NOX_VALS options
NOX_VALS	O – R	Option to specify temporally varying NO_X concentrations for use with the GSRM option for estimating NO_2
ARMRATIO	O – N	Option to override default minimum and maximum (equilibrium) ratios for the ARM2 option
O3SECTOR	O – N	Specifies optional wind sectors for use in varying background ozone (O3) concentrations by wind direction for use with OLM, PVMRM, TTRM/TTRM2,

		and GRSM options; can be used with the OZONEFIL, OZONEVAL, and O3VALUES options
OZONEFIL	O – N	Specifies filename for hourly ozone file for use with OLM, PVMRM, TTRM/TTRM2, and GRSM options
OZONEVAL	O – R	Specifies background value of ozone for use with OLM, PVMRM, TTRM/TTRM2, and GRSM options
O3VALUES	O – R	Option to specify temporally varying ozone concentrations for use with OLM, PVMRM, TTRM/TTRM2, and GRSM options for estimating NO_2
OZONUNIT	O – N	Option to specify units for temporally varying ozone concentrations for the O3VALUES keyword
FLAGPOLE	O – N	Specifies whether to accept receptor heights above local terrain (m) for use with flagpole receptors, and allows for default flagpole height to be specified
ARCFTOPT	O – N	Option to apply aircraft plume rise to AREA and VOLUME source types identified as aircraft using the ARCFTSRC keyword in the SO pathway
RUNORNOT	M – N	Identifies whether to run model or process setup information only
EVENTFIL[2]	O – N	Specifies whether to generate an input file for EVENT model
SAVEFILE[3]	O – N	Option to store intermediate results for restart of model after user or system interrupt
INITFILE[3]	O – N	Option to initialize model from intermediate results generated by SAVEFILE option
MULTYEAR[3]	O – N	Option to process multiple years of meteorological data (one year per run) and accumulate high short-term values across years
DEBUGOPT	O – N	Option to generate detailed result and meteorology files for debugging purposes
ERRORFIL	O – N	Option to generate detailed error listing file
FINISHED	M – N	Identifies the end of CONTROL pathway inputs

Type: M – Mandatory, O – Optional, N – Non-Repeatable, R – Repeatable

1) Either HALFLIFE or DCAYCOEF may be specified. If both cards appear a warning message will be issued and the first value entered will be used in calculations. The DFAULT option assumes a half-life of 4 hours for SO_2 modeled in urban mode.

2) The EVENTFIL keyword controls whether to generate an input file for EVENT processing. The primary difference between AERMOD "regular" processing and EVENT processing by AERMOD is in the treatment of source group contributions. The AERMOD model treats the source groups independently, whereas EVENT processing determines individual source contributions to particular events, such as the design concentrations determined from AERMOD, or user specified events. By specifying the EVENTFIL keyword, an input control file will be generated that can be used directly for EVENT processing. The events included in the generated EVENT processing input file are defined by the RECTABLE and MAXIFILE keywords on the OU pathway and are placed in the EVENT pathway.

3) The SAVEFILE and INITFILE keywords work together to implement the model's re-start capabilities. Since the MULTYEAR option utilizes the re-start features in a special way to

accumulate high short-term values from year to year, it cannot be used together with the SAVEFILE or INITFILE keyword in the same model run.

Table A-2. Description of Control Pathway Keywords and Parameters

Keyword	Parameters	
TITLEONE	Title1	
where:	Title1	First line of title for output, character string of up to 68 characters (additional characters can be included on the TITLEONE keyword, but only the first 68 characters are printed in the output files).
TITLETWO	Title2	
where:	Title2	Optional second line of title for output, character string of up to 68 characters (any additional characters are not printed).
MODELOPT	DFAULT ALPHA BETA CONC AREADPLT FLAT NOSTD NOCHKD NOWARN SCREEN SCIM NOMINO3 RLINEFDH ELEV WARNCHKD NOURBTRAN VECTORWS PSDCREDIT FASTALL FASTAREA GSRM TTRM TTRM2 PVMRM OLM ARM2 DEPOS DDEP WDEP DRYDPLT WETDPLT NODRYDPLT NOWETDPLT AREAMNDR HBP	
where:	DFAULT	Specifies that the regulatory default options will be used; note that specification of the DFAULT option will override some non-DFAULT options that may be specified in the input file, while other non-DFAULT options will cause fatal errors when DFAULT is specified (see below for details).
	ALPHA	Non-regulatory option flag that allows the input control file to include research/experimental options for review and evaluation by the user community; (e.g., LOW_WIND, PSDCREDIT, ORD_DWNW, AWMADWNW, PLATFORM, METHOD 2 particle deposition, gas deposition, RLINEFDH, and RLINEXT with options for modeling barriers and depressed roadways) and cannot be used with DFAULT keyword.
	BETA	Non-regulatory option flag that allows the input control file to include options that have been vetted through the scientific community and are waiting to be promulgated as regulatory options. Prior to promulgation, BETA options require alternative model approval for use in regulatory applications and cannot be used with DFAULT keyword.
	CONC	Specifies that concentration values will be calculated.
	DEPOS	Specifies that total deposition flux values will be calculated.
	DDEP	Specifies that dry deposition flux values will be calculated.
	WDEP	Specifies that wet deposition flux values will be calculated.
	AREADPLT	Specifies use of non-regulatory method for optimized plume depletion due to dry removal mechanisms for area sources (cannot be used when the DFAULT keyword is specified).
	FLAT	Specifies that the non-regulatory option of assuming flat terrain will be used; Note that FLAT and ELEV may be specified in the same model run to allow specifying the non-regulatory FLAT terrain option on a source-by-source basis; FLAT sources are identified by specifying the keyword FLAT in place of the source elevation field on the SO LOCATION

Keyword	Parameters	
		keyword (cannot be used simultaneously with the DFAULT keyword)..
	ELEV	Specifies that the default option of assuming elevated terrain will be used; Note that FLAT and ELEV may be specified in the same model run to allow specifying the non-regulatory FLAT terrain option on a source-by-source basis (the ELEV option is set as a regulatory option with the DFAULT keyword).
	NOSTD	Specifies that the non-regulatory option of no stack-tip downwash will be used (cannot be used with the DFAULT keyword).
	NOCHKD	Specifies that the non-regulatory option of suspending date checking will be used for non-sequential meteorological data files (cannot be used with the DFAULT keyword).
	WARNCHKD	Specifies that the option of issuing warning messages rather than fatal errors will be used for non-sequential meteorological data files.
	NOWARN	Specifies that the option of suppressing the detailed listing of warning messages in the main output file will be used (the number of warning messages is still reported, and warning messages are still included in the error file controlled by the CO ERRORFIL keyword).
	SCREEN	Non-regulatory option for running AERMOD in a screening mode for AERSCREEN will be used (cannot be used when the DFAULT keyword is specified).
	SCIM	Sampled Chronological Input Model – non-regulatory option used only with the ANNUAL average option to reduce runtime by sampling meteorology at a user-specified regular interval; SCIM sampling parameters must be specified on the ME pathway (cannot be used with the DFAULT keyword).
	PVMRM	Specifies that the Plume Volume Molar Ratio Method (PVMRM) for NO_2 conversion will be used (regulatory option, can be used simultaneously with DFAULT); cannot be used with OLM, ARM2, or GRSM; cannot be used with TTRM without TTRM2.
	OLM	Specifies that the Ozone Limiting Method (OLM) for NO_2 conversion will be used (regulatory option, can be used simultaneously with DFAULT keyword); cannot be used with PVMRM, ARM2, or GRSM; cannot be used with TTRM without TTRM2.
	ARM2	Specifies that the Ambient Ratio Method - 2 (ARM2) for NO_2 conversion will be used (regulatory option, can be used with DFAULT keyword); cannot be used with PVMRM, OLM, or GRSM; cannot be used with TTRM without TTRM2.
	TTRM	Specifies that the non-regulatory Travel Time Reaction Method (TTRM) will be used for NO_2 conversion (non-regulatory alpha option, requires the ALPHA keyword and cannot be used with the DFAULT keyword); cannot be used with PVMRM, OLM, ARM2 without TTRM2; cannot be used with

Keyword	Parameters	
		GRSM; cannot be used with TTRM2 without PVMRM, OLM, or ARM2.
	TTRM2	Specifies that the non-regulatory Travel Time Reaction Method (TTRM) will be paired with OLM, PVMRM, or ARM2 for NO_2 conversion (non-regulatory alpha option, requires the ALPHA keyword and cannot be used with the DFAULT keyword); cannot be used with TTRM alone or GRSM; must be paired with one of PVMRM, OLM, or ARM2
	GRSM	Specifies that the Generic Reaction Set Method (GRSM) will be used for NO_2 conversion; cannot be used with PVMRM, OLM, TTRM, TTRM2, or ARM2.
	PSDCREDIT	Specifies that the non-regulatory ALPHA option will be used to calculate the increment consumption with PSD credits using the PVMRM option (cannot be used with the DFAULT keyword).
	FASTALL	Non-regulatory option to optimize model runtime through use of an alternative implementation of horizontal meander for POINT and VOLUME sources; also optimizes model runtime for AREA/AREAPOLY/AREACIRC/LINE, OPENPIT, RLINE, and RLINEXT sources (formerly associated with TOXICS option, now controlled by the FASTAREA and FASTALL option, cannot be used with the DFAULT keyword).
	FASTAREA	Non-regulatory option to optimize model runtime through hybrid approach for AREA/ AREAPOLY/AREACIRC and OPENPIT sources (formerly associated with TOXICS option, cannot be used with the DFAULT keyword).
	DRYDPLT	Option to incorporate dry depletion (removal) processes associated with dry deposition algorithms; this requires specification of dry deposition source parameters and additional meteorological variables; dry depletion will be used by default if dry deposition algorithms are invoked; cannot be used with NODRYDPLT.
	NODRYDPLT	Option to disable dry depletion (removal) processes associated with dry deposition algorithms; cannot be used with DRYDPLT.
	WETDPLT	Option to incorporate wet depletion (removal) processes associated with wet deposition algorithms; this requires specification of wet deposition source parameters and additional meteorological variables; wet depletion will be used by default if wet deposition algorithms are invoked; cannot be used with NOWETDPLT.
	NOWETDPLT	Option to disable wet depletion (removal) processes associated with wet deposition algorithms; cannot be used with WETDPLT.
		Non-regulatory option to ignore the transition from nighttime urban boundary layer to daytime convective boundary layer

Keyword	Parameters	
	NOURBTRAN	(i.e., to revert to the urban option as implemented prior to version 11059) (cannot be used with the DFAULT keyword).
	VECTORWS	Option to specify that input wind speeds are vector mean (or resultant) wind speeds, rather than scalar means. Under the VECTORWS option, the adjustments to wind speeds based on Equation 112 of the AERMOD Model Formulation document (EPA, 2024a) will be applied (can be used with the DFAULT keyword).
	NOMINO3	Option to remove the minimum ozone used for Tier 2 & 3 NO_2 options. Without this option, AERMOD will use a minimum value of 40 ppb of ozone for nighttime stable conditions, regardless of the value in an hourly input file (can be used with the DFAULT keyword).
	RLINEFDH	Option to have wind profile calculations without a displacement height for RLINE and RLINEXT source types. This makes the wind profile closer to other AERMOD source types, which do not use a displacement height in wind profile (requires the ALPHA keyword and cannot be used with the DFAULT keyword).
	AREAMNDR	Option to apply plume meander to AREA. AREAPOLY, AREACIRC, and LINE source types. Note that AREAMNDR and FASTAREA or FASTALL can be specified in the same model run, but in that case, meander will not be applied to those source types listed.
	HBP	Option for highly buoyant plumes (HBP) when plume penetrates the top of the convective mixed layer. Limited to point source types (POINT, POINTHOR, POINTCAP). Compares convective mixing height for the current hour and next hour to determine how much of the penetrated plume has been captured by the CBL by the end of the current hour (requires the ALPHA keyword and cannot be used with the DFAULT keyword).
AVERTIME	Time1 Time2 . . . Time*N* MONTH PERIOD or ANNUAL	
where:	Time*N*	*Nth* optional averaging time (1, 2, 3, 4, 6, 8, 12, or 24-hr)
	MONTH	Option to calculate MONTHly averages.
	PERIOD	Option to calculate averages for the entire data PERIOD; for the MULTYEAR option, the summary of highest PERIOD averages is based on the highest PERIOD average across the individual years processed with MULTYEAR.
	ANNUAL	Option to calculate ANNUAL averages (assumes complete years); for multi-year meteorological data files, with and without the MULTYEAR option, the multi-year average of the ANNUAL values is reported.
URBANOPT	For multiple urban areas:	

Keyword	Parameters	
	UrbanID Urbpop (Urbname) (UrbRoughness) For single urban area: Urbpop (Urbname) (UrbRoughness)	
where:	UrbanID UrbPop (UrbName) (UrbRoughness)	Specifies the alphanumeric urban ID (up to eight characters). Specifies the population of the urban area. Specifies the name of the urban area (optional). Specifies the urban surface roughness length, meters (optional, defaults to 1.0m; value other than 1.0m treated as non-DFAULT).
POLLUTID	Pollut (H1H or H2H or INC)	
where:	Pollut	Identifies type of pollutant being modeled. Any name of up to eight characters may be used, e.g., SO2, NOX, CO, PM25, PM-2.5, PM10, PM-10, TSP or OTHER. NOTE: Some processing options are pollutant-specific, and require the user to specify the appropriate pollutant ID. For example, use of PM10, PM-10, PM25, PM2.5, PM-2.5, PM-25, LEAD, NO2, SO2, or OTHER allows for the use of the MULTYEAR option. Use of PM25, PM2.5, PM-2.5, or PM-25, triggers special processing for the PM-2.5 NAAQS, based on values averaged across the number of years processed (see Section 3.2.16.1). Use of NO2 or SO2 triggers special processing for their respective 1-hr NAAQS based on daily maximum 1-hr concentrations, averaged across the number of years modeled if the CO AVERTIME keyword includes 1-hr averages (see Section 3.2.17). Use of NO2 is required in order to use the OLM and PVMRM options for simulating conversion of NO to NO_2. Use of SO2 also triggers the use of a 4-hour half-life for SO_2 decay for urban applications under the regulatory default option.
	H1H or H2H or INC	Use of the H1H or H2H or INC keyword (not case-specific) disables the special processing requirements associated the 1-hr NO_2 and SO_2 NAAQS and the 24-hr $PM_{2.5}$ NAAQS. Specifying one of these keywords would allow for modeling $PM_{2.5}$ 24-hr increments which are based on the H2H value and allow evaluating NO_2 options in AERMOD based on incomplete years of field measurements.
HALFLIFE	Haflif	

Keyword	**Parameters**	
where:	Haflif	Half-life used for exponential decay (s).
DCAYCOEF	Decay	
where:	Decay	Decay coefficient for exponential decay (s^{-1}) = 0.693/HAFLIF
GASDEPDF	React F_Seas2 F_Seas5 (Refpoll) **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the GASDEPDF keyword.**	
where:	React F_Seas2 F_Seas5 (Refpoll)	Value for pollutant reactivity factor (f_o). Fraction (F) of maximum green LAI for seasonal category 2. Fraction (F) of maximum green LAI for seasonal category 5. Optional name of reference pollutant.
GASDEPVD	Uservd **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the GASDEPVD keyword.**	
where:	Uservd	User-specified dry deposition velocity (m/s) for gaseous pollutants.
GDLANUSE	Sec1 Sec2 ... Sec36 **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the GDLANUSE keyword.**	
where:	Sec1 Sec2 . . . Sec36	Land use category for winds blowing toward sector 1 (10 degrees). Land use category for winds blowing toward sector 2 (20 degrees). Land use category for winds blowing toward sector 36 (360 degrees).
GDSEASON	Jan Feb ... Dec **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the GDSEASON keyword.**	
where:	Jan . . . . Dec	Seasonal category for January: 1 = Midsummer/Lush vegetation; 2 = Autumn/Unharvested cropland; 3 = Late autumn after harvest or Winter with no snow; 4 = Winter with continuous snow cover; or 5 = Transitional spring/partial green coverage/short annuals) Seasonal category for December.
LOW_WINd	SVmin (WSmin) or	

Keyword	Parameters	
	SVmin WSmin (FRANmax) or SVmin WSmin FRANmax (SWmin) or SVmin WSmin FRANmax SWmin (BigT) or SVmin WSmin FRANmax SWmin BigT (FRANmin) or SVmin WSmin FRANmax SWmin BigT FRANmin (PBAL) **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the LOW_WIND keyword**	
where:	SVmin WSmin FRANmax SWmin BigT FRANmin PBAL	Minimum value of sigma-v, within a range of 0.01 to 1.0 m/s. Minimum value of wind speed, within a range of 0.01 to 1.0 m/s. Maximum value for meander factor, within a range of 0.0 to 1.0. Minimum value of sigma-w, within a range of 0.0 to 3.0 m/s. Time period (BigT) used to calculate the time scale TRAN, within a range of 0.5 to 48.0 hours. Minimum value for meander factor, within a range of 0.0 to 1.0 but must be less than or equal to FRANmax. Alternate momentum balance approach to determine plume meander which overrides the default energy balance approach.
AWMADWNW	AWMAUEFF and/or AWMAENTRAIN and/or ((AWMAUTURB or AWMAUTURBHX) w/wo STREAMLINE(D)) **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the AWMADWNW keyword.**	
where:	AWMAUEFF AWMAENTRAIN AWMAUTURB AWMAUTURBHX STREAMLINE	Redefines the height at which the wind speed is taken from the profile wind speed used in the calculation of concentrations from the primary plume. Changes beta (B) entrainment coefficient for PRIME downwash from default value of 0.60 to 0.35. Uses alternative formulations for turbulence enhancement and velocity deficit calculations. Uses distance-based plume rise at the downwind distance X for calculations. Reduces dispersion in the wake of streamlined structures such as storage tanks and cooling towers.
ORD_DWNW	ORDUEFF and/or ORDTURB and/or ORDCAV **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the ORD_DWNW keyword.**	
where:	ORDUEFF ORDTURB ORDCAV	Redefines the height at which the wind speed is taken from the profile wind speed used in the calculation of concentrations from the primary plume. Redefines the maximum value of the ambient turbulence intensity in the wake, reduced from 0.07 to 0.06.

Keyword	Parameters	
		Redefines the initial vertical dispersion, σz, of the re-emitted plume at the cavity boundary to equal the σz of the cavity plume.
NO2EQUIL	NO2Equil	
where:	NO2Equil	Equilibrium ratio of NO_2/NO_x for the PVMRM, OLM, and TTRM options; between 0.1 and 1.0, inclusive (default is 0.9).
NO2STACK	NO2Ratio	
where:	NO2Ratio	Default in-stack ratio of NO_2/NO_x for PVMRM, OLM, TTRM, and GSRM options, which may be overridden by the NO2RATIO keyword on SO pathway. NOTE: Beginning with version 11059, AERMOD no longer assumes a default in-stack ratio of 0.1 for the OLM option.
ARMRATIO	ARM2_Min ARM2_Max	For ARM2 Option
where:	ARM2_Min ARM2_Max	Minimum ARM2 ambient ratio, with a default value of 0.50. Maximum ARM2 ambient ratio, with a default value of 0.90.
O3SECTOR	StartSect1 StartSect2 . . . StartSect*N*, where *N* is ≤ 6	
where:	StartSect1 StartSect2 . . StartSect*N*	Starting direction for the first sector. Starting direction for the second sector. . . Starting direction for the last sector. NOTE: The minimum sector width allowed is 30 degrees, and warning messages will be issued for sector widths less than 60 degrees. Sector-varying O_3 concentrations will be selected based on the flow vector, i.e., the downwind direction based on the wind direction specified in the surface meteorological data file.
OZONEFIL	O3FileName (O3Units) (O3Format) or SECT*x* O3FileName (O3Units) (O3Format)	(without O3SECTORs) (with O3SECTORs)
where:	SECT*x* O3FileName (O3Units) (O3Format)	Applicable sector (*x* = 1 to 6) defined on the CO O3SECTOR keyword, if specified. Filename for hourly ozone data file (YR, MN, DY, HR, O3Value). Units of ozone data (PPM, PPB, or UG/M3); default is UG/M3. Fortran format statement to read ozone file; default is FREE-format, i.e., comma or space-delimited data fields (Yr Mn Dy Hr O3Value). The O3Format parameter must include open and close parentheses, the date variables must be read as integers (Fortran I format), and the O3Value must be read as real (Fortran F, E, or D format), e.g., '(4I2,F8.3)'. The year

Keyword	Parameters	
		may be specified as a 2-digit or 4-digit year, and the data period in the OZONEFIL must match the data period in the meteorological data files.
OZONEVAL	O3Value (O3Units) (without O3SECTORs) or SECT*x* O3Value (O3Units) (with O3SECTORs)	
where:	SECT*x*	Applicable sector (*x* = 1 to 6) defined on the CO O3SECTOR keyword, if specified.
	O3Value	Background ozone concentration; also used to substitute for missing data in OZONEFIL.
	(O3Units)	Units of ozone value (PPM, PPB, or UG/M3); default is UG/M3.
O3VALUES	O3Flag O3values(i), i=1, *n* (without O3SECTORs) or SECT*x* O3Flag O3values(i), i=1, *n* (with O3SECTORs)	
where:	SECT*x*	Applicable sector (*x* = 1 to 6) defined on the CO O3SECTOR keyword, if specified.
	O3Flag	Background ozone values flag: ANNUAL for annual; SEASON for seasonal; MONTH for monthly; HROFDY for hour-of-day; WSPEED for wind speed category; SEASHR for season-by-hour; HRDOW for emission rates vary by hour-of-day, and day-of-week [M-F, Sat, Sun]; HRDOW7 for emission rates vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun]; SHRDOW for season by hour-of-day by day-of-week (M-F,Sat,Sun); SHRDOW7 for season by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun); MHRDOW for month by hour-of-day by day-of-week (M-F,Sat,Sun); MHRDOW7 for month by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun).
	O3values	Array of background concentrations, for: ANNUAL, *n*=1; SEASON, *n*=4; MONTH, *n*=12; HROFDY, *n*=24; WSPEED, *n*=6; SEASHR, *n*=96; HRDOW, *n*=72; HRDOW7, *n*=168; SHRDOW, *n*=288; SHRDOW7, *n*=672; MHRDOW, *n*=864; MHRDOW7, *n*=2016. NOTE: Background ozone values input through the O3VALUES keyword are assumed to be in units of PPB, unless modified by the OZONUNIT keyword.
OZONUNIT	OzoneUnits	
where:	OzoneUnits	Ozone concentration units for O3VALUES, specified as PPB for parts-per-billion, PPM for parts-per-million, or UG/M3 for micrograms/cubic-meter.
The following keywords: NOXSECTR, NOX_FILE, NOXVALUE, NOX_VALS, and NOX_UNIT, are only applicable to the GRSM NO-to-NO_2 Conversion Option.		

Keyword	**Parameters**	
NOXSECTR	StartSect1 StartSect2 . . . StartSect*N*, where *N* is ≤ 6	
where:	StartSect1 StartSect2 . . StartSect*N*	Starting direction for the first sector. Starting direction for the second sector. . . Starting direction for the last sector. <u>NOTE:</u> The minimum sector width allowed is 30 degrees, and warning messages will be issued for sector widths less than 60 degrees. Sector-varying NOX concentrations will be selected based on the flow vector, i.e., the downwind direction based on the wind direction specified in the surface meteorological data file.
NOX_FILE	NOXFileName (NOXUnits) (NOXFormat) (without NOXSECTRs) or SECT*x* NOXFileName (NOXUnits) (NOXFormat) (with NOXSECTRs)	
where:	SECT*x* NOXFileName (NOXUnits) (NOXFormat)	Applicable sector (*x* = 1 to 6) defined on the CO O3SECTOR keyword, if specified. Filename for hourly NOX data file (YR, MN, DY, HR, NOXValue). Units of NOX data (PPM, PPB, or UG/M3); default is UG/M3. Fortran format statement to read NOX file; default is FREE-format, i.e., comma or space-delimited data fields (Yr Mn Dy Hr NOXValue). The NOXFormat parameter must include open and close parentheses, the date variables must be read as integers (Fortran I format), and the NOXValue must be read as real (Fortran F, E, or D format), e.g., '(4I2,F8.3)'. The year may be specified as a 2-digit or 4-digit year, and the data period in the NOX_FILE must match the data period in the meteorological data files.
NOXVALUE	NOXValue (NOXUnits) (without NOXSECTRs) or SECT*x* NOXValue (NOXUnits) (with NOXSECTRs)	
where:	SECT*x* NOXValue (NOXUnits)	Applicable sector (*x* = 1 to 6) defined on the CO NOXSECTR keyword, if specified. Background ozone concentration; also used to substitute for missing data in OZONEFIL. Units of ozone value (PPM, PPB, or UG/M3); default is UG/M3.
NOX_VALS	NOXFlag NOXvalues(i), i=1, *n* (without NOXSECTRs) or SECT*x* NOXFlag NOXvalues(i), i=1, *n* (with NOXSECTRs)	
where:	SECT*x* NOXFlag	Applicable sector (*x* = 1 to 6) defined on the CO O3SECTOR keyword, if specified. Background ozone values flag:

Keyword	Parameters	
		ANNUAL for annual; SEASON for seasonal; MONTH for monthly; HROFDY for hour-of-day; WSPEED for wind speed category; SEASHR for season-by-hour; HRDOW for emission rates vary by hour-of-day, and day-of-week [M-F, Sat, Sun]; HRDOW7 for emission rates vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun]; SHRDOW for season by hour-of-day by day-of-week (M-F,Sat,Sun); SHRDOW7 for season by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun); MHRDOW for month by hour-of-day by day-of-week (M-F,Sat,Sun); MHRDOW7 for month by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun).
	NOXvalues	Array of background concentrations, for: ANNUAL, *n*=1; SEASON, *n*=4; MONTH, *n*=12; HROFDY, *n*=24; WSPEED, *n*=6; SEASHR, *n*=96; HRDOW, *n*=72; HRDOW7, *n*=168; SHRDOW, *n*=288; SHRDOW7, *n*=672; MHRDOW, *n*=864; MHRDOW7, *n*=2016. NOTE: Background NOX values input through the NOXVALUES keyword are assumed to be in units of PPB, unless modified by the NOX_UNIT keyword.
NOX_UNIT	NOXUnits	
where:	NOXUnits	NOX concentration units for NOX_VALS, specified as PPB for parts-per-billion, PPM for parts-per-million, or UG/M3 for micrograms/cubic-meter.
FLAGPOLE	(Flagdf)	
where:	(Flagdf)	Default value for height of (flagpole) receptors above local ground, a default value of 0.0 m is used if this optional parameter is omitted.
ARCFTOPT	(AirportID)	
where:	(AirportID)	Optional alphanumeric character string to identify the airport where aircraft sources are located.
RUNORNOT	RUN or NOT	
where:	RUN NOT	Indicates to run full model calculations. Indicates to process setup data and report errors, but to not run full model calculations.
EVENTFIL	(Evfile) (Evopt)	
where:	(Evfile) (Evopt)	Identifies the filename to be used to generate a file for input to EVENT model (Default=EVENTFIL.INP). Optional parameter to specify the level of output detail selected for the EVENT model: either SOCONT or DETAIL (default is DETAIL if this parameter is omitted).

Keyword	**Parameters**	
SAVEFILE	(Savfil) (Dayinc) (Savfl2)	
where:	(Savfil) (Dayinc) (Savfl2)	Specifies name of disk file to be used for storing intermediate results (default = SAVE.FIL); file is overwritten after each dump. Number of days between dumps (optional: default is 1). Optional second disk filename to be used on alternate dumps - eliminates risk of system crash during the dump. If blank, file is overwritten each time.
INITFILE	(Inifil)	
where:	(Inifil)	Specifies name of disk file of intermediate results to be used for initializing run (default = SAVE.FIL).
MULTYEAR	(H6H) Savfil (Inifil)	
where:	(H6H) Savfil (Inifil)	Optional field formerly used to specify that High-Sixth-High is being calculated for use in PM10 processing; no longer required. Specifies name of file to be used for storing results at the end of the year. Optional name of file used for initializing the results arrays from previous year(s). The Inifil parameter is not used for the first year in the multi-year run.
DEBUGOPT	MODEL (Dbgfil) and/or METEOR (Dbmfil) and/or PRIME (Prmfil) and/or AWMADW (AwmaDwfil) and/or PLATFORM (PlatfmDbgFil) and/or DEPOS (Dbgfil) and/or **[**AREA (AreaDbFil) or LINE (LineDbFil)**]** and/or RLINE (RlineDbgFil) and/or BLPDBUG (BLPDbFil) and/or URBANDB (UrbanDbFil) and/or **[**PVMRM (Dbpvfil) (and TTRM2) or OLM (OLMfil) (and TTRM2) or ARM2 (ARM2fil) (and TTRM2) or TTRM (TTRMfil) or GSRM (GSRMfil)**]** and/or SWPOINT (SWfil) and/or HBPDBG (HBPfil) and/or	

Keyword	Parameters	
	AIRCRAFT (DbARCFTfil)	
where:	MODEL	Specifies that MODEL debugging output will be generated.
	(Dbgfil)	Optional filename for the model calculation debug file (a default filename of 'MODEL.DBG' will be used if omitted).
	METEOR	Specifies that METEORological profile data file will be generated.
	(Dbmfil)	Optional filename for the meteorological profile data file (a default filename of 'METEOR.DBG' will be used if omitted).
	PRIME	Specifies that PRIME debugging output will be generated.
	(Prmfil)	Optional filename for PRIME debug file (a default filename of 'PRIME.DBG' will be used if omitted).
	AWMADW	Specifies the debug out will be generated for AWMA Downwash options.
	(AwmaDwfil)	Optional filename for AWMADW debug file (a default filename of 'AWMADW.DBG' will be used if omitted).
	PLATFORM	Specifies the debug out will be generated for PLATFORM Downwash options.
	(PlatfmDbgfil)	Optional filename for PLATFORM downwash debug file. (a default filename of 'PLATFORM.DBG' will be used if omitted).
	DEPOS	Specifies that DEPOSition debugging output will be generated, using default filenames of 'GDEP.DAT' for gas deposition and 'PDEP.DAT' for particle deposition.
	AREA or LINE	Specifies that AREA or LINE debugging output will be generated, including debugging outputs for OPENPIT sources, if included in the modeling.
	(AreaDbfil)	Optional filename for AREA debug file (a default filename of 'AREA.DBG' will be used if omitted).
	RLINE	Specifies that RLINE debugging output will be generated.
	(RLineDbgFil)	Optional filename for RLINE debug file (a default filename of 'RLINE.DBG' will be used if omitted).
	BLPDBUG	Debug information for the BUOYLINE source.
	(BLPDbFil)	Optional filename for BLPDBUG debug file (a default filename of 'BLPDBUG.DBG' will be used if omitted).
	URBANDB	Debug information from the URBANDB option. This will produce 3 output files, one for the surface meteorology and two for the profile meteorology.
	(UrbanDbFil)	Optional filename for URBANDB debug files This will produce three output files, one for the surface meteorology, two for the profile meteorology. If the filename is specified by the user, then the filename will be used for the surface meteorology debug file. The same name will be assigned for the two profile debug files with a "1" and "2" appended to the filename, respectively. Default filenames: URBDBUG.DBG, URBDBUG1.DBG, and URBDBUG2.DBG.

Keyword	Parameters	
	PVMRM	Specifies that PVMRM debugging output will be generated
	(Dbpvfil)	Optional filename for PVMRM debug file (a default filename of 'PVMRM.DBG' will be used if omitted).
	OLM	Specifies that OLM debugging output will be generated
	(OLMfil)	Optional filename for OLM debug file (a default filename of 'OLM.DBG' will be used if omitted).
	ARM2	Specifies that ARM2 debugging output will be generated
	(ARM2fil)	Optional filename for ARM2 debug file (a default filename of 'ARM2.DBG' will be used if omitted).
	TTRM	Specifies that TTRM debugging output will be generated
	(TTRMfil)	Optional filename for TTRM debug file (a default filename of 'TTRM.DBG'will be used if omitted).
	TTRM2	Specifies that TTRM2 debugging output will be generated. TTRM2 can only be used with ARM2, PVMRM, or OLM and only if specified with the MODELOPT keyword along with one of those options. A user-defined debug filename cannot be specified for the TTRM2 debug option.
	GRSM	Specifies that GRSM debugging output will be generated.
	(GSRMfil)	Optional filename for GRSM debug file (a default filename of 'GRSM.DBG' will be used if omitted).
	SWPOINT	Specifies debugging output for the SWPOINT (sidewash) source type will be generated.
	(SWfil)	Optional filename for SWPOINT debug file (a default filename of SWPOINT.DBG will be used if omitted).
		Note: The user can specify any of the applicable debug options for a particular model run, and the options can be specified in any order. However, the optional filenames must be specified immediately after the keyword option associated with the filename. Also note that debugging information that was written to the main 'aermod.out' file for the MODEL debug option prior to version 13350 is now written to the applicable debug file (either MODEL or PRIME) and beginning with version 14134 debug information for AREA/LINE/OPENPIT sources is written to the AREA debug file.
	HBPDBG	Specifies debugging output for the HBP (highly buoyant plume) sources will be generated.
	(HBPfil)	Optional filename for HBP debug file (a default filename of HBP_DEBUG.DBG will be used if omitted).
	AIRCRAFT	Specifies debugging output for AREA and VOLUME aircraft sources.
	(DbARCFTfil)	Optional filename for the AIRCRAFT debug file (a default filename of AIRCRAFT.DBG will be used if omitted).

ERRORFIL	(Errfil)	
where:	(Errfil)	Specifies name of detailed error listing file (default = ERRORS.LST).

Table A-3. Description of Source Pathway Keywords

SO Keywords	Type	Keyword Description
STARTING	M – N	Identifies the start of SOURCE pathway inputs
ELEVUNIT	O – N	Defines input units for source elevations (defaults to meters), must be first keyword after SO STARTING if used.
LOCATION	M – R	Identifies coordinates for particular source
RLEMCONV	O - N	Optional emission units conversion that changes the input units for the RLINE and RLINEXT sources to grams/hour/link
SRCPARAM	M – R	Identifies source parameters for a particular source
BUILDHGT	O – R	Building height values for each wind sector
BUILDLEN	O – R	Building projected length values for each wind sector
BUILDWID	O – R	Building projected width values for each wind sector
XBADJ	O – R	Along-flow distances from the stack to the center of the upwind face of the projected building
YBADJ	O – R	Across-flow distances from the stack to the center of the upwind face of the projected building
AREAVERT	M – R	Specifies location of vertices for an AREAPOLY source type (mandatory if AREAPOLY source is used)
RBARRIER	O - R	Specifies RLINEXT barrier source configuration **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the RBARRIER keyword.**
RDEPRESS	O - R	Specifies RLINEXT depressed roadway source configuration **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the RDEPRESS keyword.**
BLPINPUT	M - R	Buoyant line group parameters representative of the buoyant line group
URBANSRC	O – R	Identifies which sources to model with urban effects
EMISFACT	O – R	Optional input for variable emission rate factors
EMISUNIT	O – N	Optional unit conversion factors for emissions, concentrations
CONCUNIT	O – N	Optional conversion factors for emissions and concentrations
DEPOUNIT	O – N	Optional conversion factors for emissions and depositions
PARTDIAM	O – R	Input variables for optional input of particle size (microns)
MASSFRAX	O – R	Optional input of mass fraction for each particle size category
PARTDENS	O – R	Optional input of particle density (g/cm^3) for each size category
METHOD_2	O – R	Optional input of parameters for METHOD_2 particle deposition

SO Keywords	Type	Keyword Description
		The ALPHA option must be specified as a MODELOPT on the CO pathway to use the METHOD_2 keyword.
GASDEPOS	O – R	Optional input of gas deposition parameters **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the GASDEPOS keyword.**
NO2RATIO	O – R	Option to specify in-stack NO2/NOx equilibrium ratio for OLM and PVMRM options by source
HOUREMIS	O – R	Option for specifying hourly emission rates in a separate file
BGSECTOR	O – N	Specifies optional wind sectors for use in varying background concentrations by wind direction for the pollutant being modeled, as specified on the BACKGRND keyword
BACKGRND	O – R	Option to specify temporally varying background concentrations
BACKUNIT	O – N	Option to specify units for background concentrations
INCLUDED	O – R	Option to include data from a separate file in the runstream
OLMGROUP	O – R	Specifies sources to combine for OLM option to account for merging plumes
BLPGROUP[2]	M - R	Associates individual buoyant lines with a buoyant line source group
PSDGROUP[1]	O – R	Specifies source groups for PSDCREDIT option with PVMRM
HBPSRCID	M – R	Identification of HBP (highly buoyant plume) sources. Mandatory when HBP option is used
ARCFTSRC	M - R	Identification of aircraft sources. Mandatory when the ARCFTOPT option is used
SRCGROUP[1]	M – R	Identification of source groups
PLATFORM	O – R	Optional input for POINT and POINTHOR sources on a platform. **The ALPHA option must be specified as a MODELOPT on the CO pathway to use the PLATFORM keyword.**
FINISHED	M – N	Identifies the end of SOURCE pathway inputs

1) The PSDGROUP or SRCGROUP keywords must be the last keyword within the SO pathway before the FINISHED keyword. The SRCGROUP keyword is mandatory, unless the PSDCREDIT option is used, which requires the PSDGROUP option instead.

2) The BLPGROUP keyword(s) must be after the BLPINPUT keyword(s)

Table A-4. Description of Source Pathway Keywords and Parameters

Keyword	Parameters	
ELEVUNIT	METERS or FEET	
where:	METERS	Specifies input units for source base elevations of meters (default if ELEVUNIT is omitted).
	FEET	Specifies input units for source elevations of feet. Note: This keyword applies to source base elevations only.
LOCATION	SrcID Srctyp Xs Ys (Zs)	[for all Srctyps except LINE, BUOYLINE, RLINE, and RLINEXT]
	or	
	(FLAT)	[for 'FLAT & ELEV' option]
	or	
	SrcID Srctyp Xs1 Ys1 Xs2 Ys2 (Zs)	[for LINE, RLINE, or BUOYLINE Srctyp]
	or	
	(FLAT)	[for 'FLAT & ELEV' option]
	or	
	SrcID Srctyp Xs1 Ys1 Zs1 Xs2 Ys2 Zs2 (Zs)	[for RLINEXT Srctyp]
	or	
	(FLAT)	[for 'FLAT & ELEV' option]
where:	SrcID	Source identification code (unique alphanumeric string of up to 12 characters).
	Srctyp	Source type: POINT, POINTCAP, POINTHOR, VOLUME, AREA, AREAPOLY, AREACIRC, OPENPIT, LINE, BUOYLINE, RLINE, or RLINEXT.
	Xs	x-coord of source location, corner for AREA, AREAPOLY, and OPENPIT, center for AREACIRC (m).
	Ys	y-coord of source location, corner for AREA, AREAPOLY, and OPENPIT, center for AREACIRC (m).
	Xs1, Xs2	x-coords of midpoint for start and end of LINE, RLINE, RLINEXT, or BUOYLINE source (m).
	Ys1, Ys2	y-coords of midpoint for start and end of LINE, RLINE, RLINEXT, or BUOYLINE source (m).
	Zs1, Zs2	z-coords of midpoint for start and end of RLINEXT source (m).
	(Zs)	Optional z-coord of source location (elevation above mean sea level, defaults to 0.0 if omitted).
	(FLAT)	Optional keyword to indicate non-DFAULT option to specify source to model with FLAT terrain.
SRCPARAM	SrcID Ptemis Stkhgt Stktmp Stkvel Stkdia	(POINT, POINTCAP, POINTHOR source)
	Vlemis Relhgt Syinit Szinit	(VOLUME source)
	Aremis Relhgt Xinit (Yinit) (Angle) (Szinit)	(AREA source)
	Aremis Relhgt Nverts (Szinit)	(AREAPOLY source)
	Aremis Relhgt Radius (Nverts) (Szinit)	(AREACIRC source)

Keyword	Parameters	
	Lnemis Relhgt Width (Szinit) (LINE or RLINE source) Opemis Relhgt Xinit Yinit Pitvol (Angle) (OPENPIT source) Blemis Relhgt (BUOYLINE source) Rlemis DCL Width Szinit (RLINEXT source)	
where:	SrcID	Source identification code.
	Emis	Source emission rate: in g/s for Ptemis, Vlemis, and Blemis; g/(s-m^2) for Aremis, Lnemis, and Opemis; g/m/s for Rlemis.
	Hgt	Source physical release height above ground (center of height for VOLUME, height above base of pit for OPENPIT).
	Stktmp	Stack gas exit temperature (K).
	Stkvel	Stack gas exit velocity (m/s).
	Stkdia	Stack inside diameter (m).
	Syinit	Initial lateral dimension of VOLUME source (m).
	Szinit	Initial vertical dimension of VOLUME, AREA, LINE, RLINE, or RLINEXT source (m).
	Xinit	Length of side of AREA source in X-direction (m).
	Yinit	Length of side of AREA source in Y-direction (m) (optional parameter, assumed to be equal to Xinit if omitted).
	Angle	Orientation angle (deg) of AREA or OPENPIT source relative to N measured positive clockwise, rotated around the source location, (Xs,Ys) (optional parameter, assumed to be 0.0 if omitted).
	Nverts	Number of vertices used for AREAPOLY or AREACIRC source (optional for AREACIRC sources).
	Radius	Radius of circular area for AREACIRC source (m).
	Width	Width of LINE, RLINE, or RLINEXT source (m).
	Pitvol	Volume of OPENPIT source (m^3).
	Blemis	Buoyant line emission rate in g/(s) for the individual line of BUOYLINE source.
	DCL	Distance from roadway centerline for RLINEXT source (m).
BUILDHGT	SrcID (or SrcRange) Dsbh(i), i=1, 36	
where:	SrcID	Source identification code.
	SrcRange	Range of sources (inclusive) for which building dimensions apply, entered as two alphanumeric strings separated by a '-'.
	Dsbh	Array of direction-specific building heights (m) beginning with 10-degree flow vector and incrementing by 10 degrees clockwise.
BUILDLEN	SrcID (or SrcRange) Dsbl(i), i=1, 36	
where:	SrcID	Source identification code.
	SrcRange	Range of sources (inclusive) for which building dimensions apply.
	Dsbl	Array of direction-specific building lengths (m) beginning with 10 degree flow vector and incrementing by 10 degrees clockwise.
BUILDWID	SrcID (or SrcRange) Dsbw(i), i=1, 36	
where:	SrcID	Source identification code.
	SrcRange	Range of sources (inclusive) for which building dimensions apply.

Keyword	Parameters	
	Dsbw	Array of direction-specific building widths (m) beginning with 10 degree flow vector and incrementing by 10 degrees clockwise.
XBADJ	SrcID (or SrcRange) Xbadj(i), i=1, 36	
where:	SrcID SrcRange Xbadj(i)	Source identification code. Range of sources (inclusive) for which XBADJ distances apply. Array of direction-specific along-wind distances beginning with 10 degree flow vector and incrementing by 10 degrees clockwise.
YBADJ	SrcID (or SrcRange) Ybadj(i), i=1, 36	
where:	SrcID SrcRange Ybadj(i)	Source identification code. Range of sources (inclusive) for which YBADJ distances apply. Array of direction-specific across-wind distances beginning with 10 degree flow vector and incrementing by 10 degrees clockwise.
AREAVERT	SrcID Xv(1) Yv(1) Xv(2) Yv(2) ... Xv(i) Yv(i)	
where:	SrcID Xv(1) Yv(1) Xv(i) Yv(i)	Source identification code. X-coordinate of the first vertex of an AREAPOLY source (must be the same as the value of Xs for that source defined on the SO LOCATION card). Y-coordinate of the first vertex of an AREAPOLY source (must be the same as the value of Ys for that source defined on the SO LOCATION card). X-coordinate for the i^{th} vertex of an AREAPOLY source. Y-coordinate for the i^{th} vertex of an AREAPOLY source.
RBARRIER	SrcID Htwall DCLwall (Htwall2 DCLwall2)	
where:	SrcID Htwall DCLwall Htwall2 DCLwall2	Source identification code. Height of the wall (or barrier 1) near roadway (m). Distance from the roadway centerline to the wall (m). Height of the second wall (or barrier 2) near roadway (m). Distance from the roadway centerline to the second wall (m).
RDEPRESS	SrcID Htwall DCLwall Depth Wtop Wbottom	
where:	SrcID Depth Wtop Wbottom	Source identification code. Depth of the depression containing the roadway (m). Width of the top of the depression containing the roadway (m). Width of the bottom of the depression containing the roadway (m).
BLPINPUT	(BLPGrpID) Blavgllen Blavgbhgt Blavgbwid Blavglwid Blavgbsep Blavgfprm	
where:	BLPGrpID Blavgllen Blavgbhgt Blavgbwid Blavglwid Blavgsep Blavgfprm	Buoyant line group ID following parameters apply to Average buoyant line length (m) Average building height (m) Average building width (m) Average buoyant line width (m) Average building separation (m) Average buoyancy parameter (m^4/s^3)

Keyword	Parameters	
URBANSRC	For multiple urban areas: UrbanID SrcID's and/or SrcRng's For single urban areas: SrcID's and/or SrcRng's User may also specify 'ALL' for SrcID's to assign all sources as urban.	
where:	UrbanID SrcID SrcRange	Specifies the alphanumeric urban ID (up to eight characters). Specifies which source(s) will be modeled with urban effects. Specifies a range of sources that will be modeled with urban effects.
EMISFACT	SrcID (or SrcRange) Qflag Qfact(i), i=1,n	
where:	SrcID SrcRange Qflag Qfact	Source identification code. Range of sources (inclusive) for which emission rate factors apply. Variable emission rate flag: SEASON for seasonal; MONTH for monthly; HROFDY for hour-of-day; WSPEED for wind speed category; SEASHR for season-by-hour; HRDOW for emission rates vary by hour-of-day, and day-of-week [M-F, Sat, Sun]; HRDOW7 for emission rates vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun]; SHRDOW for season by hour-of-day by day-of-week (M-F,Sat,Sun); SHRDOW7 for season by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun); MHRDOW for month by hour-of-day by day-of-week (M-F,Sat,Sun); MHRDOW7 for month by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun). Array of scalar emission rate factors, for: SEASON, n=4; MONTH, n=12; HROFDY, n=24; WSPEED, n=6; SEASHR, n=96; HRDOW, n=72; HRDOW7, n=168; SHRDOW, n=288; SHRDOW7, n=672; MHRDOW, n=864; MHRDOW7, n=2016
EMISUNIT	Emifac Emilbl Outlbl	
where:	Emifac Emilbl Outlbl	Emission rate factor used to adjust units of output (default value is 1.0E06 for CONC for grams to micrograms; default value is 3600 for grams/sec to grams/m^2/hr for deposition). Label to use for emission units (default is grams/sec). Label to use for output units; applies to first output type if more than one output type is generated (default is micrograms/m**3 for concentration and grams/m**2 for deposition).
RLEMCONV	*No parameters or secondary keywords* Changes the expected emission units for the RLINE (Lemis) and RLEINXT (Rlemis)emissions to grams/hour/link.	
CONCUNIT	Emifac Emilbl Conlbl	
where:	Emifac	Emission rate factor used to adjust units of output (default value is 1.0E06 for concentration for grams to micrograms).

Keyword	Parameters	
	Emilbl Conlbl	Label to use for emission units (default is grams/sec). Label to use for concentrations (default is micrograms/m^3).
DEPOUNIT	Emifac Emilbl Deplbl	
where:	Emifac Emilbl Deplbl	Emission rate factor used to adjust units of output for deposition (default value is 3600 for grams/sec to grams/m^2/hr). Label to use for emission units (default is grams/sec). Label to use for deposition (default is grams/m^2).
PARTDIAM	SrcID (or SrcRange) Pdiam(i), i=1,Npd	
where:	SrcID SrcRange Pdiam	Source identification code. Range of sources (inclusive) for which size categories apply. Array of particle diameters (microns).
MASSFRAX	SrcID (or SrcRange) Phi(i), i=1,Npd	
where:	SrcID SrcRange Phi	Source identification code. Range of sources (inclusive) for which mass fractions apply. Array of mass fractions for each particle size category.
PARTDENS	SrcID (or SrcRange) Pdens(i), i=1,Npd	
where:	SrcID SrcRange Pdens	Source identification code. Range of sources (inclusive) for which particle densities apply. Array of particle densities (g/cm^3) for each size category.
METHOD_2	SrcID (or SrcRange) FineMassFraction Dmm	
where:	SrcID FineMassFraction Dmm	Source identification code. Fraction (between 0 and 1) of particle mass emitted in fine mode, less than 2.5 microns. Representative mass mean particle diameter in microns.
GASDEPOS	SrcID (or SrcRange) Da Dw rcl Henry	
where:	SrcID Da Dw rcl Henry	Source identification code. Diffusivity in air for the pollutant being modeled (cm^2/s). Diffusivity in water for the pollutant being modeled (cm^2/s). Cuticular resistance to uptake by lipids for individual leaves (s/cm). Henry's Law constant (Pa m^3/mol).
NO2RATIO	SrcID (or SrcRange) NO2Ratio	
where:	SrcID SrcRange NO2Ratio	Source identification code. Source ID range for specified ratio. In-stack ratio of NO_2/NO_x.
HOUREMIS	Emifil SrcID's SrcRange's	
where:	Emifil SrcID's SrcRange's	Specifies name of the hourly emission rate file. Discrete source IDs that are included in the hourly emission file. Source ID ranges that are included in the hourly emission file.
BGSECTOR	StartSect1 StartSect2 . . . StartSect*N*, where *N* is ≤ 6	

Keyword	Parameters	
where:	StartSect1 StartSect2 . . StartSect*N*	Starting direction for the first sector. Starting direction for the second sector. . . Starting direction for the last sector. NOTE: The minimum sector width allowed is 30 degrees, and warning messages will be issued for sector widths less than 60 degrees. Sector-varying background concentrations will be selected based on the flow vector, i.e., the downwind direction, based on the wind direction specified in the surface meteorological data file.
BACKGRNd	BGflag BGvalue(i), i=1, *n* (without BGSECTORs) and/or HOURLY BGfilnam (BGformat) or SECT*x* BGflag BGvalue(i), i=1, *n* (with BGSECTORs) and/or SECT*x* HOURLY BGfilnam (BGformat)	
where:	SECT*x*	Applicable sector (*x* = 1 to 6) defined on the SO BGSECTOR keyword, if specified.
	BGflag	Variable background concentration flag: ANNUAL for annual; SEASON for seasonal; MONTH for monthly; HROFDY for hour-of-day; WSPEED for wind speed category; SEASHR for season-by-hour; HRDOW for emission rates vary by hour-of-day, and day-of-week [M-F, Sat, Sun]; HRDOW7 for emission rates vary by hour-of-day, and the seven days of the week [M, Tu, W, Th, F, Sat, Sun]; SHRDOW for season by hour-of-day by day-of-week (M-F,Sat,Sun); SHRDOW7 for season by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun); MHRDOW for month by hour-of-day by day-of-week (M-F,Sat,Sun); MHRDOW7 for month by hour-of-day by day-of-week (M,Tu,W,Th,F,Sat,Sun).
	BGvalue	Array of background concentrations; for: ANNUAL, *n*=1; SEASON, *n*=4; MONTH, *n*=12; HROFDY, *n*=24; WSPEED, *n*=6; SEASHR, *n*=96; HRDOW, *n*=72; HRDOW7, *n*=168; SHRDOW, *n*=288; SHRDOW7, *n*=672; MHRDOW, *n*=864; MHRDOW7, *n*=2016
	HOURLY	Flag indicating that hourly background concentrations are specified in a separate data file; data period must match the meteorological data period being processed; no missing values are allowed in the hourly file, unless temporally varying background concentrations are also specified through the BGflag parameter, which are used to substitute for missing hourly values.

Keyword	Parameters	
	BGfilnam (BGformat)	Filename for hourly background concentrations. Optional Fortran format of hourly background concentration file; the default format is FREE format, i.e., comma or space-delimited data fields (Yr Mn Dy Hr BGvalue). The BGformat parameter must include open and close parentheses, the date variables must be read as integers (Fortran I format), and the BGvalue must be read as real (Fortran F, E, or D format), e.g., '(4I2,F8.3)'. The year may be specified as a 2-digit or 4-digit year, and the data period in the HOURLY background file must match the data period in the meteorological data files. The BGformat parameter cannot include any blank spaces, unless the field in enclosed by double quotes. NOTE: Background concentrations specified on the BACKGRND keyword are currently assumed to be in units of PPB for NO_2 and SO_2, PPM for CO, and UG/M3 for all other pollutants, unless otherwise specified on the SO BACKUNIT keyword. Background concentrations can be included with any source group, including group 'ALL', by including a "SrcID" of 'BACKGROUND' on the SRCGROUP keyword. **Note that background concentrations are automatically included with group ALL by default; however, background concentrations can be excluded from group ALL by including NOBACKGROUND (or NOBACKGRND) on the SRCGROUP ALL keyword.**
BACKUNIt	BGunits	
where:	BGunits	Background concentration units, specified as PPB for parts-per-billion, PPM for parts-per-million, or UG/M3 for micrograms/cubic-meter. Background concentrations input in units of PPB or PPM are converted to micrograms/cubic-meter based on reference temperature (25 C) and pressure (1013.25 mb). Note: Units of PPB and PPM can only be used with the NO2, SO2, and CO POLLUTID.
INCLUDED	Incfil	
where:	SrcIncFile	Filename for the included source file, up to 200 characters in length; double quotes (") may be used as delimiters for the filename to allow for embedded spaces; and quotes don't count toward the limit of 200.
OLMGROUP	OLMGrpID SrcID's SrcRange's or ALL	
where:	OLMGrpID SrcID's	Group ID (Grpid = ALL specifies group including all sources). Discrete source IDs to be included in group. Source ID ranges to be included in group.

Keyword	Parameters	
	SrcRange's	Note: Card may be repeated with same Grpid if more space is needed to specify sources.
BLPGROUP	BLPGrpID SrcID's SrcRange's	
where:	BLPGrpID SrcID's SrcRange's	Buoyant line group ID. Discrete BUOYLINE source IDs to be included in group. BUOYLINE source ID ranges to be included in group.
PSDGROUP	PSDGrpID SrcID's SrcRange's	
where:	PSDGrpID SrcID's SrcRange's	PSD GrpID for PSDCREDIT option, must be one of the following: INCRCONS – increment-consuming sources, NONRBASE – non-retired baseline sources, or RETRBASE – retired (increment-expanding) baseline sources. Discrete source IDs to be included in group. Source ID ranges to be included in group. Note: Card may be repeated with same PSDGrpID if more space is needed to specify sources
HBPSRCID	SrcID's and/or SrcRange's or ALL	
where:	SrcID's SrcRange's ALL	Discrete source IDs to be included. Source ID ranges to be included. Note: Card may be repeated if more space is needed to specify sources. Includes all sources modeled that are source type POINT, POINTHOR, and POINTCAP.
ARCFTSRC	SrcID's and/or SrcRange's or ALL	
where:	SrcID's SrcRange's ALL	Discrete source IDs to be included. Source ID ranges to be included. Note: Card may be repeated if more space is needed to specify sources. Applies aircraft plume rise option (ARCFTOPT) to all AREA and VOLUME source types modeled.
SRCGROUP	SrcGrpID SrcID's SrcRange's	
where:	SrcGrpID SrcID's	Group ID (Grpid = ALL specifies group including all sources). Discrete source IDs to be included in group; a "SrcID" of 'BACKGROUND' (or 'BACKGRND') can be used to include background concentrations, based on the BACKGRND keyword. Also note that background concentrations are automatically included with group ALL; however, background concentrations can be

Keyword	Parameters	
		excluded from group ALL by specifying 'NOBACKGROUND' on the SRCGROUP ALL keyword.
	SrcRange's	Source ID ranges to be included in group. Note: Card may be repeated with same Grpid if more space is needed to specify sources.
BLPINPUT	Blavgblen Blavgbhgt Blavgbwid Blavglwid Blavgbsep Blavgfprm	
where:	Blavgblen Blavgbhgt Blavgbwid Blavglwid Blavgbsep Blavgfprm	Average building length (m). Average building height (m). Average building width (m). Average line source width (m) (of the individual lines). Average building separation (m) (between the individual lines). Average buoyancy parameter (m4/s3).

Table A-5. Description of Receptor Pathway Keywords

RE Keywords	Type	Keyword Description
STARTING	M – N	Identifies the start of RECEPTOR pathway inputs
ELEVUNIT	O – N	Defines input units for receptor elevations (defaults to meters), must be first keyword after RE STARTING if used.
GRIDCART	O[1] – R	Defines a Cartesian grid receptor network
GRIDPOLR	O[1] – R	Defines a polar receptor network
DISCCART	O[1] – R	Defines the discretely placed receptor locations referenced to a Cartesian system
DISCPOLR	O[1] – R	Defines the discretely placed receptor locations referenced to a polar system
EVALCART	O[1] – R	Defines discrete Cartesian receptor locations for use with EVALFILE output option
INCLUDED	O – R	Identifies an external file containing receptor locations to be included in the inputs
FINISHED	M - N	Identifies the end of RECEPTOR pathway inputs

1) At least one of the following must be present: GRIDCART, GRIDPOLR, DISCCART, DISCPOLR, or EVALCART, unless the INCLUDED keyword is used to include receptor inputs from an external file. Multiple receptor networks can be specified in a single run, including both Cartesian and polar.

Table A-6. Description of Receptor Pathway Keywords and Parameters

Keyword	Parameters	
ELEVUNIT	METERS or FEET	
where:	METERS FEET	Specifies input units for receptor elevations of meters. Specifies input units for receptor elevations of feet. Note: This keyword applies to receptor elevations only.
GRIDCART	Netid STA XYINC Xinit Xnum Xdelta Yinit Ynum Ydelta or XPNTS Gridx1 Gridx2 Gridx3 .... GridxN, and YPNTS Gridy1 Gridy2 Gridy3 .... GridyN ELEV Row Zelev1 Zelev2 Zelev3 ... ZelevN HILL Row Zhill1 Zhill2 Zhill3 ... ZhillN FLAG Row Zflag1 Zflag2 Zflag3 ... ZflagN END	
where:	Netid STA XYINC Xinit Xnum Xdelta Yinit Ynum Ydelta XPNTS Gridx1 GridxN YPNTS Gridy1 GridyN ELEV Row Zelev HILL Row Zhill FLAG Row Zflag END	Receptor network identification code (up to eight alphanumeric characters). Indicates STArt of GRIDCART subpathway, repeat for each new Netid. Keyword identifying grid network generated from x and y increments. Starting local x-axis grid location in meters. Number of x-axis receptors. Spacing in meters between x-axis receptors. Starting local y-axis grid location in meters. Number of y-axis receptors. Spacing in meters between y-axis receptors. Keyword identifying grid network defined by series of x and y coordinates. Value of first x-coordinate for Cartesian grid. Value of 'nth' x-coordinate for Cartesian grid. Keyword identifying grid network defined by series of x and y coordinates. Value of first y-coordinate for Cartesian grid. Value of 'nth' y-coordinate for Cartesian grid. Keyword to specify that receptor elevations follow. Indicates which row (y-coordinate fixed) is being input. An array of receptor terrain elevations for a particular Row. Keyword to specify that hill height scales follow. Indicates which row (y-coordinate fixed) is being input. An array of hill height scales for a particular Row. Keyword to specify that flagpole receptor heights follow. Indicates which row (y-coordinate fixed) is being input. An array of receptor heights above local terrain elevation for a particular Row (flagpole receptors). Indicates END of GRIDCART subpathway, repeat for each new Netid.
GRIDPOLR	Netid STA ORIG Xinit Yinit, or ORIG Srcid	

Keyword	Parameters	
	DIST Ring1 Ring2 Ring3 ... RingN DDIR Dir1 Dir2 Dir3 ... DirN, or GDIR Dirnum Dirini Dirinc ELEV Dir Zelev1 Zelev2 Zelev3 ... ZelevN HILL Dir Zhill1 Zhill2 Zhill3 ... ZhillN FLAG Dir Zflag1 Zflag2 Zflag3 ... ZflagN END	
where:	Netid	Receptor network identification code (up to eight alphanumeric characters).
	STA	Indicates STArt of GRIDPOLR subpathway, repeat for each new Netid
	ORIG	Optional keyword to specify the origin of the polar network (assumed to be at x=0, y=0 if omitted).
	Xinit	local x-coordinate for origin of polar network (m).
	Yinit	local y-coordinate for origin of polar network (m).
	Srcid	Source ID of source used as origin of polar network.
	DIST	Keyword to specify distances for the polar network.
	Ring1	Distance to the first ring of polar coordinates (m).
	RingN	Distance to the 'nth' ring of polar coordinates (m).
	DDIR	Keyword to specify discrete direction radials for the polar network.
	Dir1	First direction radial in degrees (1 to 360).
	DirN	The 'nth' direction radial in degrees (1 to 360).
	GDIR	Keyword to specify generated direction radials for the polar network.
	Dirnum	Number of directions used to define the polar system.
	Dirini	Starting direction of the polar system.
	Dirinc	Increment (in degrees) for defining directions.
	ELEV	Keyword to specify that receptor elevations follow.
	Dir	Indicates which direction is being input.
	Zelev	An array of receptor terrain elevations for a particular direction radial.
	HILL	Keyword to specify that hill height scales follow.
	Row	Indicates which row (y-coordinate fixed) is being input.
	Zhill	An array of hill height scales for a particular Row Keyword to specify that flagpole receptor heights follow.
	FLAG	Keyword to specify that flagpole receptor heights follow.
	Dir	Indicates which direction or direction number is being input.
	Zflag	An array of receptor heights above local terrain elevation for a particular direction (flagpole receptors).
	END	Indicates END of GRIDPOLR subpathway, repeat for each new Netid.
DISCCART	Xcoord Ycoord (Zelev Zhill) (Zflag)	
where:	Xcoord	local x-coordinate for discrete receptor location (m).
	Ycoord	local y-coordinate for discrete receptor location (m).
	(Zelev)	Elevation above sea level for discrete receptor location (optional), used only for ELEV terrain.
	(Zhill)	Hill height scale (optional), used only for ELEV terrain.
	(Zflag)	Receptor height (flagpole) above local terrain (optional), used only with FLAGPOLE keyword.
DISCPOLR	Srcid Dist Direct (Zelev Zhill) (Zflag)	

Keyword	**Parameters**	
where:	Srcid	Specifies source identification for which discrete polar receptor locations apply (used to define the origin for the discrete polar receptor).
	Dist	Downwind distance to receptor location (m).
	Direct	Direction to receptor location, in degrees clockwise from North.
	(Zelev)	Elevation above sea level for receptor location (optional), used only for ELEV terrain.
	(Zhill)	Hill height scale (optional).
	(Zflag)	Receptor height (flagpole) above local terrain (optional), used only with FLAGPOLE keyword.
EVALCART	Xcoord Ycoord Zelev Zhill Zflag Arcid (Name)	
where:	Xcoord	Local x-coordinate for discrete receptor location (m).
	Ycoord	Local y-coordinate for discrete receptor location (m).
	Zelev	Elevation above sea level for discrete receptor location, used only for ELEV terrain.
	Zhill	Hill height scale (m), used only for ELEV terrain.
	Zflag	Receptor height (flagpole) above local terrain, used only with FLAGPOLE keyword.
	Arcid	Receptor arc ID used to group receptors along an arc or other grouping (up to eight characters).
	(Name)	Optional name for receptor (up to eight characters).
INCLUDED	RecIncFile	
where:	RecIncFile	Identifies the filename for the included receptor file, up to 200 characters in length; double quotes (“) may be used as delimiters for the filename to allow for embedded spaces; quotes don’t count toward the limit of 200.

Table A-7. Description of Meteorology Pathway Keywords

ME Keywords	Type	Keyword Description
STARTING	M – N	Identifies the start of METEOROLOGY pathway inputs
SURFFILE	M – N	Describes input meteorological surface data file
PROFFILE	M – N	Describes input meteorological profile data file
SURFDATA	M – N	Describes surface meteorological station
UAIRDATA	M – N	Describes upper air meteorological station
SITEDATA	O – N	Describes on-site meteorological station
PROFBASE	M – N	Specifies the base elevation for the potential temperature profile
STARTEND	O – N	Specifies start and end dates to be read from input meteorological data file (default is to read entire file)
DAYRANGE	O – R	Specifies days or ranges of days to process (default is to process all data)
NOSA	O – N	Specifies to set σ_θ to missing for all hours in profile data file
NOSACO	O – N	Specifies to set σ_θ to missing for convective hours only in profile data file
NOSAST	O – N	Specifies to set σ_θ to missing for stable hours only in profile data file
NOSW	O – N	Specifies to set σ_w to missing for all hours in profile data file
NOSWCO	O – N	Specifies to set σ_w to missing for convective hours only in profile data file
NOSWST	O – N	Specifies to set σ_w to missing for stable hours only in profile data file
NOTURB	O – N	Specifies to set σ_θ and σ_w to missing for all hours in profile data file
NOTURBCO	O – N	Specifies to set σ_θ and σ_w to missing for convective hours only in profile data file
NOTURBST	O – N	Specifies to set σ_θ and σ_w to missing for stable hours only in profile data file
SCIMBYHR	O – N	Specifies the parameters for the SCIM (Sampled Chronological Input Model) option (see CO MODELOPT)
WDROTATE	O – N	May be used to correct for alignment problems of wind direction measurements, or to convert wind direction from to flow vector
WINDCATS	O – N	Input upper bounds of wind speed categories, five values input - sixth category is assumed to have no upper bound (used for WSPEED option on the EMISFACT keyword)
FINISHED	M – N	Identifies the end of METEOROLOGY pathway inputs

Table A-8. Description of Meteorology Pathway Keywords and Parameters

Keyword	Parameters	
SURFFILE	Sfcfil	
where:	Sfcfil	Specify filename for surface meteorological input file Note: FREE format is used for all SURFFILE reads beginning with version 09292.
PROFFILE	Profil	
where:	Profil	Specify filename for profile meteorological input file Note: FREE format is used for all PROFFILE reads beginning with version 09292.
SURFDATA	Stanum Year (Name) (Xcoord Ycoord)	
where:	Stanum Year (Name) (Xcoord) (Ycoord)	Station number, e.g., 5-digit WBAN number for NWS station. Year of data being processed (four digits). Station name (optional). x-coordinate of station location (m) (optional). y-coordinate of station location (m) (optional).
UAIRDATA	Stanum Year (Name) (Xcoord Ycoord)	
where:	Stanum Year (Name) (Xcoord) (Ycoord)	Station number, e.g., 5-digit WBAN number for NWS station. Year of data being processed (four digits). Station name (optional). x-coordinate of station location (m) (optional). y-coordinate of station location (m) (optional).
SITEDATA	Stanum Year (Name) (Xcoord Ycoord)	
where:	Stanum Year (Name) (Xcoord) (Ycoord)	Station number for on-site meteorological data station. Year of data being processed (four digits). Station name (optional). x-coordinate of station location (m) (optional). y-coordinate of station location (m) (optional).
PROFBASE	BaseElev (Units)	
where:	BaseElev (Units)	Base elevation (above MSL) for the potential temperature profile. Units of BaseElev: METERS or FEET (default is METERS).
STARTEND	Strtyr Strtmn Strtdy (Strthr) Endyr Endmn Enddy (Endhr)	
where:	Strtyr Strtmn Strtdy (Strthr) Endyr Endmn Enddy (Endhr)	Year of first record to be read. Month of first record to be read. Day of first record to be read. Hour of first record to be read (optional). Year of last record to be read. Month of last record to be read. Day of last record to be read. Hour of last record to be read (optional).

Keyword	Parameters	
		Note: File read begins with hour 1 of the start date and ends with hour 24 of the end date if Stahr and Endhr are omitted.
DAYRANGE	Range1 Range2 Range3 ... Range*N*	
where:	Range1 Range*N*	First range of days to process, either as individual day (XXX) or as range (XXX-YYY); days may be input as Julian dates (XXX) or as month and day (XX/YY). The 'N-th' range of days to process.
NUMYEARS	NumYrs	
where:	NumYrs	Specifies the number of years of meteorological data being processed for purposes of allocating array storage for the OU MAXDCONT option. A default value of 5 years is assumed if the optional NUMYEARS keyword is omitted.
NOSA or NOSACO or NOSAST or NOSW or NOSWCO or NOSWST or NOTURB or NOTURBCO or NOTURBST	*No parameters or secondary keywords*	
SCIMBYHR	NRegStart NRegInt (SfcFilnam PflFilnam)	
where:	NRegStart NRegInt (SfcFilnam) (PflFilnam)	Specifies the first hour to be sampled with the SCIM option; required to have a value from 1 to 24. Specifies the sampling interval, in hours. Optional output file name to list the surface meteorological data for the sampled hours. Optional output file name to list the profile meteorological data for the sampled hours.
WDROTATE	Rotang	
where:	Rotang	Specifies angle (in degrees) to rotate wind direction measurements to correct for alignment problems; value of Rotang is subtracted from WD measurements, i.e., rotation is counterclockwise.
WINDCATS	Ws1 Ws2 Ws3 Ws4 Ws5	

Keyword	Parameters	
where:	Ws1 Ws2 Ws3 Ws4 Ws5	Upper bound of first wind speed category (m/s). Upper bound of second wind speed category (m/s). Upper bound of third wind speed category (m/s). Upper bound of fourth wind speed category (m/s). Upper bound of fifth wind speed category (m/s). (sixth category is assumed to have no upper bound).

Table A-9. Description of Event Pathways and Keywords

EV Keywords	Type	Keyword Description
STARTING	M – N	Identifies the start of EVENT pathway inputs
EVENTPER	M – R	Describes data and averaging period for an event
EVENTLOC	M – R	Describes receptor location for an event
INCLUDED	O – R	Identifies an external file containing EVENT data to be included in the inputs
FINISHED	M – N	Identifies the end of EVENT pathway inputs

Table A-10. Description of Event Pathway Keywords and Parameters

Keyword	Parameters	
EVENTPER	Evname Aveper Grpid Date Conc	
where:	Name	Specify name of event to be processed (e.g., H002H24ALL), (up to ten alphanumeric characters).
	Grpid	Specify source group ID for event.
	Aveper	Specify averaging period for event.
	Date	Specify data period for event (ending YYMMDDHH for averaging period).
	Conc	Specifies the concentration value generated during the initial non-EVENT processing.
EVENTLOC	Evname XR= Xr YR= Yr (Zelev Zhill) (Zflag) or RNG= Rng DIR= Dir (Zelev Zhill) (Zflag)	
where:	Evname	Specify name of event to be processed (e.g., H002H24ALL), (up to ten alphanumeric characters).
	XR=	X-coordinate for event (discrete Cartesian receptor).
	YR=	Y-coordinate for event (discrete Cartesian receptor).
	RNG=	Distance range for event (discrete polar receptor).
	DIR=	Radial direction for event (discrete polar receptor).
	(Zelev)	Terrain elevation for event (optional).
	(Zhill)	Hill height scale (optional).
	(Zflag)	Receptor height above ground for event (optional).
INCLUDED	EventIncFile	
where:	EventIncFile	Identifies the filename for the included EVENT file, up to 200 characters in length; double quotes (“) may be used as delimiters for the filename to allow for embedded spaces; and quotes don’t count toward the limit of 200.

Note: EVENT locations can be input as either discrete Cartesian receptors (XR=, YR=) or as discrete polar receptors (RNG=, DIR=). Events that are specified in the file generated by the AERMOD model (CO EVENTFIL card) are always given as discrete Cartesian coordinates. Discrete polar receptors are assumed to be relative to an origin of (0,0).

Table A-11. Description of Output Pathway Keywords

OU Keywords	Type	Keyword Description
STARTING	M – N	Identifies the start of OUTPUT pathway inputs
RECTABLE	O – R	Option to specify value(s) by receptor for output
MAXTABLE	O – R	Option to summarize the overall maximum values
DAYTABLE	O – N	Option to print summaries for each averaging period for each day processed.
MAXIFILE	O – R	Option to list events exceeding a threshold value to file (if CO EVENTFIL option is used, these events are included in the input file generated for the EVENT model).
POSTFILE[1]	O – R	Option to write results to a mass storage file for postprocessing.
PLOTFILE[1]	O – R	Option to write certain results to a storage file suitable for input to plotting routines
TOXXFILE	O – R	Option to write results to a storage file suitable for input to the TOXX model component of TOXST or the RISK
RANKFILE	O – R	Option to output file of ranked values for Q-Q plots (must be used with the MAXTABLE keyword)
EVALFILE	O – R	Option to output file of normalized arc maxima from EVALCART receptors for model evaluation studies
SEASONHR	O – R	Option to output results by season and hour-of-day
MAXDAILY	O – R	Option to output file of daily maximum 1-hour values for each day processed; only applicable for 1-hour NO_2 and 1-hour SO_2 NAAQS
MXDYBYYR	O – R	Option to output file of daily maximum 1-hour values by year, for each year processed; only applicable for 1-hour NO_2 and 1-hour SO_2 NAAQS
MAXDCONT	O – R	Option to output contributions of each source group to ranked values averaged across years for a reference source group, paired in time and space; only applicable for 24-hour $PM_{2.5}$ 1-hour NO_2, and 1-hour SO_2 NAAQS
SUMMFILE	O – N	Option to output summary of high ranked values to separate file
FILEFORM	O – N	Specify fixed or exponential format for output results files
NOHEADER	O – N	Option to suppress file headers for output file options, e.g., POSTFILE, PLOTFILE, MAXDCONT, etc.
EVENTOUT	M – N	Specifies the level of output information provided for EVENT Processing [EVENT Only]
FINISHED	M – N	Identifies the end of OUTPUT pathway inputs

1) POSTFILE is used to output concurrent concentration values for particular source groups and averaging times across the receptor network suitable for postprocessing. PLOTFILE is used to output specific design values, such as second high concentrations, across the receptor network, suitable for plotting concentration contours.

Table A-12. Description of Output Pathway Keywords and Parameters

Keyword	Parameters	
RECTABLE	Aveper FIRST SECOND . . . SIXTH . . . TENTH and/or Aveper 1ST 2ND . . . 6TH . . . 10TH and/or Aveper 1 2 . . . 6 . . . 10 . . . *N* . . . 999	
where:	Aveper	Averaging period to summarize with high values (keyword ALLAVE specifies all short-term averaging periods).
	FIRST	Select summaries of FIRST highest values by receptor.
	SECOND	Select summaries of SECOND highest values by receptor.
	SIXTH	Select summaries of SIXTH highest values by receptor.
	1ST	Select summaries of 1ST highest values by receptor.
	2ND	Select summaries of 2ND highest values by receptor.
	6TH	Select summaries of 6TH highest values by receptor.
	N	Select summaries of *N*-th highest values by receptor (up to 999-th highest values). Note: If two parameters are input separated by a dash (e.g. FIRST-THIRD or 4-12), then summaries of all high ranked values within that range (inclusive) are provided. If the CO EVENTFIL keyword is exercised, then the events generated by the RECTABLE keyword are included in the input file for EVENT model. The range of ranks specified on the RECTABLE keyword (but not the individual ranks specified) also determines the range of ranks that may be considered with the MAXDCONT option.
MAXTABLE	Aveper Maxnum	
where:	Aveper	Averaging period to summarize with overall maximum values (keyword ALLAVE specifies all averaging periods).
	Maxnum	Specifies number of overall maximum values to summarize .
DAYTABLE	Avper1 Avper2 Avper3 . . .	
where:	Avper1	Averaging period, e.g., 24 for 24-hr averages, to summarize with values by receptor for each day of data processed (keyword ALLAVE for first parameter specifies all averaging periods).
MAXIFILE	Aveper GrpID Thresh Filnam (Funit)	
where:	Aveper	Specifies averaging period for list of values equal to or exceeding a threshold value.
	GrpID	Specifies source group to be output to file.
	Thresh	Threshold value (e.g., NAAQS) for list of exceedances.
	Filnam	Name of disk file to store maximum values.
	Funit	Optional parameter to specify the file unit.

Keyword	Parameters	
		Note: If the CO EVENTFIL keyword is exercised, then the events generated by the MAXIFILE keyword are included in the input file for EVENT processing.
POSTFILE	Aveper GrpID Format Filnam (Funit)	
where:	Aveper GrpID Format Filnam Funit	Specifies averaging period to be output to file, e.g., 24 for 24-hr averages, PERIOD for period averages. Specifies source group to be output to file. Specifies format of file, either UNFORM for unformatted files or PLOT for formatted files for plotting. Specifies filename for output file. Optional parameter to specify the file unit.
PLOTFILE	Aveper GrpID Hivalu Filnam (Funit) (Short-Term values) Aveper GrpID Filnam (Funit) (PERIOD or ANNUAL averages)	
where:	Aveper GrpID Hivalu Filnam Funit	Specifies averaging period to be output to file, e.g., 24 for 24-hr averages, PERIOD for period averages, etc. Specifies source group to be output to file. Specifies rank to be included in high value summary (e.g., FIRST, SECOND, 1ST, 2ND, etc.) to be output to file (the rank must be included on the RECTABLE card). Specifies filename for output file. Optional parameter to specify the file unit.
TOXXFILE	Aveper Cutoff Filnam (Funit)	
where:	Aveper Cutoff Filnam Funit	Specifies averaging period to be output to file, e.g., 1 for 1-hr averages. Specifies cutoff (threshold) value in g/m^3 for outputting results for AERMOD model. Specifies filename for output file. Optional parameter to specify the file unit.
RANKFILE	Aveper Hinum Filnam (Funit)	
where:	Aveper Hinum Filnam Funit	Specifies averaging period to be output to file, e.g., 24 for 24-hr averages. Specifies the number of high values to be ranked. Specifies filename for output file. Optional parameter to specify the file unit.
EVALFILE	SrcID Filnam (Funit)	
where:	SrcID Filnam Funit	Specifies the source ID to be output to file. Specifies filename for output file. Optional parameter to specify the file unit.
SEASONHR	GrpID FileName (FileUnit)	
where:	GrpID FileName	Specifies the source group ID to be output to file. Specifies filename for output file.

Keyword	Parameters	
	(FileUnit)	Optional parameter to specify file unit.
MAXDAILY	GrpID FileName (FileUnit)	
where:	GrpID FileName (FileUnit)	Specifies the source group ID to be output to file. Specifies filename for output file. Optional parameter to specify file unit.
MXDYBYYR	GrpID FileName (FileUnit)	
where:	GrpID FileName (FileUnit)	Specifies the source group ID to be output to file. Specifies filename for output file. Optional parameter to specify file unit.
MAXDCONT	GrpID UpperRank LowerRank FileName (FileUnit) or GrpID UpperRank THRESH ThreshValue FileName (FileUnit)	
where:	GrpID UpperRank LowerRank THRESH ThreshValue FileName (FileUnit)	Specifies the source group ID to be output to file. Upper bound of ranks to evaluate for contributions. Lower bound of ranks to evaluate for contributions (note that lower rank refers to lower concentrations and higher rank refers to higher concentrations). NOTE: The UpperRank and LowerRank values must be within the range of ranks specified on the RECTABLE keyword. AERMOD will analyze each rank within the range, regardless of whether the rank is specified explicitly on the RECTABLE keyword. Indicates that a threshold concentration (ThreshValue) will be specified as a limit on the lower bound rank to process. Lower threshold value for evaluating contributions; processing will stop after the first ranked value that is below ThreshValue NOTE: The ThreshValue analysis will be limited to the range of ranks specified on the RECTABLE keyword (but not the individual ranks that are specified). A warning message is generated if the ThreshValue is not reached within the range of ranks analyzed. Specifies filename for output file. Optional parameter to specify file unit. Note: The range of ranks specified on the RECTABLE keyword (but not the individual ranks specified) also determines the range of ranks that may be considered with the MAXDCONT option, even with the THRESH option.
SUMMFILE	SummFileName	
where:	SummFileName	Specifies filename of output summary file
FILEFORM	EXP or FIX	

Keyword	**Parameters**	
where:	EXP	Specifies that the output results files will use EXPonential-formatted values.
	FIX	Specifies that the output results files will use FIXed-formatted values (fixed-formatted values will be used if FILEFORM is omitted).
NOHEADER	FileType1 FileType2 FileType3 . . . FileType*N* or ALL	
where:	FileType*N*	Specifies the output file type(s) for which header records will be suppressed; includes the following file types: POSTFILE, PLOTFILE, MAXIFILE, RANKFILE, SEASONHR, MAXDAILY, MXDYBYYR, and MAXDCONT.
	ALL	Specifies that header records will be suppressed for ALL applicable output file types.
EVENTOUT	SOCONT or DETAIL	[EVENT Only]
where:	SOCONT	Provide source contribution information only in the event output.
	DETAIL	Include hourly concentrations for each source and hourly meteorological data in the event output

APPENDIX B. Explanation of error message codes

B.1 Introduction

Prior to AERMOD beginning the intensive processing to calculate predicted values specified by the user (e.g., concentrations, deposition), AERMOD runs a series of checks on the input control file to identify issues that would prevent AERMOD from completing successfully. Some of these checks include the control file structure and syntax, proper use or use of undefined keywords or parameters, missing required keywords, and conflicting options. Also, a great deal of effort has been made to eliminate the possibility of run time errors, such as "divide by zero" and to identify questionable input data.

Error messages are reported to the user in two ways. A summary of messages is provided in the main output result file. The user can also request a detailed message file.

Message Summary: Whether the user selects a detailed message file or not, the AERMOD model outputs a summary of messages within the output result file. This message table gives the number of messages of each type, together with a detailed list of all the fatal errors and warning messages. During setup processing, if no errors or warnings are generated, then the model simply reports to the user that "SETUP Finishes Successfully."

Detailed Message File: The AERMOD model provides the option of saving a detailed list of all messages generated by the model in a separate output file. The user can select this option by specifying the keyword "ERRORFIL" followed by a filename inside the COntrol pathway. For example, the following statements will save all the error messages to an ASCII text file named "errormsg.out":

```
CO   STARTING
       ERRORFIL  errormsg.out
CO   FINISHED
```

B.2 Output message summary

There are two message summaries provided in the standard output file of the AERMOD model. The first one is located after the echo of input control file options and before the input data summary. This summary will take one of two forms, depending on whether any fatal error or non-fatal warning messages were generated and depending on whether the option to RUN or NOT to run was selected on the CO RUNORNOT card. If there are no errors or warnings generated during the setup processing, and the RUN option was selected, then the model simply reports that "SETUP Finishes Successfully." If any fatal errors or warning messages were generated during the setup processing or if the option NOT to run was selected, then a more detailed summary is provided. This summary provides a message count for each type of message and a detailed listing of each fatal error and warning message generated. The second message summary table is located at the very end of the standard output result file, and it sums up the messages generated by the complete model run - both setup processing and run-time processing. An example of a setup processing message summary is shown in Figure B-1.

```
*** Message Summary For The AERMOD Model Setup ***


  --------- Summary of Total Messages ---------
A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Information Message(s)



   ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


   ********   WARNING MESSAGES   ********
               ***  NONE  ***
**********************************
*** SETUP Finishes Successfully ***
**********************************
```

Figure B-1. Example of an AERMOD Message Summary

B.3 Description of the message layout

Three types of messages can be produced by the model during the processing of input control file commands and during model calculations. These are described briefly below:

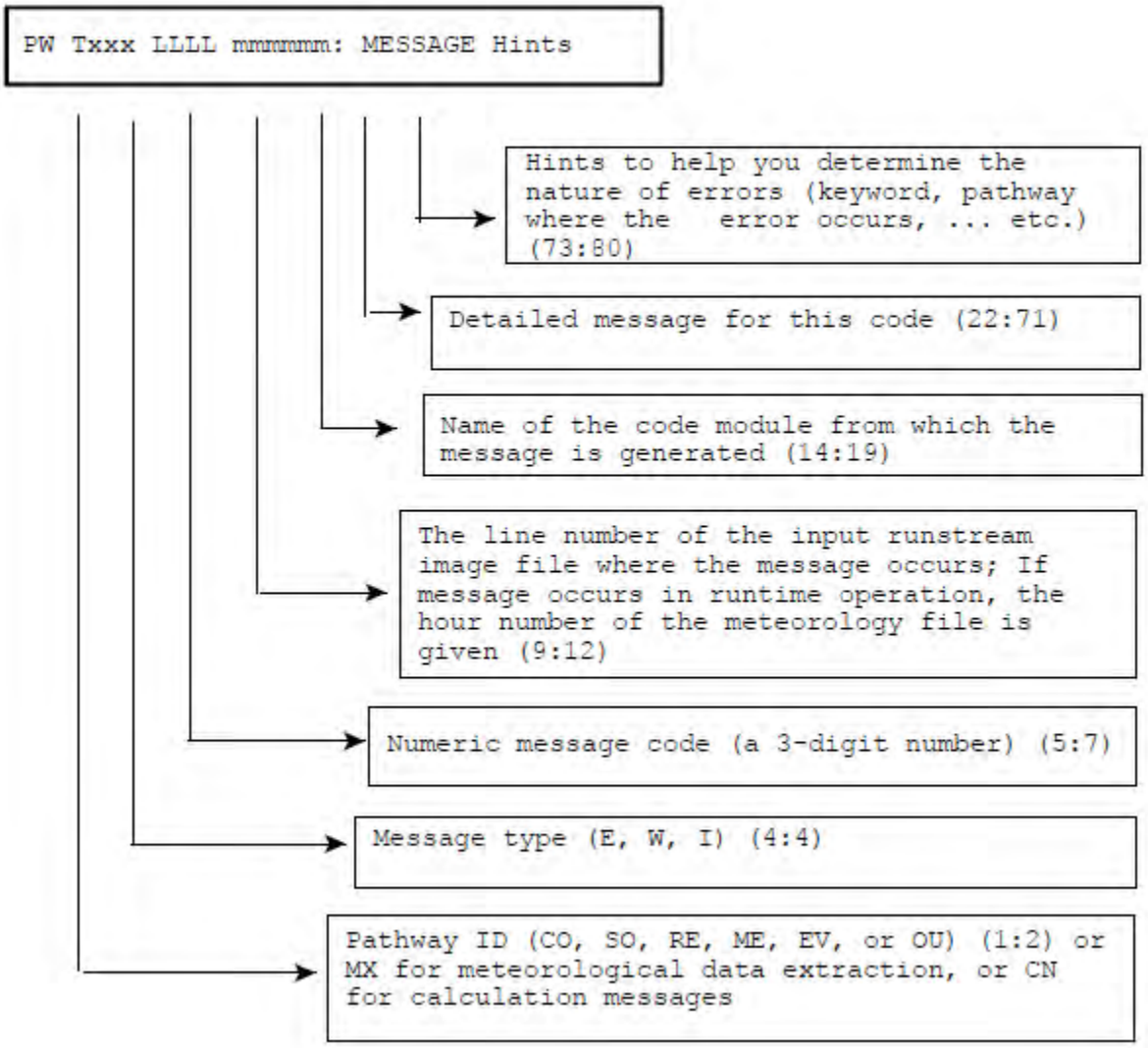
- Errors that will halt any further processing, except to identify additional error conditions (type E);
- Warnings that do not halt processing but indicate possible errors or suspect conditions (type W); and
- Informational messages that may be of interest to the user but have no direct bearing on the validity of the results (type I).

The messages have a consistent structure which contains the pathway ID, indicating which pathway the messages are generated from; the message type followed by a three-digit message number; the line number of the input control file command file for setup messages (or the meteorology hour number for runtime messages); the name of the module (e.g., the subroutine name) from which the message is generated; a detailed message corresponding to the message code; and an 8-character simple hint to help the user spot the possible source of the problem.

The following is an example of a detailed message generated from the CO pathway:

```
CO E1008 EXPATH: Invalid Pathway Specified. The Troubled Pathway is FF
```

The message syntax is explained in more detail below (values in parentheses give the column numbers within the message line for each element):



If an error occurs during processing of an included file (either SO INCLUDED or RE INCLUDED), the line number will represent the line number of the included file. The line number of the control file is saved before processing the included data, and then restored when processing returns to the main control file. The three message types are identified with the letters E (for errors), W (for warnings), and I (for informational messages).

APPENDIX C. Description of file formats

C.1 AERMET meteorological data

Two files are produced for input to the AERMOD dispersion model by the AERMET meteorological preprocessor. The surface OUTPUT contains observed and calculated surface variables, one record per hour. The PROFILE file contains the observations made at each level of an on-site tower, or the one level observations taken from NWS data, one record per level per hour. The contents and format of each of these files is described below:

SURFACE OUTPUT

Header record:

READ( ) *latitude, longitude, UA identifier, SF identifier, OS identifier, Version date, AERMET flags*

FORMAT (2(2X,A8), 8X,' UA_ID: ',A8, ' SF_ID: ',A8, ' OS_ID: ',A8, T85, 'VERSION:', A6)

where

latitude	=	latitude specified in Stage 1 for primary surface station
longitude	=	longitude specified in Stage 1 for primary surface station
UA identifier	=	station identifier for upper air data; usually the WBAN number used to extract the data from an archive data set
SF identifier	=	station identifier for hourly surface observations; usually the WBAN number used in extracting the data
OS identifier	=	site-specific identifier
Version date	=	AERMET version date; this date also appears in the banner on each page of the summary reports
AERMET flags	=	One or more of the following flags may be included in the header record after the version date, based on either the source of the data or option(s) used in AERMET to process the data for input to AERMOD: CCVR_Sub, TEMP_Sub, THRESH_1MIN *speed*, Adjust_u*, MMIF *version*, BULKRN, and COARE, where *speed* is the threshold wind speed and *version* is the MMIF version used. Refer to the AERMET User's Guide (EPA, 2024e) for information on each of these flags.

Note 1: The '*cc*_ID:' fields in the FORMAT statement above where *cc* can be UA for upper air, SF for surface, and OS for onsite or site-specific, include two spaces before the 2-character pathway ID and one space after the colon.

Note 2: The FORMAT statement above will read the header record through the version date. One or more flags may follow the version date to identify either the data source or option(s) used to preprocess the data with AERMET for input to AERMOD. The FORMAT statement will need to be revised with additional terms to read beyond the version date to retrieve the flags from the header record.

Data records:

READ( ) *year, month, day, j_day, hour, H, u_* , w_* , VPTG, Zic, Zim, L, z_o , B_o , r, W_s , W_d , z_{ref}, temp, z_{temp}, ipcode, pamt, rh, pres, ccvr, WSADJ*

FORMAT (3(I2,1X), I3,1X, I2,1X, F6.1,1X, 3(F6.3,1X), 2(F5.0,1X), F8.1,1X, F7.4,1X, 2(F6.2,1X), F7.2,1X, F5.0, 3(1X,F6.1), 1X,I5, 1X,F6.2, 2(1X, F6.0), 1X, I5, 1X, A7)

where

	j_day	=	Julian day
	H	=	sensible heat flux (W/m^2)
	u_*	=	surface friction velocity (m/s)
	w_*	=	convective velocity scale (m/s)
	VPTG	=	vertical potential temperature gradient above *Zic* (K/m)
	Zic	=	height of convectively-generated boundary layer (m)
	Zim	=	height of mechanically-generated boundary layer (m)
	L	=	Monin-Obukhov length (m)
	z_0	=	surface roughness length (m)
	B_0	=	Bowen ratio
	r	=	Albedo
	W_s	=	reference wind speed (m/s)
	W_d	=	reference wind direction (degrees)
	z_{ref}	=	reference height for wind (m)
	temp	=	reference temperature (K)
	z_{temp}	=	reference height for temperature (m)
	ipcode	=	precipitation type code (0=none, 11=liquid, 22=frozen, 99=missing)
	pamt	=	precipitation amount (mm/hr)
	rh	=	relative humidity (percent)
	pres	=	station pressure (mb)
	ccvr	=	cloud cover (tenths)
	WSADJ =		wind speed adjustment and data source flag

When site-specific data are included in the data base, the definition of the reference height wind speed and direction are subject to the following restrictions:

- the wind speed, W_s, must be greater than or equal to the site-specific data threshold wind speed;
- the measurement height must be at or above $7*z_0$, where z_0 is the surface roughness length;
- the height must be less than or equal to 100 meters;

If AERMET is run only with NWS data, i.e., no site-specific data are in the data base, then the restrictions above do not apply and the reference winds are taken to be the NWS winds independent of the height at which the winds were measured.

Ambient air temperature is subject to a similar, but less restrictive, selection process:

- the measurement height must be above z_0; and
- the height must be less than or equal to 100 meters.

The sensible heat flux, Bowen ratio and albedo are not used by AERMOD, but are passed through by AERMET for information purposes only.

PROFILE OUTPUT

READ( ) *year, month, day , hour*, height, top, WD*nn*, WS*nn*, TT*nn*, SA*nn*, SW*nn*

FORMAT (4(I2,1X), F7.1,1X, I1,1X, F7.1,1X, F8.2,1X, F8.2,1X, F8.2,1X, F8.2)

where,	height	=	measurement height (m)
	top	=	1, if this is the last (highest) level for this *hour*, or 0 otherwise
	WD*nn*	=	wind direction at the current level (degrees)
	WS*nn*	=	wind speed at the current level (m/s)
	TT*nn*	=	temperature at the current level (°C)
	SA*nn*	=	σ_θ (degrees)
	SW*nn*	=	σ_w (m/s)

C.2 Threshold violation files (MAXIFILE option)

The OU MAXIFILE card for the AERMOD model allows the user the option to generate a file or files of threshold violations for specific source group and averaging period combinations. The file consists of several header records, each identified with an asterisk (*) in column one. The header information includes the model name and version number, the first line of the title information for the run, the list of modeling option keywords applicable to the results, the averaging period and source group included in the file, and the threshold value. Any value equal to or exceeding the threshold value will be included in the file. The header also includes the format used for writing the data records, and column headers for the variables included in the file. The variables provided on each data record include the averaging period, the source group ID, the date (YYMMDDHH) for the end of averaging period, the X and Y coordinates of the receptor location,

receptor terrain elevation, hill height scale, flagpole receptor height, and the concentration value that violated the threshold. The following example from a threshold file identifies the contents of the MAXIFILE:

```
* AERMOD ( 15181): A Simple Example Problem for the AERMOD-PRIME Model                    06/09/16
* AERMET ( 15181):                                                                       17:03:34
* MODELING OPTIONS USED:  NonDFAULT CONC      FLAT      RURAL
*         MAXI-FILE FOR  3-HR VALUES >= A THRESHOLD OF    50.00
*         FOR SOURCE GROUP: ALL
*         FORMAT: (1X,I3,1X,A8,1X,I8.8,2(1X,F13.5),3(1X,F7.2),1X,F13.5)
*AVE   GRP      DATE           X             Y         ZELEV   ZHILL   ZFLAG  AVERAGE CONC
*___ ________ ________  _____________  _____________  ______  ______  ______  _____________
   3 ALL      88030112     344.68271     -60.77686    0.00    0.00    0.00       71.36678
   3 ALL      88030112     492.40388     -86.82409    0.00    0.00    0.00       73.20689
   3 ALL      88030112     984.80775    -173.64818    0.00    0.00    0.00       50.65556
   3 ALL      88030112     164.44621     -59.85353    0.00    0.00    0.00      112.74896
```

C.3 Postprocessor files (POSTFILE option)

The OU POSTFILE card for the AERMOD model allows the user the option of creating output files of concurrent concentration values suitable for postprocessing. The model offers two options for the type of file generated - one is an unformatted file, and the other is a formatted file of X, Y, CONC values suitable for inputting to plotting programs.

The unformatted POSTFILE option generates a separate unformatted data record of concurrent values for each averaging period and source group specified. The averaging period and source group combinations may be written to separate files or combined into a single file. Each record begins with the date variable for the end of the averaging period (an integer variable of the form YYMMDDHH), the averaging period (e.g., an integer value of 3 for 3-hour averages), and the source group ID (eight characters). Following these three header variables, the record includes the concentration values for each receptor location, in the order in which the receptors are defined on the RE pathway. The results are output to the unformatted file or files as they are calculated by the model.

The formatted plot file option for the POSTFILE keyword includes several lines of header information, each identified with an asterisk (*) in column one. The header information includes the model

name and version number, the first line of the title information for the run, the list of modeling option keywords applicable to the results, the averaging period and source group included in the file, and the number of receptors included. The header also includes the format used for writing the data records, and column headers for the variables included in the file. The variables provided on each data record include the X and Y coordinates of the receptor location, the concentration value for that location, receptor terrain elevation, hill height scale, flagpole receptor height, the averaging period, the source group ID, the date variable for the end of the averaging period (in the form of YYMMDDHH) for short-term averages or the number of hours in the period for PERIOD averages, and the receptor network ID. The following example from a formatted postprocessor file for PERIOD averages identifies the contents of the POSTFILE:

```
* AERMOD ( 15181): A Simple Example Problem for the AERMOD-PRIME Model                    06/09/16
* AERMET ( 15181):                                                                        16:58:19
* MODELING OPTIONS USED:  NonDFAULT CONC      FLAT      RURAL
*         POST/PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   144 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP      NUM HRS   NET ID
* ____________  ____________  ____________  ______  ______  ______  ______  ________  ________  ________
      30.38843     172.34136       0.21576     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
      60.77686     344.68271       0.53162     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
      86.82409     492.40388       0.85993     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     173.64818     984.80775       1.39778     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
      59.85353     164.44621       0.20861     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     119.70705     328.89242       0.67388     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     171.01007     469.84631       1.27452     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     342.02014     939.69262       2.45702     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
      87.50000     151.55445       0.20576     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     175.00000     303.10889       0.64322     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     250.00000     433.01270       1.20422     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     500.00000     866.02540       2.28880     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     112.48783     134.05778       0.20172     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     224.97566     268.11556       0.48027     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     321.39380     383.02222       0.76067     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
     642.78761     766.04444       1.19405     0.00     0.00     0.00  PERIOD  ALL       00000096  POL1
```

C.4 High value results for plotting (PLOTFILE option)

The OU PLOTFILE card for the AERMOD model allows the user the option of creating output files of highest concentration values suitable for importing into graphics software to generate contour plots. The

formatted plot files generated by the PLOTFILE include several lines of header information, each identified with an asterisk (*) in column one. The header information includes the model name and version number, the first line of the title information for the run, the list of modeling option keywords applicable to the results, the averaging period and source group included in the file, the high value (e.g., 2ND highest) included for plotting, and the number of receptors included. The header also includes the format used for writing the data records, and column headers for the variables included in the file. The variables provided on each data record include the X and Y coordinates of the receptor location, the concentration value for that location, receptor terrain elevation, hill height scale, flagpole receptor height, averaging period, the source group ID, the high value included for short-term averages or the number of hours in the period for PERIOD averages, and the receptor network ID. For short-term averages, the PLOTFILE also includes the date variable for the end of the averaging period (in the form of YYMMDDHH). The PERIOD average PLOTFILE uses the same format for the data records as the PERIOD average formatted POSTFILE shown in the previous section. The following example from a plot file for high second highest 24-hour averages identifies the contents of the PLOTFILE:

```
* AERMOD ( 15181): A Simple Example Problem for the AERMOD-PRIME Model                    06/09/16
* AERMET ( 15181):                                                                        17:07:58
* MODELING OPTIONS USED:  NonDFAULT CONC      FLAT      RURAL
*         PLOT FILE OF  HIGH   2ND HIGH 24-HR VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   144 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       RANK     NET ID   DATE(CONC)
* _____________  _____________  _____________  ______  ______  ______  ______  ________  ________  ________  ________
      30.38843     172.34136       0.34726     0.00     0.00     0.00   24-HR  ALL         2ND     POL1      88030324
      60.77686     344.68271       0.75187     0.00     0.00     0.00   24-HR  ALL         2ND     POL1      88030124
      86.82409     492.40388       1.18649     0.00     0.00     0.00   24-HR  ALL         2ND     POL1      88030124
     173.64818     984.80775       1.19837     0.00     0.00     0.00   24-HR  ALL         2ND     POL1      88030124
```

The PLOTFILE output also includes a flag ('**') identifying the receptor with the highest concentration. For short-term averages, the flag precedes the date field. For period averages, the flag precedes the field with the number of hours in the period.

C.5 TOXX model input files (TOXXFILE option)

The OU TOXXFILE card for the AERMOD model allows the user the option to generate an unformatted file or files of threshold violations for a specific averaging period for use with the TOXX model component of TOXST. The file consists of three header records, including the first line of the title information for the run, the number of source groups, receptors and averaging periods, information on the type of receptor network, and the threshold cutoff value. Following the header records are pairs of records identifying the specific averaging period, source group and receptor location and corresponding concentration value for the values exceeding the user- specified threshold. If any source group exceeds the threshold for a given averaging period and receptor location, then the concentrations for all source groups are output for that period and receptor. The structure of the unformatted file for the AERMOD model TOXXFILE option is described below:

Record #	Description
1	Title (80 characters)
2	IYEAR, NUMGRP, NUMREC, NUMPER, ITAB, NXTOX, NYTOX, IDUM1, IDUM2, IDUM3
3	CUTOFF, RDUM1, ..., RDUM9

where:

TITLE	= First line of title (80 characters)
IYEAR	= Year of simulation
NUMGRP	= No. of source groups
NUMREC	= Total no. of receptors
NUMPER	= No. of averaging periods (e.g., number of hours in the year)
ITAB	= 1 for polar grid; 2 for Cartesian grid; 0 for discrete receptors or mixed grids
NXTOX	= No. of x-coordinates (or distances) in receptor network
NYTOX	= No. of y-coordinates (or directions) in receptor network
IDUM1	= dummy integer variable, arbitrarily set equal to zero
IDUM2	= dummy integer variable, arbitrarily set equal to zero
IDUM3	= dummy integer variable, arbitrarily set equal to zero
CUTOFF	= User-specified threshold for outputting results (g/m^3)
RDUM1	= Dummy real variables (nine), arbitrarily set equal to zero
.	
.	
.	
RDUM9	= Dummy real variables (nine), arbitrarily set equal to zero

Following the header records, the file consists of pairs of records including an ID variable identifying the data period, source group number and receptor number, and the corresponding concentration values. The

number of values included in each record is controlled by the NPAIR PARAMETER, which is initially set at 100 in MODULE MAIN1. The identification variable is determined as follows:

IDCONC = IPER*100000 + IGRP*1000 + IREC

where: IPER = the hour number for the year corresponding to the concentration value
IGRP = the source group number (the order in which the group was defined on the SO pathway)
IREC = the receptor number (the order in which the receptor was defined on the RE pathway)

C.6 Maximum values by rank (RANKFILE option)

The OU RANKFILE card for the AERMOD model allows the user the option of creating output files of the maximum concentration values by rank, suitable for generating Q-Q or quantile plots. The data contained in the RANKFILE output is based on the MAXTABLE arrays, except that only one occurrence per data period is included. The formatted data files generated by the RANKFILE include several lines of header information, each identified with an asterisk (*) in column one. The header information includes the model name and version number, the first line of the title information for the run, the list of modeling option keywords applicable to the results, the averaging period included in the file, and the number of ranked values included. The header also includes the format used for writing the data records, and column headers for the variables included in the file. The variables provided on each data record include the rank, concentration value, X and Y coordinates of the receptor location, receptor terrain elevation, hill height scale, flagpole receptor height, and the source group ID. Each RANKFILE includes results for all of the source groups for a particular averaging period. Since the RANKFILE only include one occurrence per data period, the file may not include the number of ranked values requested, especially for evaluation data bases of limited duration. The following example identifies the contents of the RANKFILE:

```
* AERMOD ( 15181): A Simple Example Problem for the AERMOD-PRIME Model                    06/09/16
* AERMET ( 15181):                                                                        17:11:08
* MODELING OPTIONS USED:  NonDFAULT CONC      FLAT      RURAL
*         RANK-FILE OF UP TO    40 TOP  3-HR VALUES FOR     1 SOURCE GROUPS
*         INCLUDES OVERALL MAXIMUM VALUES WITH DUPLICATE DATA PERIODS REMOVED
*         FORMAT: (1X,I6,1X,F13.5,1X,I8.8,2(1X,F13.5),3(1X,F7.2),2X,A8)
*  RANK  AVERAGE CONC   DATE          X             Y        ZELEV   ZHILL   ZFLAG     GRP
*_______ _____________ ________  _____________  _____________ ______  ______  ______  ________
      1     329.96009 88030112     433.01270    -250.00000    0.00    0.00    0.00  ALL
      2     278.47891 88030115     469.84631    -171.01007    0.00    0.00    0.00  ALL
      3     124.30430 88030118     433.01270    -250.00000    0.00    0.00    0.00  ALL
```

C.7 Arc-maximum values for evaluation (EVALFIL option)

The OU EVALFILE card for the AERMOD model allows the user the option of creating output files of the arc-maximum concentration values for individual sources suitable for use in model evaluation studies. The data contained in the EVALFILE output is based on the maximum value along arcs of receptors, identified using the RE EVALCART card. Receptors may be grouped on arcs based on their distance from the source, or other logical grouping. The formatted EVALFILE output includes five records of information for each selected source and each hour of meteorological data. The information provided is as follows:

1. Source ID (12 characters)
2. Date (YYMMDDHH)
3. Arc ID (eight characters)
4. Arc maximum P/Q
5. Emission rate for arc maximum (including unit conversions)
6. Crosswind integrated concentration based on true centerline concentration
7. Normalized non-dimensional crosswind integrated concentration
8. Downwind distance corresponding to arc maximum (m)
9. Effective wind speed corresponding to arc maximum (m/s)
10. Effective F_v corresponding to arc maximum (m/s)
11. Effective F_w corresponding to arc maximum (m/s)
12. F_y corresponding to arc maximum (m)
13. Effective plume height corresponding to arc maximum (m)
14. Monin-Obukhov length for current hour (m)

15. Mixing height for current hour (m)
16. Surface friction velocity for current hour (m/s)
17. Convective velocity scale for current hour if unstable (m/s) or F_z for current hour if stable
18. Buoyancy flux for current hour (m^4/s^3)
19. Momentum flux for current hour (m^4/s^2)
20. Bowen ratio for current hour
21. Plume penetration factor for current hour
22. Centerline P/Q for direct plume
23. Centerline P/Q for indirect plume
24. Centerline P/Q for penetrated plume
25. Nondimensional downwind distance
26. Plume height/mixing height ratio
27. Non-dimensional buoyancy flux
28. Source release height (m)
29. Arc centerline P/Q
30. Developmental option settings place holder (string of 10 zeroes)
31. Flow vector for current hour (degrees)
32. Effective height for stable plume reflections (m)

The following Fortran WRITE and FORMAT statements are used to write the results to the EVALFILE output:

```
          WRITE(IELUNT(ISRC),9000) SRCID(ISRC), KURDAT, ARCID(I),
     &                     ARCMAX(I), QMAX(I), CWIC, CWICN,
     &                     DXMAX(I), UOUT, SVMAX(I),
     &                     SWMAX(I), SYOUT, HEMAX(I),
     &                     OBUOUT, ZI, USTAR, PWSTAR, FB, FM,
     &                     BOWEN, PPF, CHIDML(I), CHINML(I), CHI3ML(I),
     &                     XNDIM, HEOZI, FSTAR, AHS(ISRC), ARCCL(I),
     &                     AFV, HSBLMX(I)

9000  FORMAT(1X,A12,1X,I8.8,1X,A8,4(1X,G12.6),
     &       9X,6(1X,G12.4),9X,6(1X,G12.4),
     &       9X,6(1X,G12.4),9X,4(1X,G12.4),1X,'0000000000',
     &       1X,G12.4,1X,G12.4)
```

C.8 Results by season and hour-of-day (SEASONHR option)

The SEASONHR option is used to output a file containing the average results by season and hour-of-day. The formatted data files generated by the SEASONHR option include several lines of header information, each identified with an asterisk (*) in column one. The header information includes the model name and version number, the first line of the title information for the run, the list of modeling option keywords applicable to the results, the source group included in the file, and the number of receptors. The header also includes the format used for writing the data records, and column headers for the variables included in the file. The variables provided on each data record include the X and Y coordinates of the receptor location, the average concentration value, receptor terrain elevation, hill height scale, flagpole receptor height, source group ID, number of non-calm and non-missing hours used to calculate the season-by-hour-of-day averages (the NHRS column), season index (the SEAS column with 1 for winter, 2 for spring, 3 for summer, and 4 for fall), the hour-of-day for the concentration value, and the receptor network ID. A sample from a SEASONHR output file is shown below:

```
* AERMOD ( 15181): A Simple Example Problem for the AERMOD-PRIME Model                    06/09/16
* AERMET ( 14134):                                                                        17:27:43
* MODELING OPTIONS USED:  NonDFAULT CONC      FLAT      RURAL
*         FILE OF SEASON/HOUR VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   144 RECEPTORS.
*         FORMAT: (2(1X,F13.5),1(1X,F13.8),3(1X,F7.2),2X,A8,2X,3(I4,2X),A8)
*        X             Y      AVERAGE CONC   ZELEV   ZHILL   ZFLAG    GRP     NHRS  SEAS  HOUR   NET ID
* _____________  _____________  _____________  _______  _______  _______  _________  ____  ____  ____  ________
      30.38843     172.34136   34.14568783    0.00    0.00    0.00  ALL         65     1     1  POL1
      60.77686     344.68271   39.19676801    0.00    0.00    0.00  ALL         65     1     1  POL1
      86.82409     492.40388   34.59785413    0.00    0.00    0.00  ALL         65     1     1  POL1
     173.64818     984.80775   16.14253303    0.00    0.00    0.00  ALL         65     1     1  POL1
      59.85353     164.44621   32.93762092    0.00    0.00    0.00  ALL         65     1     1  POL1
     119.70705     328.89242   41.97750583    0.00    0.00    0.00  ALL         65     1     1  POL1
```

C.9 Source group contribution for ranked averaged maximum daily values (MAXDCONT)

The OU MAXDCONT card of the AERMOD model allows the user to create output files that provide source contributions for the 24-hour PM2.5, 1-hour NO_2 and 1-hour SO_2 standards in which the design value is based on averages of ranked values across multiple years. Ranked concentrations and source contributions are based on a target source group specified by the user. The user can define the ranks to include or a range of ranks and an optional minimum threshold concentration value. The MAXDCONT output file includes several lines of header information, each identified with an asterisk (*) in column one, including: the model name and version number, the first line of the title information, the list of modeling option keywords, the highest rank specified, the averaging period, target source group, and threshold value if applicable. The header also includes the total number of receptors and source groups and the Fortran format statement used to write the data records. The variables provided on each data record include the X and Y coordinates of the receptor location, the concentration value for the target source group at the receptor location, receptor terrain elevation, hill height scale, flagpole receptor height, averaging period, the source group ID, rank, receptor network ID, and the source contribution for each source modeled. The data records are grouped by rank in ascending order. Concentrations are displayed for all receptors for the highest rank, then the next highest rank, etc. The following example is a partial MAXDCONT file with a minimum threshold value of 35 $\mu g/m^3$ was specified for ranks 1 through 50. Results for the first two ranks are displayed for four the source groups that were modeled.

* AERMOD (15181): PM-2.5 Test Case for the AERMOD Model using single met file 07/30/15

* AERMET (13350): 13:50:57

* MODELING OPTIONS USED: NonDFAULT CONC FLAT RURAL

* MAXDCONT FILE OF 1ST-HIGHEST 24-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ; ABOVE THRESH = 35.00000

* FOR A TOTAL OF 16 RECEPTORS AND 3 SOURCE GROUPS; WITH CONTRIBUTIONS FROM OTHER SOURCE GROUPS PAIRED IN TIME & SPACE

* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,A5,5X,A8,2X, 3(F13.5,2X:))

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	RANK	NET ID	CONT STACK1	CONT STACK2	CONT ALL
200.00000	0.00000	9.76902	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
500.00000	0.00000	25.61401	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
1000.00000	0.00000	26.86548	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
3000.00000	0.00000	8.85979	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
0.00000	-200.00000	20.50162	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
0.00000	-500.00000	51.65594	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	21.15838	30.49757	51.65594
0.00000	-1000.00000	52.82753	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	13.99357	38.83396	52.82753
0.00000	-3000.00000	19.91409	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
-200.00000	-0.00000	8.64428	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
-500.00000	-0.00000	14.58084	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
-1000.00000	-0.00000	11.59131	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
-3000.00000	-0.00000	12.28970	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000
-0.00000	200.00000	67.53734	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	67.53733	0.00002	67.53734
-0.00000	500.00000	67.83252	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	64.45844	3.37408	67.83252
-0.00000	1000.00000	52.28291	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	28.94476	23.33815	52.28291
-0.00000	3000.00000	29.08609	0.00	0.00	0.00	24-HR	ALL	1ST	POL1	0.00000	0.00000	0.00000

* AERMOD (15181): PM-2.5 Test Case for the AERMOD Model using single met file 07/30/15

* AERMET (13350): 13:50:57

* MODELING OPTIONS USED: NonDFAULT CONC FLAT RURAL

* MAXDCONT FILE OF 2ND-HIGHEST 24-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ; ABOVE THRESH = 35.00000

* FOR A TOTAL OF 16 RECEPTORS AND 3 SOURCE GROUPS; WITH CONTRIBUTIONS FROM OTHER SOURCE GROUPS PAIRED IN TIME & SPACE

* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,A5,5X,A8,2X, 3(F13.5,2X:))

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	RANK	NET ID	CONT STACK1	CONT STACK2	CONT ALL
200.00000	0.00000	7.91782	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
500.00000	0.00000	22.53064	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
1000.00000	0.00000	24.26451	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
3000.00000	0.00000	8.10584	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
0.00000	-200.00000	16.96505	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
0.00000	-500.00000	43.25276	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	14.36197	28.89079	43.25276
0.00000	-1000.00000	43.82672	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	10.92254	32.90417	43.82672
0.00000	-3000.00000	17.32480	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
-200.00000	-0.00000	6.77421	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
-500.00000	-0.00000	11.56687	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
-1000.00000	-0.00000	9.72229	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
-3000.00000	-0.00000	8.03098	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000
-0.00000	200.00000	51.19765	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	51.19763	0.00002	51.19765
-0.00000	500.00000	59.15581	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	57.67153	1.48428	59.15581
-0.00000	1000.00000	41.49519	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	18.49276	23.00243	41.49519
-0.00000	3000.00000	23.24160	0.00	0.00	0.00	24-HR	ALL	2ND	POL1	0.00000	0.00000	0.00000

C.10 Daily maximum 1-hour values (MAXDAILY)

The OU MAXDAILY card of the AERMOD model generates a file of daily maximum 1-hour concentrations for a specified source group, useful for analyzing the 1-hour NO_2 and SO_2 NAAQS. The MAXDAILY file includes several lines of header information, each identified with an asterisk (*) in column one, including: the model name and version number, the first line of the title information, the list of modeling option keywords, and the source group. The header also includes the total number of receptors and the Fortran format statement used to write the data records. The variables provided on each data record include the X and Y coordinates of the receptor location, the concentration value for the target source group at the receptor location, receptor terrain elevation, hill height scale, flagpole receptor height, averaging period, the source group ID, day of the year, hour, date, and receptor network ID. The following example is a sample from a MAXDAILY output file.

* AERMOD (15181): AERMOD OLM/OLMGROUP ALL Test Case, with BACKGROUND 07/30/15

* AERMET (13350): 13:50:48

* MODELING OPTIONS USED: NonDFAULT CONC FLAT OLM RURAL

* MAXDAILY FILE OF DAILY MAXIMUM 1-HR VALUES BY DAY FOR SOURCE GROUP: ALL

* FOR A TOTAL OF 16 RECEPTORS.

* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I4,2X,I3,2X,I8.8,2X,A8)

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	JDAY	HR	DATE	NET ID
100.00000	0.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
300.00000	0.00000	50.00159	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
1000.00000	0.00000	50.20117	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
3000.00000	0.00000	50.12314	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
0.00000	-100.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
0.00000	-300.00000	50.00259	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
0.00000	-1000.00000	50.22100	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
0.00000	-3000.00000	68.29389	35.00	35.00	0.00	1-HR	ALL	1	7	99010107	POL1
-100.00000	-0.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-300.00000	-0.00000	50.00258	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-1000.00000	-0.00000	50.20079	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-3000.00000	-0.00000	50.12262	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-0.00000	100.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-0.00000	300.00000	50.00159	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-0.00000	1000.00000	50.20117	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
-0.00000	3000.00000	50.12314	35.00	35.00	0.00	1-HR	ALL	1	13	99010113	POL1
100.00000	0.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
300.00000	0.00000	50.00001	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
1000.00000	0.00000	50.00008	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
3000.00000	0.00000	50.00280	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
0.00000	-100.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
0.00000	-300.00000	50.00001	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
0.00000	-1000.00000	50.00009	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
0.00000	-3000.00000	50.00285	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1
-100.00000	-0.00000	50.00000	35.00	35.00	0.00	1-HR	ALL	2	13	99010213	POL1

C.11 Maximum daily 1-hour concentration by year (MAXDYBYYR)

The OU MAXDYBYYR card of the AERMOD model generates a file with a summary of daily maximum 1-hour concentrations by year for each rank specified on the RECTABLE keyword for a specified source group. This is another output file type that is applicable to the 1-hour NO_2 and 1-hour SO_2 NAAQS. The ranks included in the MXDYBYYR file are the ranks used in the MAXDCONT postprocessing option. The MAXDYBYYR file includes several lines of header information, each identified with an asterisk (*) in column one, including: the model name and version number, the first line of the title information, the list of modeling option keywords, and the source group. The header also includes the total number of receptors and the Fortran format statement used to write the data records. The variables provided on each data record include the X and Y coordinates of the receptor location, the concentration value for the target source group at the receptor location, receptor terrain elevation, hill height scale, flagpole receptor height, rank, the source group ID, day of the year, hour, date, and receptor network ID. The data records are grouped by rank in ascending order. Concentrations are displayed for all receptors for the highest rank, then the next highest rank, etc. The following example is a sample from a MAXDAILY output file for which ranks 4, 8 12, and 50 were specified on the MAXDCONT keyword.

* AERMOD (15181): AERMOD OLM/OLMGROUP ALL Test Case, with BACKGROUND 07/30/15

* AERMET (13350): 13:50:48

* MODELING OPTIONS USED: NonDFAULT CONC FLAT OLM RURAL

* MXDYBYYR FILE OF RANKED DAILY MAXIMUM 1-HR VALUES BY YEAR FOR SOURCE GROUP: ALL

* FOR A TOTAL OF 16 RECEPTORS.

* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I4,2X,I3,2X,I8.8,2X,A8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	RANK	GRP	JDAY	HR	DATE	NET ID
100.00000	0.00000	76.74205	35.00	35.00	0.00	4TH	ALL	236	14	99082414	POL1
300.00000	0.00000	174.62886	35.00	35.00	0.00	4TH	ALL	136	14	99051614	POL1
1000.00000	0.00000	146.90191	35.00	35.00	0.00	4TH	ALL	147	14	99052714	POL1
3000.00000	0.00000	91.97719	35.00	35.00	0.00	4TH	ALL	104	13	99041413	POL1
0.00000	-100.00000	99.52361	35.00	35.00	0.00	4TH	ALL	252	15	99090915	POL1
0.00000	-300.00000	171.76063	35.00	35.00	0.00	4TH	ALL	107	11	99041711	POL1
0.00000	-1000.00000	152.93801	35.00	35.00	0.00	4TH	ALL	65	13	99030613	POL1
0.00000	-3000.00000	111.73167	35.00	35.00	0.00	4TH	ALL	293	16	99102016	POL1
-100.00000	-0.00000	91.59388	35.00	35.00	0.00	4TH	ALL	62	14	99030314	POL1
-300.00000	-0.00000	154.65265	35.00	35.00	0.00	4TH	ALL	62	15	99030315	POL1
-1000.00000	-0.00000	131.73020	35.00	35.00	0.00	4TH	ALL	360	13	99122613	POL1
-3000.00000	-0.00000	86.11262	35.00	35.00	0.00	4TH	ALL	312	16	99110816	POL1
-0.00000	100.00000	80.06381	35.00	35.00	0.00	4TH	ALL	203	8	99072208	POL1
-0.00000	300.00000	166.86210	35.00	35.00	0.00	4TH	ALL	139	16	99051916	POL1
-0.00000	1000.00000	156.54681	35.00	35.00	0.00	4TH	ALL	110	15	99042015	POL1
-0.00000	3000.00000	102.04635	35.00	35.00	0.00	4TH	ALL	23	15	99012315	POL1
100.00000	0.00000	65.46639	35.00	35.00	0.00	8TH	ALL	250	17	99090717	POL1
300.00000	0.00000	164.95260	35.00	35.00	0.00	8TH	ALL	147	14	99052714	POL1
1000.00000	0.00000	137.02622	35.00	35.00	0.00	8TH	ALL	145	16	99052516	POL1
3000.00000	0.00000	79.71649	35.00	35.00	0.00	8TH	ALL	102	19	99041219	POL1
0.00000	-100.00000	90.20572	35.00	35.00	0.00	8TH	ALL	175	9	99062409	POL1
0.00000	-300.00000	167.99537	35.00	35.00	0.00	8TH	ALL	81	14	99032214	POL1
0.00000	-1000.00000	147.76997	35.00	35.00	0.00	8TH	ALL	107	18	99041718	POL1
0.00000	-3000.00000	108.50074	35.00	35.00	0.00	8TH	ALL	272	17	99092917	POL1
-100.00000	-0.00000	86.21569	35.00	35.00	0.00	8TH	ALL	251	12	99090812	POL1
-300.00000	-0.00000	147.43347	35.00	35.00	0.00	8TH	ALL	63	13	99030413	POL1
-1000.00000	-0.00000	113.23071	35.00	35.00	0.00	8TH	ALL	144	8	99052408	POL1
-3000.00000	-0.00000	80.46493	35.00	35.00	0.00	8TH	ALL	251	12	99090812	POL1
-0.00000	100.00000	62.77470	35.00	35.00	0.00	8TH	ALL	213	15	99080115	POL1
-0.00000	300.00000	164.12251	35.00	35.00	0.00	8TH	ALL	212	12	99073112	POL1
-0.00000	1000.00000	147.60345	35.00	35.00	0.00	8TH	ALL	84	15	99032515	POL1
-0.00000	3000.00000	92.37244	35.00	35.00	0.00	8TH	ALL	264	19	99092119	POL1

100.00000	0.00000	63.04954	35.00	35.00	0.00	12TH	ALL	213	15	99080115	POL1
300.00000	0.00000	158.05318	35.00	35.00	0.00	12TH	ALL	182	15	99070115	POL1
1000.00000	0.00000	132.45210	35.00	35.00	0.00	12TH	ALL	123	15	99050315	POL1
3000.00000	0.00000	75.06520	35.00	35.00	0.00	12TH	ALL	56	14	99022514	POL1
0.00000	-100.00000	81.79820	35.00	35.00	0.00	12TH	ALL	230	14	99081814	POL1
0.00000	-300.00000	163.58691	35.00	35.00	0.00	12TH	ALL	150	13	99053013	POL1
0.00000	-1000.00000	143.66477	35.00	35.00	0.00	12TH	ALL	63	11	99030411	POL1
0.00000	-3000.00000	103.84510	35.00	35.00	0.00	12TH	ALL	359	10	99122510	POL1
-100.00000	-0.00000	66.87945	35.00	35.00	0.00	12TH	ALL	210	13	99072913	POL1
-300.00000	-0.00000	134.34226	35.00	35.00	0.00	12TH	ALL	192	11	99071111	POL1
-1000.00000	-0.00000	112.42027	35.00	35.00	0.00	12TH	ALL	90	10	99033110	POL1
-3000.00000	-0.00000	69.14045	35.00	35.00	0.00	12TH	ALL	70	12	99031112	POL1
-0.00000	100.00000	57.29793	35.00	35.00	0.00	12TH	ALL	80	13	99032113	POL1
-0.00000	300.00000	161.46688	35.00	35.00	0.00	12TH	ALL	46	12	99021512	POL1
-0.00000	1000.00000	141.04997	35.00	35.00	0.00	12TH	ALL	165	14	99061414	POL1
-0.00000	3000.00000	89.51271	35.00	35.00	0.00	12TH	ALL	109	19	99041919	POL1
100.00000	0.00000	51.04396	35.00	35.00	0.00	50TH	ALL	132	13	99051213	POL1
300.00000	0.00000	126.14782	35.00	35.00	0.00	50TH	ALL	175	15	99062415	POL1
1000.00000	0.00000	105.50261	35.00	35.00	0.00	50TH	ALL	267	17	99092417	POL1
3000.00000	0.00000	56.90880	35.00	35.00	0.00	50TH	ALL	236	14	99082414	POL1
0.00000	-100.00000	56.69467	35.00	35.00	0.00	50TH	ALL	287	13	99101413	POL1
0.00000	-300.00000	137.18380	35.00	35.00	0.00	50TH	ALL	204	13	99072313	POL1
0.00000	-1000.00000	120.65746	35.00	35.00	0.00	50TH	ALL	268	13	99092513	POL1
0.00000	-3000.00000	85.42463	35.00	35.00	0.00	50TH	ALL	156	1	99060501	POL1
-100.00000	-0.00000	51.20790	35.00	35.00	0.00	50TH	ALL	169	14	99061814	POL1
-300.00000	-0.00000	72.61516	35.00	35.00	0.00	50TH	ALL	32	13	99020113	POL1
-1000.00000	-0.00000	72.14476	35.00	35.00	0.00	50TH	ALL	270	10	99092710	POL1
-3000.00000	-0.00000	52.15505	35.00	35.00	0.00	50TH	ALL	265	13	99092213	POL1
-0.00000	100.00000	50.39602	35.00	35.00	0.00	50TH	ALL	180	14	99062914	POL1
-0.00000	300.00000	125.74471	35.00	35.00	0.00	50TH	ALL	247	14	99090414	POL1
-0.00000	1000.00000	117.67662	35.00	35.00	0.00	50TH	ALL	143	1	99052301	POL1
-0.00000	3000.00000	70.84420	35.00	35.00	0.00	50TH	ALL	127	2	99050702	POL1

APPENDIX D. Overview of AERMOD revisions in version 24142

Model Change Bulletin (MCB) 18
AERMOD version 24142 (May 21, 2024)

Changes are listed by type and with each change are the affected pollutants and source types:

Bug Fixes

Item	Modification	Pollutants	Source Types
1	Corrected a bug in subroutine PLUME_CONCENTRATION that was causing mixing height to be potentially reset each time the subroutine was called.	ALL	RLINE, RLINEXT
2	Corrected 2-digit year conversion for year 2000 when meteorological data crosses from 1999 to 2000.	ALL	ALL
3	Corrected bug in which EMISUNIT keyword was not working with the BUOYLINE source type. EMISUNIT keyword was ignored.	ALL	BUOYLINE
4	GRSM PLUMESIZES and DoGRSMChem code modified to prevent not-a-number (NaNs) concentration values for ground releases from volume, area, and openpit source types.	NO2	ALL

Enhancements

Item	Modification	Pollutants	Source Types
1	Updated the warning message for 24-hour average to state the date and time information when less than 18 hours of data are used in the average.	ALL	ALL
2	Add warning messages for 3- and 8-hour averages. Warning issued if less than 6 hours used to compute 8-hour average or less than 3 hours used to compute 3-hour average.	ALL	ALL

Formulation updates – Regulatory

Item	Modification	Pollutants	Source Types
1	Remove BETA flag restriction for RLINE source type. RLINE promulgated as a regulatory option in 2024 update to the *Guideline* (40 CFR Part51, Appendix W).	ALL	RLINE
2	Remove BETA flag restriction for GRSM NO2 conversion option. GRSM promulgated as a regulatory option in 2024 update to the *Guideline* (40 CFR Part51, Appendix W).	ALL	ALL
3	Remove BETA flag restriction for COARE processing of overwater meteorology in AERMET. COARE in AERMET promulgated as a regulatory option in 2024 update to the *Guideline* (40 CFR Part51, Appendix W).	ALL	ALL

Formulation updates – BETA

None

Formulation updates – ALPHA

None

APPENDIX E. Glossary

AERMAP -- AMS/EPA Regulatory Model (AERMOD) Terrain Preprocessor. AERMET -- AMS/EPA Regulatory Model (AERMOD) Meteorological Preprocessor. AERMOD -- AMS/EPA Regulatory Model.

ASCII -- American Standard Code for Information Interchange, a standard set of codes used by computers and communication devices. Sometimes used to refer to files containing only such standard codes, without any application-specific codes such as might be present in a document file from a word processor program.

Card -- A single input record within the input control file.

CO -- **CO**ntrol, the 2-character pathway ID for input control file commands used to specify overall job control options.

CO Pathway -- Collective term for the group of input control file commands used to specify the overall job control options, including titles, dispersion options, terrain options, etc.

Directory -- A logical subdivision of a disk used to organize files stored on a disk.

Dispersion Model -- A group of related mathematical algorithms used to estimate (model) the dispersion of pollutants in the atmosphere due to transport by the mean (average) wind and small scale turbulence.

DOS -- Disk Operating System. Software that manages applications software and provides an interface between applications and the system hardware components, such as the disk drive, terminal, and keyboard.

Echo of inputs -- By default, the AERMOD model will echo the input control file commands, character by character, into the main printed output file. This serves as a record of the inputs as originally entered by the user, without any rounding of the numerical values. The echoing can be suppressed with the NO ECHO option.

EOF -- End-of-File.

EPA -- U. S. Environmental Protection Agency.

Error message -- A message written by the model to the error/message file whenever an error is encountered that will inhibit data processing.

Error/Message File -- A file used for storage of messages written by the model.

EV -- **EV**ent, the 2-character pathway ID for input control file commands used to specify event inputs for the Short-Term EVENT model.

EV Pathway -- Collective term for the group of input control file commands used to specify the event periods and location for the Short-Term EVENT model.

EVENT Processing -- An option in the AERMOD model specifically designed to provide source contribution (culpability) information for specific events of interest, e.g., design values or threshold violations.

Extended Memory -- Additional memory on 80386 and 80486 PCs that allows programs to address memory beyond the 640 KB limit of DOS. Special software is required to utilize this extra memory.

Fatal Error -- Any error which inhibits further processing of data by the model. Model continues to read input images to check for errors during setup and will continue to read input meteorological data during calculation phase.

Flow Vector -- The direction towards which the wind is blowing. GMT
-- Greenwich Mean Time, the time at the 0° meridian.
Informational Message -- Any message written to the error/message file that may be of interest to the user, but which have no direct bearing on the validity of the results, and do not affect processing.

Input Image -- User supplied input, read through the default input device, controlling the model options and data input. A single card or record from the input control file. Each input image consists of a pathway ID (may be blank indicating a continuation of the previous pathway), a keyword (may also be blank for continuation of a keyword), and possibly one or more parameter fields.

Input control file -- The basic input file to the AERMOD model controlling the modeling options, source data, receptor locations, meteorological data file specifications, and output options. Consists of a series of input images grouped into functional pathways.

Julian Day -- The number of the day in the year, i.e., Julian Day = 1 for January 1 and 365 (or 366 for leap years) for December 31.

KB -- Kilobyte, 1000 bytes, a unit of storage on a disk

Keyword -- The 8-character codes that follow immediately after the pathway ID in the input run stream data.

LST -- Local Standard Time.

Math Co-processor -- A computer chip used to speed up floating point arithmetic in a personal computer.

MB -- Megabyte, one million bytes, a unit of storage on a disk

ME -- **ME**teorology, the 2-character pathway ID for input control file commands used to specify meteorological data options

ME Pathway -- Collective term for the group of input control file commands used to specify the input meteorological data file and other meteorological variables, including the period to process from the meteorological file for the AERMOD model.

Meteorological Data File -- Any file containing meteorological data, whether it be mixing heights, surface observations or on-site data.

Missing Value -- Alphanumeric character(s) that represent breaks in the temporal or spatial record of an atmospheric variable.

Mixing Height -- The depth through which atmospheric pollutants are typically mixed by dispersive processes.

NCDC -- National Climatic Data Center, the federal agency responsible for distribution of the National Weather Service upper air, mixing height and surface observation data.

NO ECHO -- Option to suppress echoing of the control file commands to the main printed output file.

NWS -- National Weather Service.

On-site Data -- Data collected from a meteorological measurement program operated in the vicinity of the site to be modeled in the dispersion analysis.

OU -- **OU**tput, the 2-character pathway ID for input control file commands used to specify output options.

OU Pathway -- Collective term for the group of input control file commands used to specify the output options for a particular run.

Overlay -- One or more subprograms that reside on disk and are loaded into memory only when needed.

Pasquill Stability Categories -- A classification of the dispersive capacity of the atmosphere, originally defined using surface wind speed, solar insolation (daytime) and cloudiness (nighttime). They have since been reinterpreted using various other meteorological variables.

Pathway -- One of the six major functional divisions in the input control file for the AERMOD model. These are **CO**ntrol, **SO**urce, **RE**ceptor, **ME**teorology, **EV**ent, and **OU**tput (see these entries in this section for a description).

PC -- Personal Computer, a wide-ranging class of computers designed for personal use, typically small enough to fit on a desktop.

Quality Assessment -- Judgment of the quality of the data.

Quality Assessment Check -- Determining if the reported value of a variable is reasonable (see also Range Check).

Quality Assessment Message -- Message written to the error/message file when a data value is determined to be suspect.

Quality Assessment Violation -- Occurrences when data values are determined to be suspect (see also Range Check Violation).

RAM -- Random Access Memory on a personal computer.

RAMMET -- Meteorological processor program used for regulatory applications capable of processing twice-daily mixing heights and hourly surface weather observations for use in dispersion models such as AERMOD, CRSTER, MPTER and RAM.

Range Check -- Determining if a variable falls within predefined upper and lower bounds.

Range Check Violation -- Determination that the value of a variable is outside range defined by upper and lower bound values (see also Quality Assessment Violation).

RE -- **RE**ceptor, the 2-character pathway ID for input control file commands used to specify receptor locations.

RE Pathway -- Collective term for the group of input control file commands used to specify the receptor locations for a particular run.

Regulatory Applications -- Dispersion modeling involving regulatory decision-making as described in the Guideline on Air Quality Models, which is published as Appendix W of 40 CFR Part 51 (as revised).

Regulatory Model -- A dispersion model that has been approved for use by the regulatory offices of the EPA, specifically one that is included in Appendix A of the Guideline on Air Quality Models, (as revised), such as the AERMOD model.

R-LINE – Research LINE-source dispersion model for near surface releases.

Control file -- Collectively, all input images required to process input options and input data for the AERMOD model.

SCRAM -- Support Center for Regulatory Air Models - part of EPA's website on the internet, used by EPA for disseminating air quality dispersion models, modeling guidance, and related information.

Secondary Keyword -- A descriptive alphabetical keyword used as a parameter for one of the main control file keywords to specify a particular option.

SO -- **SO**urce, the 2-character pathway ID for input control file commands used to specify input source parameters and source groups.

SO Pathway -- Collective term for the group of input control file commands used to specify the source input parameters and source group information.

Station Identification -- An integer or character string used to uniquely identify a station or site as provided in the upper air, mixing height, and surface weather data formats available from NCDC. There are no standard station numbers for on-site data or card image/screening data, and the user may include any integer string

Subdirectory -- A directory below the root, or highest level, directory or another subdirectory, used for organization of files on a storage medium such as a PC hard disk.

Surface Weather Observations -- A collection of atmospheric data on the state of the atmosphere as observed from the earth's surface. In the U.S. the National Weather Service collect these data on a regular basis at selected locations.

Surface Roughness Length -- Height at which the wind speed extrapolated from a near-surface wind speed profile becomes zero.

Syntax -- The order, structure and arrangement of the inputs that make of the input control file, specifically, the rules governing the placement of the various input elements including pathway IDs, keywords, and parameters.

Unformatted File -- A file written without the use of a FORTRAN FORMAT statement, sometimes referred to as a binary file.

Upper Air Data (or soundings) -- Meteorological data obtained from balloon- borne instrumentation that provides information on pressure, temperature, humidity, and wind away from the surface of the earth.

Vertical Potential Temperature Gradient -- The change of potential temperature with height, used in modeling the plume rise through a stable layer, and indicates the strength of the stable temperature inversion. A positive value means that potential temperature increases with height above ground and indicates a stable atmosphere.

Warning Message -- A message written by the model to the error/message file whenever a problem arises that <u>may</u> reflect an erroneous condition but does not inhibit further processing.

United States Environmental Protection Agency	Office of Air Quality Planning and Standards Air Quality Assessment Division Research Triangle Park, NC	Publication No. EPA-454/B-24-007 November 2024

Coastal Barrier Resources Act

Image Details

We administer the Coastal Barrier Resources Act (CBRA), which saves taxpayer dollars and encourages the conservation of storm-prone and dynamic coastal barriers by withdrawing the availability of federal funding and financial assistance within a designated set of units known as the John H. Chafee Coastal Barrier Resources System (CBRS). The CBRS includes 3.8 million acres along the Atlantic, Gulf of America, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts.

What We Do

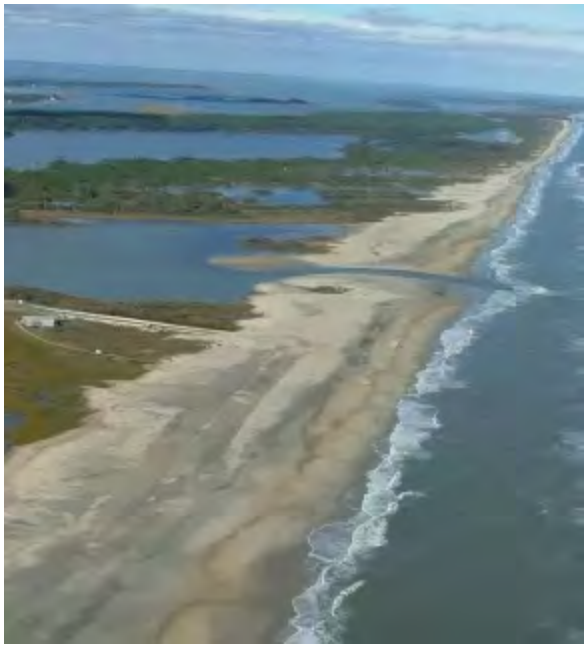


Image Details

Our Services

The Secretary of the Interior, through the U.S. Fish and Wildlife Service (Service), is responsible for maintaining the official maps of the CBRS and making recommendations to Congress for appropriate changes to the boundaries; consulting with other federal agencies regarding federally funded projects proposed within the CBRS; and working with property owners, project proponents, and other stakeholders to determine whether a specific property or project site is located within the CBRS.

Our Projects and Initiatives

The Service is committed to ensuring accurate and user-friendly maps depicting the CBRS. Through a series of mapping projects, we continue to make progress in modernizing maps for the CBRS using digital technology. These efforts significantly improve public access to information, increase efficiency for infrastructure project planning, and increase accuracy and timeliness in determining whether individual properties are located with the CBRS. View our **STORY MAP** to learn more.

Our Laws and Regulations

CBRA and its amendments are administered by the Service and affect all federal agencies that spend funds or provide financial assistance within the designated CBRS units. CBRA is a free-market approach to conservation that does not prohibit or regulate development conducted with non-federal funds.

Image Details

MORE ABOUT WHAT WE DO

The Bolstering Ecosystems Against Coastal Harm Act or BEACH Act (Pub. L. 118-117), enacted on November 25, 2024, requires all affected federal agencies to revise or issue regulations and guidance to ensure compliance with CBRA for their federally funded projects and financial assistance.

Latest Stories and Topics

STORIES

Coastal Barrier Resources System 5-Year Review Map Adoption

The Service published a notice in the Federal Register on December 19, 2024, to announce the findings of our 5-year review and availability of final revised maps for 89 John H. Chafee Coastal Barrier Resources System (CBRS) units in Maine, Great Lakes region of New

Coastal Barrier Resources System Expands under Reauthorization

The bipartisan Bolstering Ecosystems Against Coastal Harm Act (BEACH Act), enacted on November 25, 2024, reauthorizes and makes the most significant changes to CBRA since 1990.

Nov 26, 2024

Science and Technology

Studies Examine CBRA's Effectiveness in Saving Money and Reducing Development

Studies find that CBRA has been highly effective in achieving its objectives over the past 40 years.

Aug 28, 2024

York, Georgia, Florida, and...

Dec 18, 2024

1 2 3 4 5 6

VIEW ALL NEWS

Our Library

Image Details

Whether you are looking for additional information about the Coastal Barrier Resources System, our current mapping projects, or official maps, you can find it here in our library.

Official Coastal Barrier Resources System Maps

The Coastal Barrier Resources Act (CBRA) of 1982 and subsequent amendments established the John H. Chafee Coastal Barrier Resources System (CBRS). The CBRS consists of relatively undeveloped coastal barriers and other areas located the Atlantic, Gulf of America, Great Lakes, U.S. Virgin Islands

barriers and other areas located the Atlantic, Gulf of America, Great Lakes, U.S. Virgin Islands,...

Library Collection

25 Items

Service Sends Coastal Barrier Resources System Report to Congress with Updated Maps for the North Atlantic Coast

The U.S. Fish and Wildlife Service has submitted to Congress its Report to Congress: John H. Chafee Coastal Barrier Resources System Hurricane Sandy Remapping Project. The report includes revised maps for 438 Coastal Barrier Resources System (CBRS) units in the nine states most affected by...

Press Release

Apr 6, 2022

Report to Congress: John H. Chafee Coastal Barrier Resources System Hurricane Sandy Remapping Project

In 2014, the U.S. Fish and Wildlife Service (Service) initiated a project to modernize the maps of the Coastal Barrier Resources System (CBRS) units in the nine states along the North Atlantic coast most affected by Hurricane Sandy: Connecticut, Delaware, Maryland, Massachusetts, New Hampshire,...

PDF

Apr 5, 2022

Coastal Barrier Resources Act Project Consultation

This library collection includes resources and information related to Coastal Barrier Resources Act project consultations, as well as guidance for shoreline stabilization, disaster assistance, and property buyouts.

Library Collection

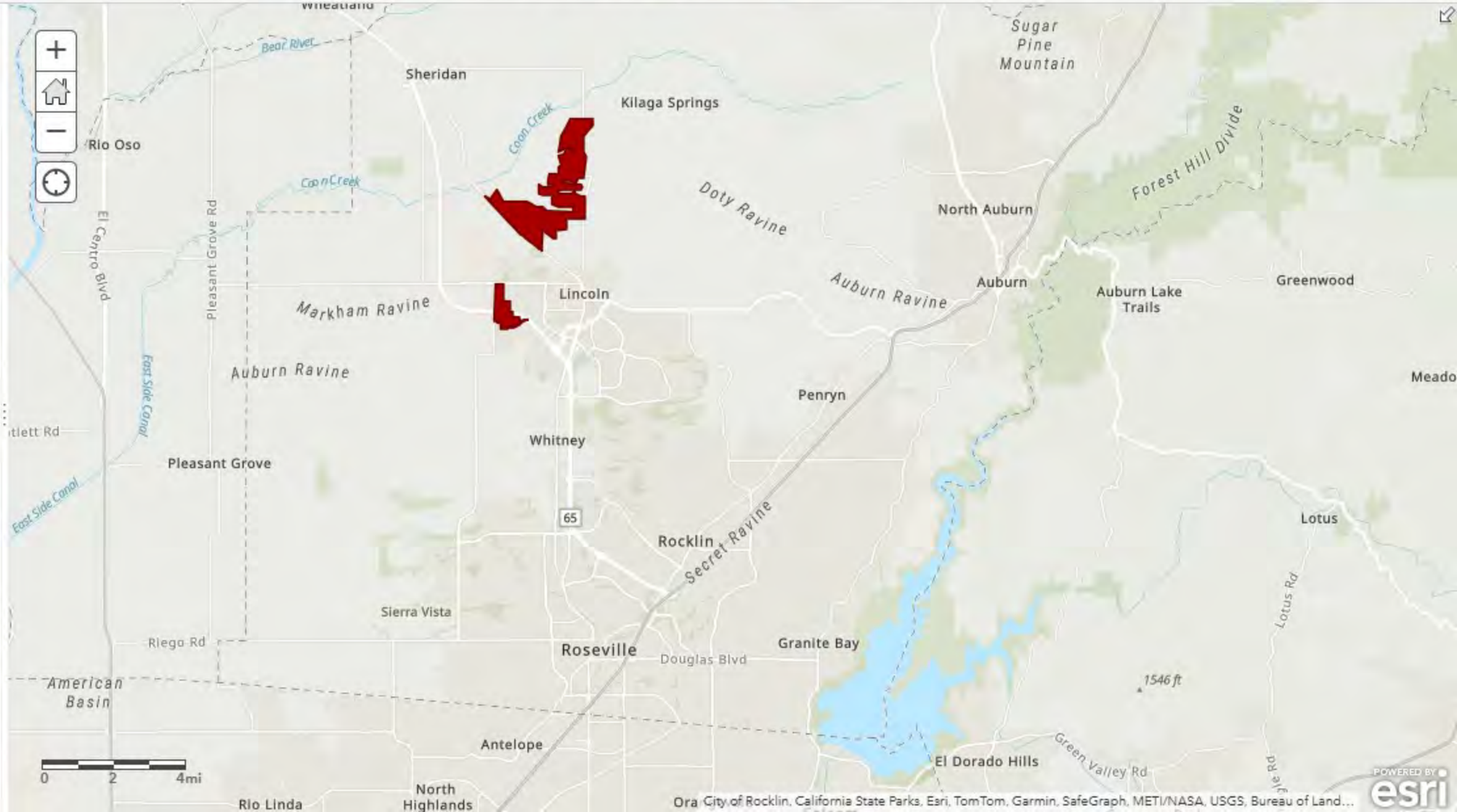
14 Items

VIEW OUR LIBRARY

Legend

Final Polygon Features

Proposed Polygon Features



IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Placer County, California

NOT FOR CONSULTATION

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

NOT FOR CONSULTATION

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
Western Spadefoot Spea hammondii No critical habitat has been designated for this species.	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

NOT FOR CONSULTATION

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/2246

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts

NOT FOR CONSULTATION

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

NOT FOR CONSULTATION

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

NOT FOR CONSULTATION

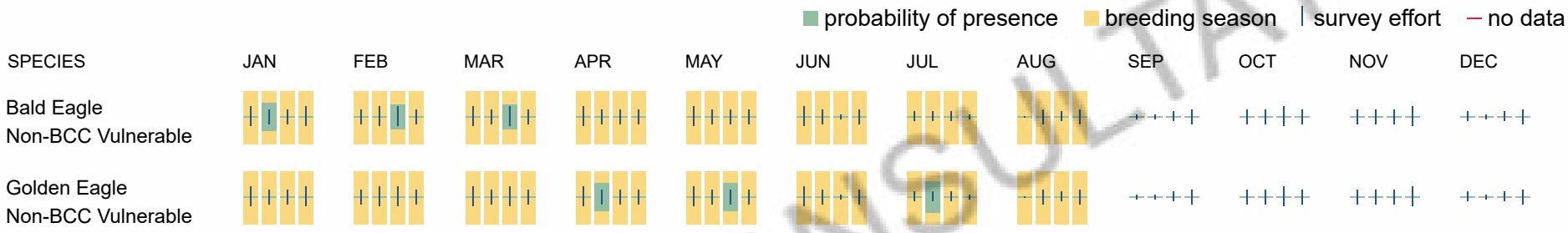
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report

NOT FOR CONSULTATION

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

NOT FOR CONSULTATION

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

NOT FOR CONSULTATION

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31

NOT FOR CONSULTATION

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

https://ecos.fws.gov/ecp/species/3631

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

https://ecos.fws.gov/ecp/species/9410

NOT FOR CONSULTATION

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Screech-owl Megascops kennicottii cardonensis — Breeds Mar 1 to Jun 30

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Willet Tringa semipalmata — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

NOT FOR CONSULTATION

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

NOT FOR CONSULTATION

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

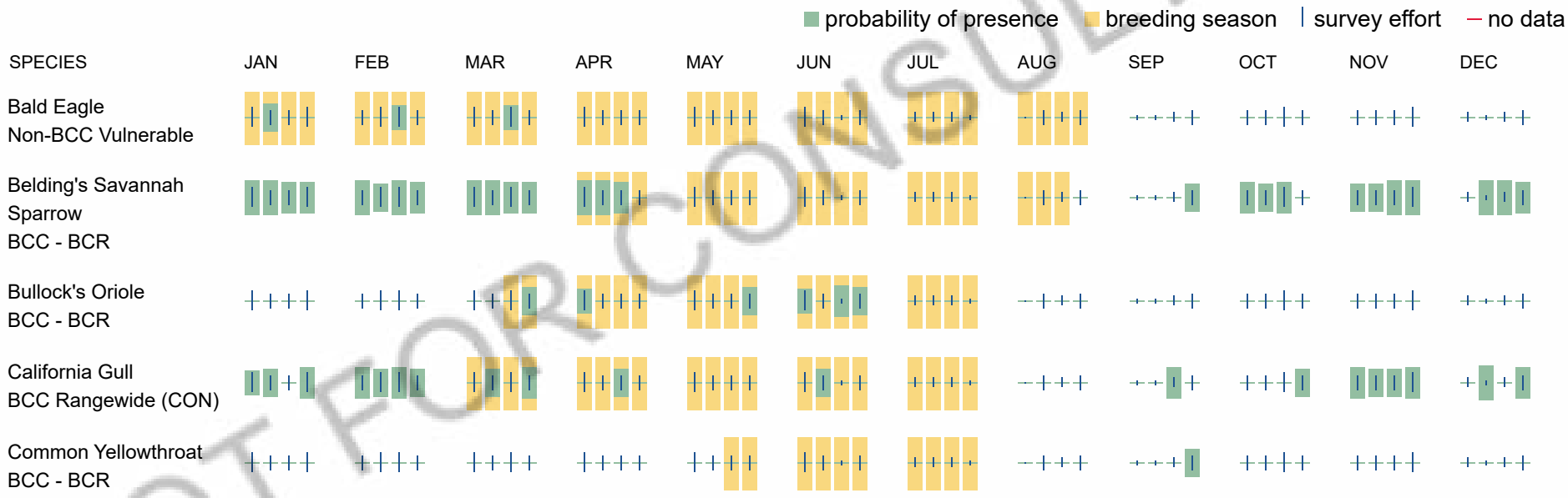
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

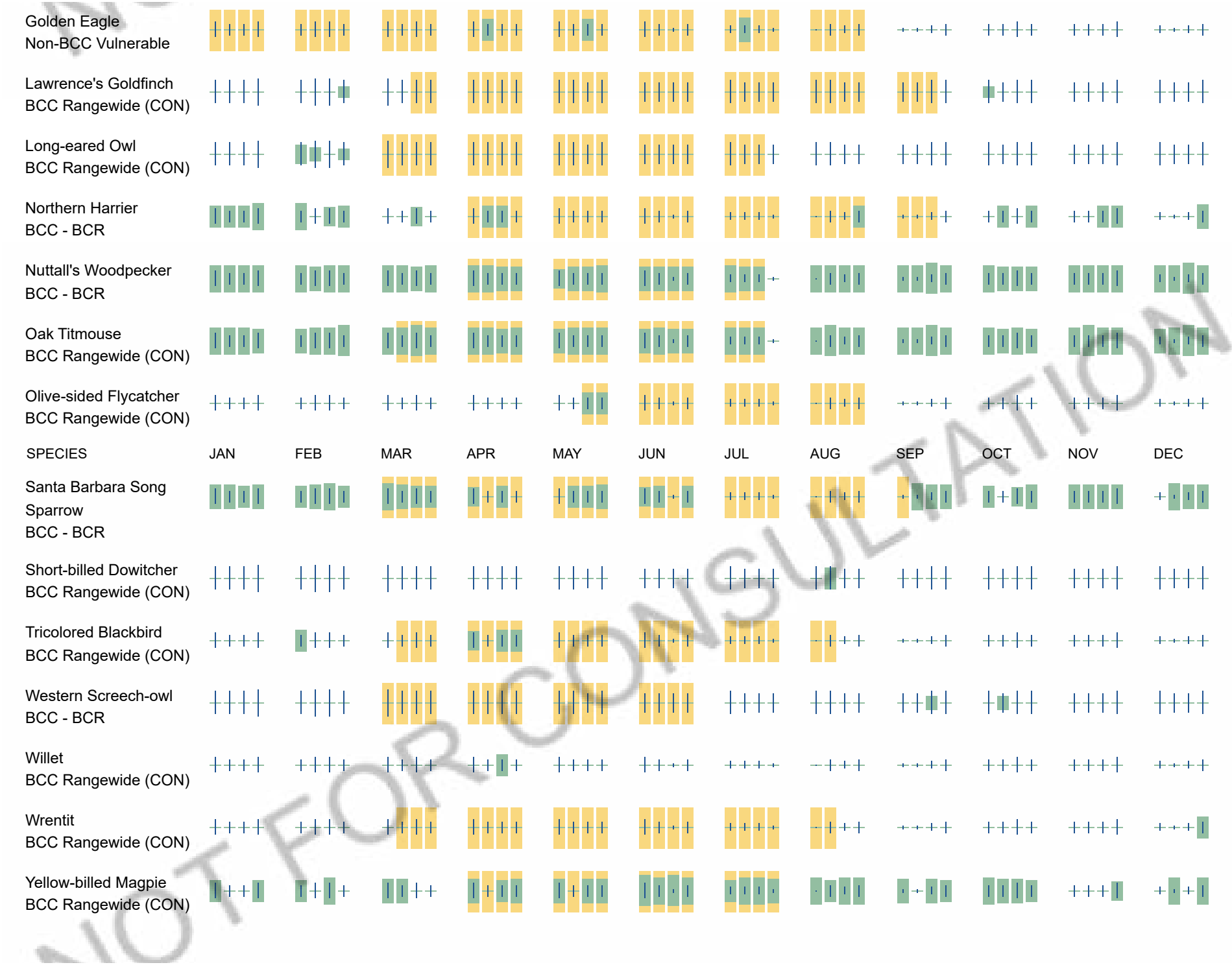
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION



NOT FOR CONSULTATION

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

NOT FOR CONSULTATION

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

NOT FOR CONSULTATION

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

NOT FOR CONSULTATION

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

Wildlife refuges and fish hatcheries

Refuge and fish hatchery information is not available at this time

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

NOT FOR CONSULTATION

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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U.S. Fish and Wildlife Service
National Wetlands Inventory

University Avenue Apartments

August 12, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

History of the WPWMA

A reliable community resource

Western Placer Waste Management Authority (WPMWA) is a regional agency established in 1978 through a joint exercise of powers agreement between Placer County and the cities of Lincoln, Rocklin, and Roseville (Member Agencies) to own and operate a regional recycling facility and sanitary landfill.

The WPWMA's mission is to create solutions and transform waste into a resource for a sustainable environment and prosperous economy.

Western Placer Waste Management Authority – leading Placer County into the future

Faced with population growth, strict government recycling mandates, and the increased amount of waste entering our landfill each year, the WPWMA is exploring innovative solutions to our challenges. These innovations include compatible technologies, renewable energy and fuel production, partnerships with local universities to promote research and development, and the discovery of other ways to reduce the waste stream. Solid waste management can be an economic stimulator that helps all of us in Placer County live more sustainably.

Challenges of a growing community in a sustainable world

Challenges of a growing community in a sustainable world

Population

Placer County's distinction of being the second-fastest-growing county in California is undoubtedly warranted. By 2050, the County of Placer General Plan projects an increase in the county's overall population to a total of 750,000 residents, almost doubling the number of current residents. The WPWMA's solid waste management capacity will need to increase to support the demands of a growing and vibrant regional economy.

Global Recycling Markets

Historically, the export of recyclable materials has been a critical component of all waste management organizations. Changes to international policies restricting imports of recyclable materials and the declining global plastic and paper scrap market continue to pose significant challenges. The WPWMA seeks solutions through public-private partnerships to foster the development of local markets for our recyclable materials.

California's Legislative Environment

Increasingly stringent state legislation to reduce greenhouse gas emissions now mandates a 75% reduction in the amount of organics disposed of in landfills. SB 1383 legislation requires every jurisdiction to ensure systems are in place to recover and recycle organic materials. Check out our regulations page for more information.

The Future of Waste Management in Placer County

How we manage our waste is crucial to the economic development and continued vitality of Placer County. That's why the WPWMA is seriously committed to developing innovative solutions to waste management through community engagement, public-private partnerships, and establish well-planned facility infrastructure.

Renewable Placer: Waste Action Plan

The Waste Action Plan identifies the changes needed to the WPWMA's campus and operations to ensure we can support the future solid waste management and recycling needs of its rapidly growing communities. We are expanding our operational capacity including composting and construction & demolition operations while maintaining public safety and reducing facility traffic congestion and customer wait times. The expansion includes the designation of the WPWMA's eastern property for compatible manufacturing and technology to jumpstart a local circular economy and the western property for future landfill development. The Materials Recovery Facility welcomes a new operator and a dramatic $120 million in improvements to divert more food waste and recyclables. Learn more on our Renewable Placer page.

Public-Private Partnerships – Finding value in the waste stream

The WPWMA is shifting the historical dynamic of linear solid waste management — take, make and dispose of — to a new model circular resource management, where old products become new products. In short, we are searching for real value in the waste stream of Placer County, and we are collaborating with partners to expedite that commitment.

Working with us to find and mentor new industries and entrepreneurial technologies is California State University Sacramento's Carlsen Center for Innovation & Entrepreneurship. The Carlsen Center is a regional hub providing entrepreneurial education, community, and support for startup founders of all backgrounds to explore and launch their businesses. This collaboration will generate innovations and help us jumpstart a local circular economy.

To that end, the WPWMA is sponsoring The Circular Economy Innovation Competition to unearth innovative ideas, technologies, and startups in the circular economy and waste space and offer the opportunity to compete for $20,000 at an in-person pitch event.

The 2025 Circular Economy Innovation Competition is now accepting applications. Submit your innovation using this online submission form by February 21, 2025.

The WPWMA's ambitious plans contribute to our goal of enhancing investment in innovation.