

Executive Summary

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Study Process

The intent of the North Rocklin Traffic Study is to pose a variety of transportation planning options for community consideration and evaluate the ability, as well as desirability, of those options to accommodate traffic demands at buildout of the City. The study will evaluate options for the study area north of I-80 that include new roadway alignments, changes in intersection design, street widenings and changes to the City's land use plan. The six month study (which began in October, 1992 and will be completed in April, 1993) includes a Community Involvement Program with community meetings at three key points in the study process. The comments and questions from the public at these meeting are fully documented in this report.

Future Growth

Rocklin's population could increase from about 23,000 today to about 70,000 at buildout. The number of dwelling units in Rocklin is expected to increase from about 8,600 in 1992 to about 18,900 in 2010, or about 70 percent of the 27,800 that could be accommodated at buildout. However, for non-residential uses (retail, office and industrial uses), substantially less of the buildout development potential would be absorbed by 2010. Only about one-quarter of the industrial potential and about 40 percent of the office and retail space would likely be developed by 2010. At the average absorption pace estimated by 2010, all of the office space could be absorbed in 45 years, the retail space in 56 years and the industrial space in 134 years. Buildout of Rocklin's residential development potential fits within a more reasonable planning horizon of 34 years.

Problem Identification - City of Rocklin Buildout

Conditions under full buildout of the City of Rocklin have been used to demonstrate future traffic problems and needs, as well as to serve as a benchmark for the comparison of alternative projects. This process was used to determine what would happen in the North Rocklin area if both the land uses allowed under the General Plan are fully developed and the roadway improvements identified in the Circulation Element of the General Plan are fully implemented. The analysis of buildout of the City of Rocklin also takes into account consideration of on-going growth in the surrounding areas and region based on estimates from regional planning agencies.

The critical future traffic problems in North Rocklin can be summarized as follows:

- The worst traffic congestion under buildout of the City would occur near the Rocklin Road/I-80 interchange, with LOS "F" conditions occurring on the freeway ramps and along Rocklin Road and Granite Drive for several hours each day.

- Pacific Street between Sunset Boulevard and Del Mar Avenue (a 4 lane roadway under the Circulation Element of the General Plan) would also experience unacceptable traffic operations at buildout.
- The City's level of service policy would not be achieved at a total of 15 major intersections in North Rocklin.
- Future development in North Rocklin would increase traffic volumes on some collector roadways with residential frontage; some receiving minor increases and other significant increases.

Definition of Alternatives

To alleviate the unacceptable levels of service identified under the buildout of Rocklin's General Plan, a number of alternative projects were developed. Each alternative improvement by itself will generally affect traffic conditions in only a portion of North Rocklin. To facilitate the evaluation of these projects, North Rocklin has been divided into several traffic "issue areas", as shown in Figure E-1.

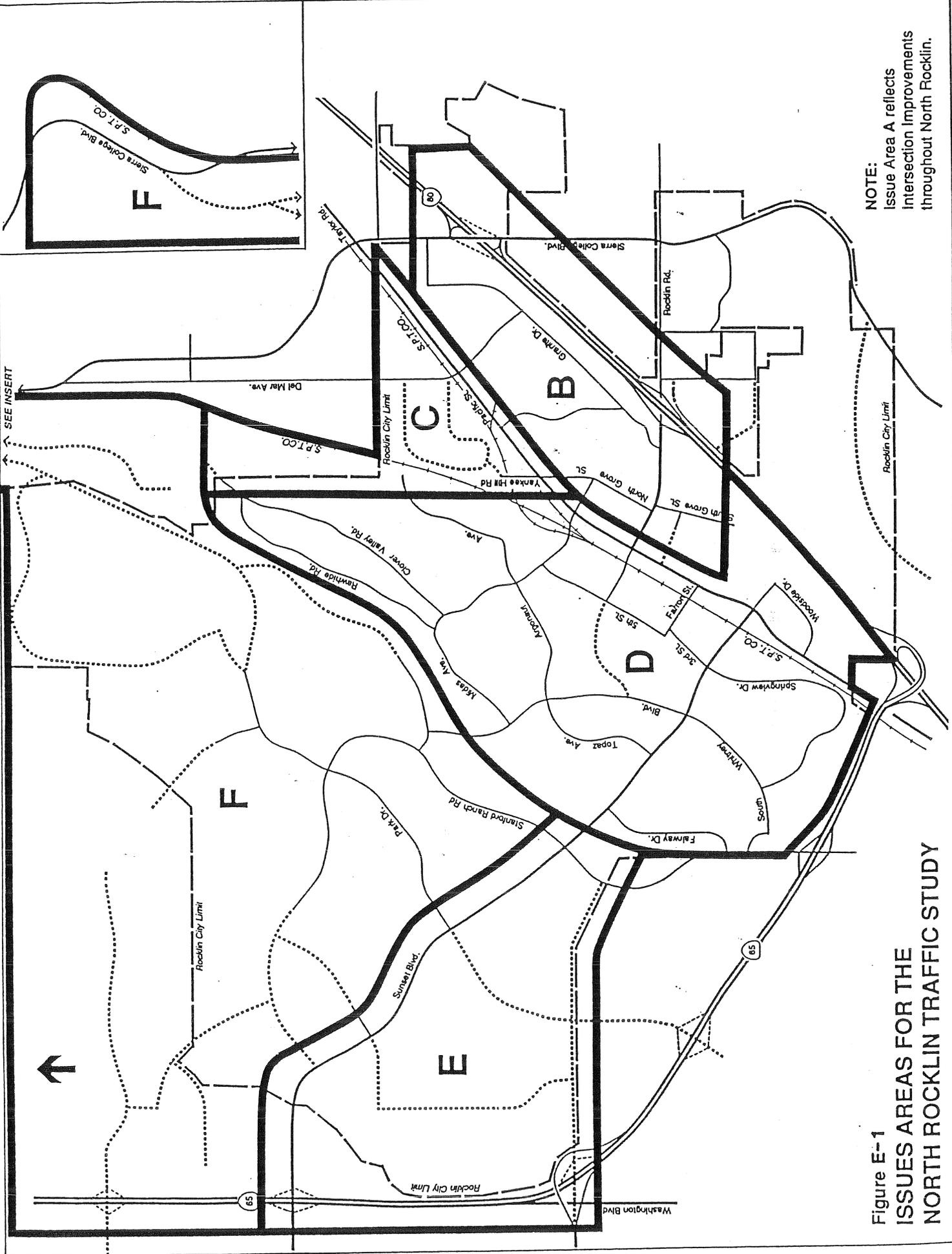
The capacity of signalized intersections are the primary control of the level of service on Rocklin's arterial/collector system. To resolve the level of service problems at the 15 critical intersections in North Rocklin, the first step would be to identify "feasible" improvements to intersections with level of service problems. Implementing "spot" improvements directly at problem locations is often preferable to constructing new roadway alignments, that may relieve traffic at a critical intersection(s), but have other impacts.

An analysis of the 15 intersections with unacceptable levels of service at buildout of the City of Rocklin indicates that "spot" intersection improvements (see Figure E-2) to solve these problems can be classified into the following categories:

Feasible Intersection Improvements - represents intersection widenings which would require no/minimal additional right-of-way or appear to have acceptable impacts on adjacent properties (i.e., impact currently vacant property).

Difficult Intersection Improvements - involve intersection widenings where impacts on adjacent properties may be significant, but may not be unacceptable, particularly when compared to the impacts of alternative new roadway alignments.

Infeasible Intersection Improvements - represents locations where right-of-way constraints are substantial or where the "maximum acceptable" improvements (i.e., widening a roadway beyond six lanes) would still not provide an acceptable level of service.



NOTE:
 Issue Area A reflects
 Intersection Improvements
 throughout North Rocklin.

Figure E-1
ISSUES AREAS FOR THE
NORTH ROCKLIN TRAFFIC STUDY

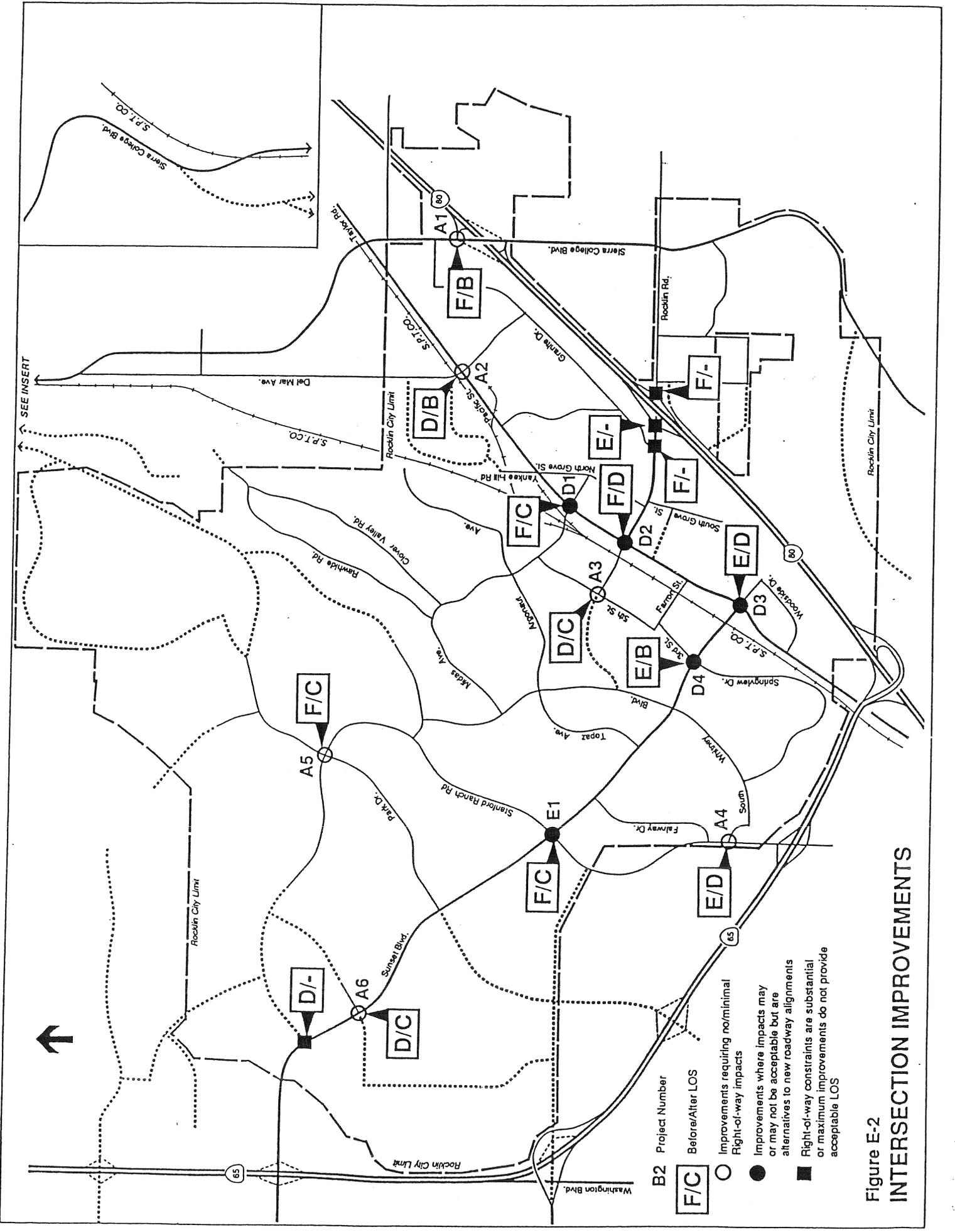


Figure E-2
INTERSECTION IMPROVEMENTS

In addition to intersection improvements, a number of new roadway alignments were identified in the various issue areas that have the potential to relieve traffic congestion at problem locations (see Figure E-3). Also, changes to the City's land use plan will be considered as an alternative to major roadway improvements to the I-80/Rocklin Road interchange in Issue Area B. A full list of alternative projects is provided in Table E-1.

Evaluation of Alternatives

The evaluation of alternative projects considered the following major categories of analysis/constraints:

- Traffic analysis
- Environmental constraints analysis
- Engineering constraints/cost analysis

The evaluation provides decision makers information on the major issues and constraints so that they can narrow the choice of projects based on potential traffic benefits, environmental impacts and costs. The analysis is summarized in this report using evaluation matrices for each issue area which focus on critical issues:

The evaluation matrix provides an overview of potential limiting environmental and engineering conditions that could occur with the development of a project and will be used by the City Council to help refine the project list. Further detailed environmental analysis will be conducted in a full environmental impact report (EIR) on projects selected for further review.

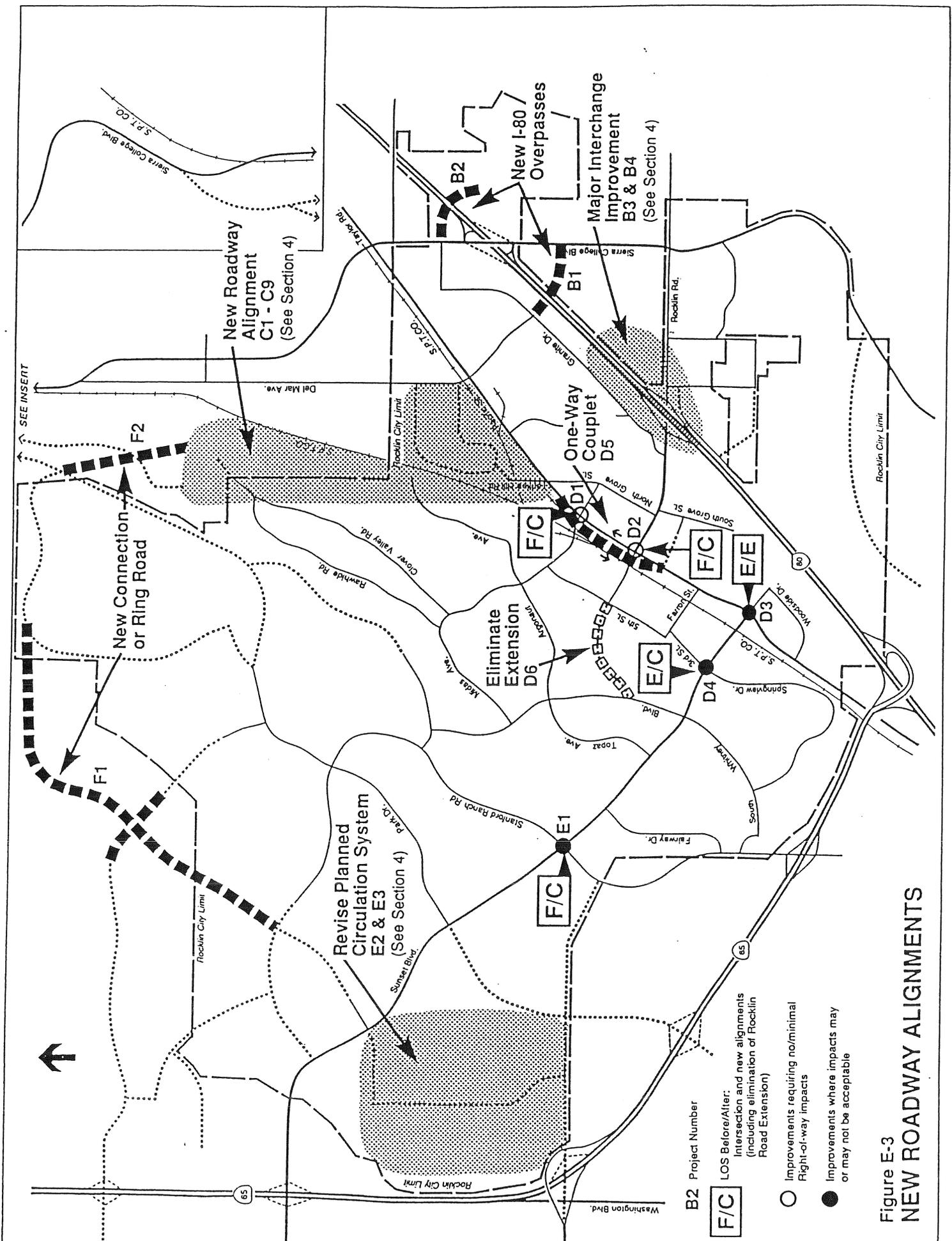
The Rocklin travel demand model (which also covers the entire Sacramento metropolitan area) was used to test each of the alternative projects and predict traffic volumes throughout Rocklin's street system. The traffic volumes resulting from the various alternatives is summarized in Appendix A of this report.

Issue Area A

Issue Area A encompasses the entire study area for the North Rocklin Traffic Study and reflects "spot" projects at six intersections throughout North Rocklin that were determined to be "feasible" since they do not appear to have major constraints. The location of these alternative projects are shown in Figure E-2.

The key conclusions of the evaluation of these alternatives are as follows:

- The proposed improvements would achieve acceptable levels of service (LOS "B" or "C") at each of the six intersections.
- While some additional right-of-way may be needed for some of these projects, they do not appear to have major impacts on adjacent development.



- B2** Project Number
- F/C** LOS Before/After: Intersection and new alignments (including elimination of Rocklin Road Extension)
- Improvements requiring no/minimal Right-of-way impacts
- Improvements where impacts may or may not be acceptable

Figure E-3
NEW ROADWAY ALIGNMENTS

Table E-1
Alternative Projects - North Rocklin Traffic Study

Issue Area A - Feasible Intersection Improvements

- A-1 I-80/WB ramp intersection improvements
- A-2 Pacific Street/Delmar Avenue intersection improvements
- A-3 Rocklin Road/5th Street intersection improvements
- A-4 Stanford Ranch/Five Star intersection improvements
- A-5 Park Drive/Stanford Ranch intersection improvements

Issue Area B - I-80/Rocklin Road and Granite Drive Area

- B-1 I-80 Overpass - Dominguez to Sierra College Boulevard
- B-2 I-80 Overpass - Granite Drive to Rocklin Mall area
- B-3 I-80/Rocklin Road interchange improvement with split interchange
- B-4 I-80/Rocklin Road interchange improvement with flyover ramp

Issue Area C - Yankee Hill/delmar Area

- C-1 Yankee Hill Road extension to Summit Project; with Argonaut connection
- C-2 Yankee Hill Road extension to Summit Project; no Argonaut connection
- C-3 Argonaut Avenue extension to Delmar Avenue
- C-4 Yankee Hill Road extension to Clover Valley; with Argonaut extension
- C-5 Yankee Hill Road extension to Clover Valley; no Argonaut extension
- C-6 Sierra Meadows extension to Clover Valley with Argonaut extension
- C-7 Sierra Meadows extension to Clover Valley no Argonaut extension
- C-8 Dominguez Road extension to Clover Valley with Argonaut extension
- C-9 Dominguez Road extension to Clover Valley no Argonaut extension

Issue Area D - Old Town

- D-1 Pacific Street/Midas Avenue intersection improvements
- D-2 Pacific Street/Rocklin Road intersection improvements
- D-3 Pacific Street/Sunset Boulevard intersection improvements
- D-4 Sunset Boulevard/3rd Street intersection improvements
- D-5 One Way Couplet - Pacific Street/Railroad Avenue
- D-6 Elimination of Rocklin Road extension

Issue Area E - Sunset West Area

- E-1 Sunset Boulevard/Stanford Ranch Road intersection improvements
- E-2 Proposed Sunset West circulation system
- E-3 Blue Oaks Boulevard to West Oaks Boulevard extension

Issue Area F - Stanford Ranch/Sunset Ranchos/Clover Valley

- F-1 West Oaks Boulevard/Sunset Ranchos/North Rocklin extension
- F-2 North Rocklin/Clover Valley/Pacific Street extension

E-3, F-1, F-2, C-5 (or C-6) and D-1 - Ring Road Concept

Issue Area B

Issue Area B represents the portion of Rocklin along I-80 between the Sierra College Boulevard and Rocklin Road interchanges, as well as the area along Granite Drive (see Figure E-1). The key traffic problems in this issue area under full buildout are as follows:

- Substantial traffic congestion would occur at the I-80/Rocklin Road interchange. This congestion would occur not only at the intersections of Rocklin Road and the I-80 on and off ramps, but also on the westbound on and eastbound off ramps themselves due to traffic volumes exceeding the capacity of the "merge" and "diverge" points with mainline I-80. LOS "F" conditions are projected to occur for several hours each day for the whole interchange area.
- Substantial congestion would also occur at the Rocklin Road/Granite Drive intersection, with LOS "F" conditions anticipated for several hours each day.

The alternative projects in Issue Area B, shown in Figure 3, are summarized as follows:

- **Projects B1 and B2** involve new overpasses of I-80 connecting either Dominguez north of I-80 and Granite Drive north of I-80 respectively with the areas east of I-80 near the location of the proposed Rocklin Mall.
- **Project B3** involves a major improvement to the Rocklin Road/I-80 interchange. This interchange concept includes a "split" interchange with a "braiding" of the existing westbound off-ramp and a new westbound on-ramp.
- **Project B4** is a "flyover" ramp to allow westbound traffic on Rocklin Road to have direct access to I-80 and thereby relieving traffic volumes and congestion at the I-80 ramp intersections with Rocklin Road.

An alternative to projects B1 through B4 could involve a change in Rocklin's land use plan to reduce demand at the I-80/Rocklin Road interchange. The majority of the growth in travel demand on the critical movements in the interchanges can be traced to the substantial amount of non-residential development allowed under the General Plan north of Rocklin Road between I-80 and Pacific Street. The residential and industrial development potential far exceeds local residential development potential, and the resulting imbalance would cause this area to become a "regional" traffic attractor, particularly during peak hours. In this area, travel demand must be significantly reduced to eliminate (or reduce) the need for major improvements to the freeway interchange. Travel demand could be reduced by redesignating land uses types or densities that would be allowed in this area. There are many potential combinations of alternative land uses or other strategies that would reduce travel. Even with such strategies, the I-80/Rocklin Road interchange will need significant improvement by 2010; and a reconstruction of the Rocklin Road

underpass of I-80 to allow at least six lanes should be considered, potentially tied to a future widening of I-80 by Caltrans.

The key conclusions regarding the alternative improvements in Issue Area B are as follows:

- The freeway overpasses (projects B1 and B2) or the split interchange (Project B3) by themselves would not result in sufficient traffic reduction on Rocklin Road and Granite Drive or substantially reduce traffic congestion in the I-80/Rocklin Road interchange area.
- The interchange with a "flyover ramp" (Project B4) provides acceptable levels of service at the interchange, but would not relieve LOS "F" conditions at the Rocklin Road/Granite Drive intersection.
- Project B1 together with Project B3 would allow acceptable traffic operations at the interchanges and achieve LOS "E" conditions at the Rocklin Road/Granite Drive intersection.
- Each of the projects in Issue Area B may have impacts on water quality, biological resources, and/or cultural resources, but these should be mitigable.
- The major interchange improvements (Projects B3 and B4) may or may not have significant impacts on the Rocklin Square property. A design analysis with review by Caltrans would be required to determine if significant impacts can be avoided.

Issue Area C

Issue Area C represents the Delmar area of Rocklin as well as the area along a potential extension of Yankee Hill Road to either the Summit Project or to Clover Valley (see Figure E-1). This issue area includes a portion of Loomis that is west of the SP railroad tracks. The key traffic problems in this issue area under full buildout are as follows:

- Significant traffic increases would occur on collector roadways with residential frontages, including Midas Avenue and Argonaut Avenue.
- Unacceptable conditions (LOS "F") would occur at the Midas Avenue/Pacific Street intersection.

A number of new roadway alignments were considered in attempts to reduce traffic along Midas Avenue. These alternative roadway extensions involve various connections to Pacific Street, Argonaut Avenue, and Clover Valley.

The key conclusions from the evaluation of projects in Issue Area C are as follows:

- All of the projects in Issue Area C would reduce traffic demand on Midas Avenue.
- The roadway extensions that include a connection to Argonaut and connect to Sierra Meadows Drive or Delmar Avenue (Projects C3, C6 and C8) would divert the largest amounts of traffic from Midas Avenue. However, these projects would increase traffic demand on Argonaut Avenue by creating a new "cut through" route to eastern Rocklin.
- The extensions which would connect to the Summit Project and not connect to Argonaut Avenue, (Projects C2, C5, C7 and C9) would reduce traffic on Argonaut Avenue by rerouting traffic from the Summit Project.
- Projects C1 and C4, which would connect to Argonaut Avenue but utilize the Yankee Hill alignment, are predicted to reduce traffic on Argonaut Avenue since some traffic from the residential area served by Argonaut would use the Yankee Hill alignment. "Cut through" traffic is projected to be limited (as compared to Projects C3, C6 and C8 which would provide a good alternative route to Pacific Street).
- Projects C1, C2 and C3 do not extend to Clover Valley and, therefore, would not impact Clover Valley Road or Rawhide Road. Projects C4 through C7 (which extend to Clover Valley and utilize the Yankee Hill Road and Sierra Meadows Drive alignments respectively) would tend to decrease traffic on the southern portion of Clover Valley Road and have little effect on Rawhide Road. Some residents along those roads would tend to use the new extension and "cut through" traffic would be limited and would use Rawhide Road, not Clover Valley Road. Projects C8 and C9 (which extend to Clover Valley and use the Dominguez alignment) would tend to have more cut through traffic using Rawhide Road.
- Only the extensions of Sierra Meadows Drive or Dominguez Drive with connections to Argonaut Avenue (Projects C6 and C8) would reduce traffic on Midas Avenue to levels that get close to providing an acceptable level of service at the Midas Avenue/Pacific Street intersection.
- All of the alternative projects in this issue area involve either new creek crossings or widenings of existing crossings. The impacts of these crossings should, however, be mitigable.

Issue Area D

Issue Area D represents the area along Pacific Street from Midas Avenue to the City of Roseville, as well as the residential areas between Pacific Street and Stanford Ranch (see Figure E-1). The key traffic problems in this issue area under full buildout are as follows:

- Unacceptable levels of service are expected at three major signalized intersections along Pacific Street: at Midas Avenue (LOS "F"), Rocklin Road (LOS "F") and Sunset Boulevard (LOS "E"). Also the four lanes on this section of Pacific Street will not have sufficient capacity to meet the City's level of service goals.
- The intersections of Sunset Boulevard/3rd Street and Rocklin Road/5th Street would also operate at unacceptable levels of service.
- Several collector streets that have residential frontage will experience traffic increases due to the buildout of development in North Rocklin. Increases on some roadways will be minor while others will be significant.

Alternative projects include widenings of some intersections, creation of a one-way couplet to relieve portions of Pacific Street and consideration of eliminating the proposed Rocklin Road extension from the General Plan. These alternative projects, shown in Figures E-2 and E-3, are summarized as follows:

- **Projects D1 through D4** involve "difficult" intersection improvements along Pacific Street at Midas Avenue, Rocklin Road and Sunset Boulevard as well as at the Sunset Boulevard/3rd Street intersection.
- **Project D5** would create a one-way couplet using Pacific Street for eastbound traffic and Railroad Avenue for westbound traffic.
- **Project D6** involves the proposed extension of Rocklin Road. This extension is included in the City's current General Plan and, therefore, was included in the evaluation of the "base" network for buildout conditions. In the Community Involvement Program of the North Rocklin Traffic Study, some people have requested the removal of the extension from the City Circulation Element. **This alternative project involves that removal.**

The key conclusions about the alternative projects in Issue Area D are summarized as follows:

- Of the four intersection projects, the improvements at Pacific Street/Midas Avenue and Sunset Boulevard/Third Street (Projects D1 and D4) would provide acceptable levels of service at those intersections, while those at Pacific Street/Sunset Boulevard and Pacific Street/Rocklin Road (Projects D2 and D3) would only provide LOS "D" conditions. The intersection improvement would all have significant impacts on adjacent development.
- Project D5, the one-way couplet would provide acceptable levels of service at the Midas Avenue and Rocklin Road intersections on both Pacific Street and Railroad Avenue and thereby improving traffic flow in the Old Town area.

- The one-way couplet would impact properties at the transition points at the ends of the couplet, but the couplet could provide additional room for landscaping and/or parking along Pacific Street.
- The elimination of the Rocklin Road extension would not increase traffic substantially on Midas Avenue; but it would result in significant increase on Sunset Boulevard and Pacific Street. These increases would worsen the level of service at the Sunset Boulevard/Pacific Street intersection to LOS "E" despite intersection improvement D3.
- The Rocklin Road extension would have some impacts due to a creek crossing and adjacent development, but these should be mitigable. Removal of the extension from the General Plan would have positive environmental impacts compared to those under the General Plan.

Issue Area E and F

Issue Area E represents the undeveloped western portion of Rocklin, primarily the proposed Sunset West development (see Figure E-1). Issue Area F is the northern portion of Rocklin, including Stanford Ranch and the proposed Sunset Ranchos development. The key traffic problems in Issue Area E under full buildout are as follows:

- Unacceptable levels of service would occur along Sunset Boulevard at three major intersections: the two intersections with Stanford Ranch Road and the intersection with West Oaks Boulevard.
- The General Plan roadway system's proposed connections to the Blue Oaks Boulevard/Highway 65 interchange are redundant with the proposed Park Drive/Pleasant Grove Boulevard connection to Highway 65 and therefore do not serve western and northern Rocklin as well as they could.

The alternative projects for Issue Area E, can be summarized as follows:

- **Project E1** involves improvements to the existing Sunset Boulevard/Stanford Ranch Road intersection.
- **Project E2** reflects the proposed circulation system for the Sunset West development that involves a revised circulation system from that shown in the City's General Plan.
- **Project E3.** This circulation system for the Sunset West development area involves a direct connection between West Oaks Boulevard and Blue Oaks Boulevard; thereby eliminating the need for traffic from north Rocklin to "jog" on Sunset Boulevard to reach the connection to Highway 65; and improving the spacing between the Blue Oak Boulevard and Park Drive/Pleasant Grove connections to Highway 65.

The key conclusions regarding the projects in Issue Area E are as follows:

- Improvements to the Stanford Ranch Road/Sunset Boulevard intersection (Project E1) would provide an acceptable level of service, but may have significant impacts on adjacent properties.
- Both Projects E2 and E3 would provide improved circulation for the western portion of Rocklin compared to the roadway system in Rocklin's Circulation Element. Both of these alternative roadway systems would provide acceptable levels of service at the key intersections in the Sunset West area.
- Project E2 would likely serve western Rocklin better than Project E3 in the short to mid-term; that is before the Park Drive/Peasant Grove connection to Highway 65 is implemented. However, in the long-term, Project E3 would eliminate some "jogs" in the roadway system and thus may provide a better circulation system for northern Rocklin as it approaches buildout.

Issue Area F would have limited traffic problems at buildout of the land uses indicated in the City of Rocklin's General Plan. The intersection of Stanford Ranch Road and Park Drive would have an unacceptable level of service, but this would be resolved by an intersection improvement: Project A5. But, the General Plan roadway system would not provide a significant amount of spare capacity for growth beyond that assumed under buildout of the City, such as increased densities in the Sunset Ranchos area. Should increased densities be considered for this area, additional improvements may be needed to allow for such growth.

The projects that were explored in Issue Area F were developed in an attempt to improve overall access between the growth areas in North Rocklin and Highway 65, as well as areas in eastern Rocklin (including the proposed Rocklin Mall). These include new connections to North Rocklin, which could ultimately create a "Ring Road" concept around the western, northern and eastern portions of the City.

1. Introduction

1. Introduction

The objectives of the North Rocklin Traffic Study are as follows:

- Determine Rocklin's population and employment at "buildout" of City.
- Identify the expected traffic conditions and any roadway deficiencies at buildout of the City if the General Plan Circulation System is fully implemented.
- Pose a variety of transportation planning options for community consideration and discussion.
- Evaluate the ability as well as desirability of selected transportation planning options to accommodate future traffic.
- Provide input to Rocklin's Planning Commission and City Council for potential changes in the Circulation and/or Land Use elements of the City's General Plan.

The study area covers all of North Rocklin; the area of the City north of I-80. While the analysis of problems and potential solutions focuses on this study area, the travel model used to evaluate alternatives in North Rocklin is a regional model that covers the entire Sacramento metropolitan area. This study will evaluate a number of transportation planning options to alleviate identified problem areas, including new roadway alignments, changes to the design of intersections, street widenings and changes to the City's land-use plan.

The six (6) month study began in October, 1992, and will be completed by April, 1993. The study process is outlined in Figure 1. The study includes a Community Involvement Program to gain public input at several key stages in the process. The community meetings were held to receive comments on traffic problems as well as potential solutions to those problems.

This report documents existing and future traffic conditions and problems, the definition and evaluation of alternative projects to address those problems and all of the comments received from the public in the Community Involvement Program.

It is expected that the Rocklin City Council will use this report to evaluate which transportation planning options should be considered further in a full environmental impact report. Upon the certification of that report, it is expected that the City of Rocklin's General Plan Circulation Element, and possibly its Land Use Element, will be amended to reflect the transportation planning options adopted by the City.

Landowners do have the right to submit applications for development prior to an amendment of the General Plan, but for properties that could potentially be affected by such an amendment, the City may decide that the amendment must be finalized before development can be approved.

Figure 1

Study Process

Fall

Study Kick-Off
Data Collection

Open House for Citizen Input
November 5, 1992

Define Problem Statement,
Develop Alternatives

Winter

Community Meeting
January 13, 1993

Refine and
Analyze Alternatives

Community Meeting
March 3, 1993

Spring

Community Meeting
March 30, 1993

City Council

2. Traffic Forecasts

2. Traffic Forecasts

Existing Conditions

Extensive traffic count data was collected by DKS Associates throughout North Rocklin in October, 1992 to evaluate existing conditions and to calibrate the Rocklin travel demand model. Turning movement counts were collected at the major signalized intersections throughout North Rocklin for the afternoon peak period. Daily traffic volume data was also collected at a number of key locations using counting machines with hoses. The existing daily traffic volumes are summarized on Figure 6 (in section 3 of this report).

A "level of service" analysis was conducted for the major intersections in North Rocklin for 1992 conditions. Level of service is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. Levels of service are designated "A" through "F" from the best to worst, which cover the entire range of traffic operations that might occur. Levels of service (LOS) "A" through "E" generally represent traffic volumes at less than roadway capacity, while LOS "F" represents over-capacity and/or forced flow conditions. The level of service policy in the City's General Plan calls for LOS "C" for all roadways, except those roadways within one-half mile of a freeway where LOS "D" conditions are acceptable. Table 1 presents level of service definitions.

Figure 7 (in Section 3 of this report) presents the existing afternoon peak hour levels of service at the signalized intersections in North Rocklin. It indicates that most of the major intersections currently operate at acceptable levels of service during the peak hours, except the following:

- Rocklin Road/I-80 Eastbound Ramps - LOS "E"
- Pacific Street/Sierra Meadows Drive - LOS "E"
- Rocklin Road/North Grove Street - LOS "E"
- Pacific Street/Del Mar Avenue - LOS "D"
- Sunset Boulevard/Fairways Drive - LOS "D"

Rocklin Travel Demand Model

A new travel model was developed for the City of Rocklin for the North Rocklin Traffic Study. The travel model is consistent with those used by the Sacramento Area Council of Governments (SACOG) and the Placer County Transportation Commission (PCTC) and covers the entire Sacramento metropolitan area. It was "calibrated" to 1992 conditions using a detailed inventory of existing land uses in the City and extensive 1992 traffic count data.

The travel model was used in the North Rocklin Traffic Study to test the effectiveness of various roadway improvement schemes under buildout of the City of Rocklin. This analysis tool can also

Table 1
Definitions of Traffic Conditions

LEVEL OF SERVICE DEFINITIONS		
LEVEL OF SERVICE	INTERSECTION	ROADWAY
"A"	Uncongested operations, all queues clear in a single-signal cycle.	Free flow vehicles unaffected by other vehicles in the traffic stream.
"B"	Uncongested operations, all queues clear in a single cycle.	Higher speed range of stable flow.
"C"	Light congestion, occasional back-ups on critical approaches.	Stable flow.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed.	Upper end of stable flow conditions.
"E"	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es).	Unstable flow at roadway capacity.
"F"	Total breakdown, stop-and-go operation.	Stop and go traffic.

Source: City of Rocklin General Plan, April 1991

be used to evaluate land use, roadway and transit alternatives for other studies throughout the City of Rocklin. Its use will ensure consistent travel forecasts for the analysis of development and/or transportation improvements in the City. Due to its regional nature, and its consistency with SACOG's and PCTC's models, it also allows Rocklin to test how projects outside the City will impact the City's Circulation system.

Estimates of Buildout Development

Recht Hausrath & Associates prepared estimates of total development potential at full buildout of Rocklin for use in transportation modeling and analysis. The estimation methods varied depending on the stage of the development process of a particular property. The estimates are based on a variety of data sources and estimating techniques. Comparisons to actual development projects and final review by the City provided the basis for the final estimates.

For developed areas, the assessor's database of existing units and building square feet was used. Some intensification of uses in the Civic Center area, reflecting buildout of city offices, as well as retail commercial development eventually replacing the quarry operation was assumed. For areas with final and tentative maps, the unit and building sizes permitted based on those maps were used. For undeveloped areas, zoning categories and standard density and coverage assumptions were used to estimate allowed development. In addition, for areas that do not yet have approved city zoning, either proposed projects (e.g., Sunset West), with some adjustments, or the pre-zoning of the property (e.g., Clover Valley Lakes) were used to estimate development potential.

Residential Development. To estimate residential development, specific unit counts (existing units, final/tentative maps units, or specific plan units) were used where they were available. In other areas, dwelling units were estimated using the number of acres by general plan designation and density assumptions. The following assumptions were used to develop these estimates:

- **General Grouping of Zoning Classifications**

- Single-Family Residential: zoning categories of 8 or fewer dwelling units per acre.

- Multi-Family Residential: zoning categories of 9 or more dwelling units per acre.

- Office: B-P zoning and PD-BP zoning

- Commercial: C-1, C-2, C-3, C-4, C-H, and Planned Development - Commercial

- Industrial: M-1, M-2, and PD-LI

- **Residential Density Assumptions (per gross acre)**

- Single Family

- RD-1, RD-2, RD-3, RD-4, RD-5: Density as stated in zoning

- PD-1, PD-2, PD-3, PD-4, PD-5: Density as stated in zoning

- RD-6, PD-6: 5 units per acre

- RD-7, PD-7: 6 units per acre

- RD-8-20, PD-8-20: Density as stated in zoning

R1-5:	6 units per acre
R1-6:	5 units per acre
R1-7-5:	4.5 units per acre
R1-10:	3.5 units per acre
R1-12.5:	3 units per acre
R1-15:	2 units per acre
RE-20:	2 units per acre
RE-30:	1 units per acre
RE-1 acre:	1 units per acre
RE-2 acres:	1/2 unit per acre
RA-3:	1/3 unit per acre
RA-5:	1/5 unit per acre
RA-10:	1/10 unit per acre

Multi Family

R-2:	10 units per acre
R-3:	14.5 units per acre

Office/Commercial/Industrial. Commercial space estimates were based on the acres and coverage assumptions. For existing area, the assessors database provided estimates. DKS and the City provided estimates for some industrial facilities not included in the assessor's database.

- **Coverage assumptions**

- Office: 35 percent coverage per gross acre (assuming mostly single-story with some two-story buildings)

- Commercial: 25 percent coverage per gross acre

- Industrial: 35 percent coverage per gross acre

Specific Area Assumptions.

- **Existing Zoning/Tentative Maps:** The City provided the draft zoning map current as of November 11, 1992. That map indicates final maps. The City provided unit counts for areas with tentative maps.
- **Civic Center:** Total development potential described in the Draft Rocklin Civic Center Area Specific Plan for city government office and retail commercial development was used. Other uses in the civic center area are assumed to develop per the zoning map classifications. This is the only redevelopment or intensification of use assumed in the existing developed areas.
- **Clover Valley Lakes:** This area is assumed to not exceed 1.5 units per acre. That average density, based on pre-zoning of the property, was assumed rather than the specifics of the development proposal. A portion of the area is designated commercial

and is included as commercial even though it is a school site on the current development proposal.

- **Sunset Rancho Estates:** The portion near Highway 65 is nonresidential reserve in Placer County's General Plan. Light industrial land use with a coverage ratio of 35 percent was assumed. For the remainder, a one unit per acre density was used instead of the County's 1 unit per 10 acres. This area also includes the Stanford Ranch North proposal. However, the analysis does not assume that proposal.
- **Stanford Ranch:** The general development plan for the area with the proposed August, 1992 amendments was used. Land zoned BP/COM was treated as commercial. The Wells Fargo site is 110.62 acres and will not exceed 1.6 million square feet (.33 FAR). Buildout of the Herman Miller site to a coverage of 35 percent consistent with other industrially zoned land was assumed.
- **Sunset West:** The proposed development plan dated October 20, 1992 for the area was assumed.
- **Sierra College Campus Area:** Current Placer County zoning designations were used.
- **Greenbrae Island:** Current Placer County zoning designations were used.
- **The Highlands (formally Cavitt Ranch):** The proposed development plan, in effect in October, 1992, was assumed.

Analysis of Land Use Buildout

The following discussion evaluates Rocklin's total development potential in terms of the timing of buildout.

Table 2 and Figures 2 and 3 summarize the residential and non-residential development scenarios under buildout of the City. The estimates of buildout development potential were derived according to the methodology and assumptions outlined above. City staff developed the 2010 scenario using analysis from earlier planning studies and assumptions about the rate at which residential and non-residential development might be absorbed in the city over the next 20 years.

As indicated in Table 2, the 2010 scenario for residential development would bring the City to 70 percent of its total residential development capacity. In other words, the current General Plan incorporates a buffer of about 30 percent more residential development that is likely to be developed over the next 20 years. That is a reasonable margin for planning purposes; within the 20-year planning horizon, residential land supply is not likely to be constrained by current policies.

Figure 2

Rocklin Residential Land Use

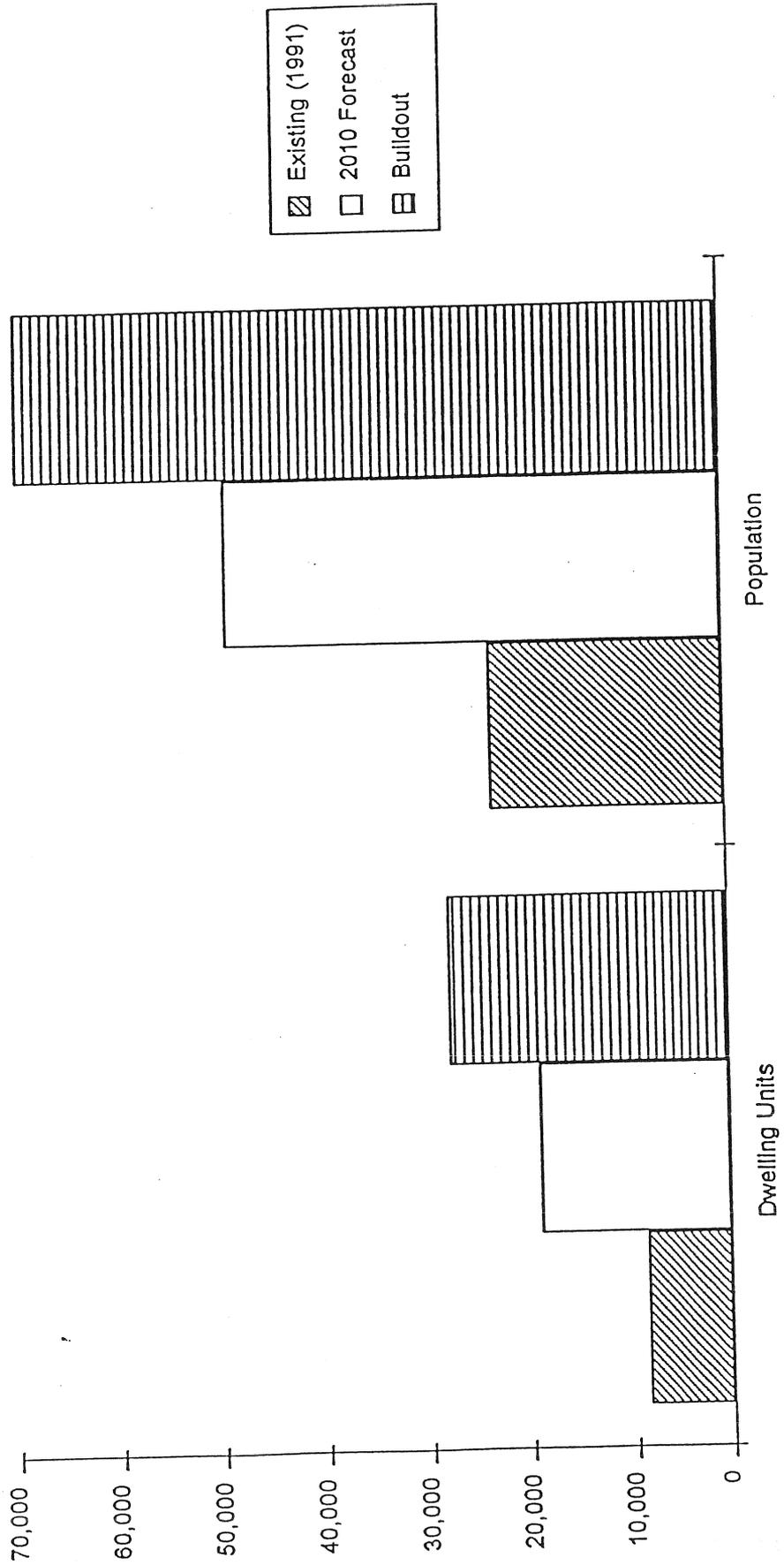
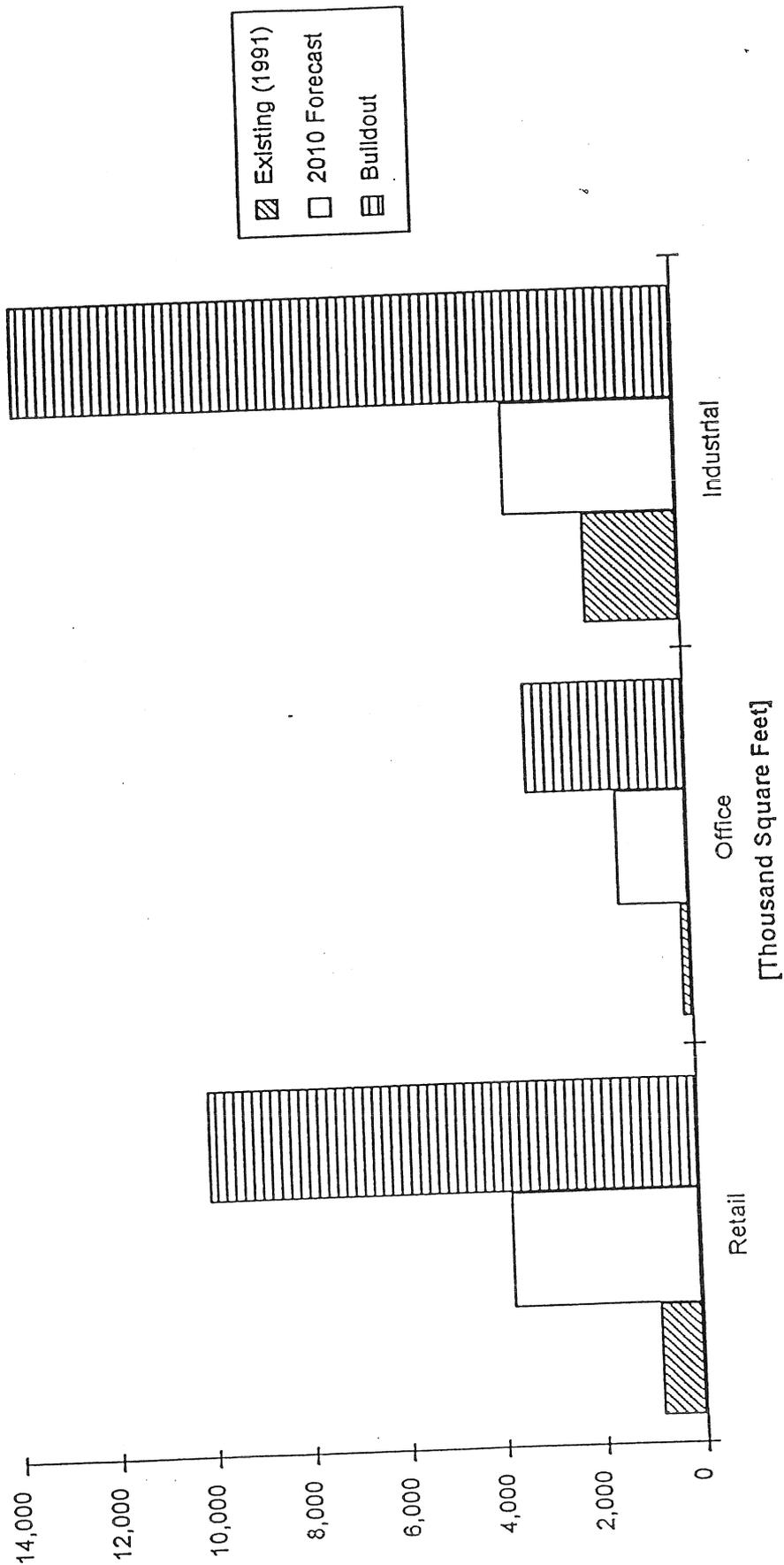


Figure 3

Rocklin Non-Residential Land Use



On the non-residential side, the conclusion is different. The 2010 development scenarios for retail, office, and industrial uses show substantially less of the total development potential absorbed by that time. Only one-quarter of the industrial potential would be developed, and about 40 percent of the office and retail space would be developed by 2010.

One way of evaluating the non-residential development scenarios is to convert the estimates of space to estimates of the employment that would occupy that space. The City's 2010 development scenario translates to about 15,000 workers. Estimates of the amount of non-residential space in the City in 1992 indicate that there are about 5,100 workers in Rocklin now. The increase of about 10,000 jobs to the year 2010 would imply a strong employment growth rate of six to seven percent per year.

That scenario is consistent with countywide and South Placer growth scenarios prepared for the Placer County General Plan Update. In that regional context, growth at such a pace means that Rocklin attracts an increasing share of regional employment, representing an ever-larger component of the South Placer and Placer County economies. The countywide and South Placer scenarios also assume that Roseville and Lincoln capture significant amounts of the regional non-residential growth potential. Thus, while the 2010 non-residential scenario reflects a strong pace of growth for Rocklin, it does not reflect the assumption that Rocklin growth occurs at the expense of growth in other communities. The City's 2010 development scenario appears reasonable according to this assessment.

With that reasonableness check as a foundation, the absorption rates implied by the City's 2010 development scenarios become useful means of evaluating the buildout development potential for non-residential uses. Table 3 shows the annual average absorption rates for each land use category. Over the 18-year period from 1992 through 2010, retail space would be absorbed at a pace of about 164,000 square feet per year, office space at about 67,000 square feet per year, and industrial space at about 88,000 square feet per year. As indicated by the discussion of employment growth above, the Rocklin scenario accounts for the fact that other South Placer cities and some unincorporated areas compete for non-residential development and that Rocklin cannot expect to absorb all of the demand for non-residential development in South Placer County. Average annual absorption rates much higher than these would imply that Rocklin captured the majority of the new development that might be expected in the entire South Placer region. Given the large supply of potential development sites in Roseville, Lincoln, the Sunset Industrial area, and elsewhere that compete with Rocklin sites, it is unlikely that average annual absorption would be significantly higher than these estimates.

Table 2 also shows the number of years to buildout and the estimate of the year at buildout for all three non-residential uses as well as for residential uses. In all cases, the annual average absorption rate implied by the 1992-2010 scenario was applied to the increment of development potential that results from subtracting the 1992 estimates from the buildout estimate. At the average pace set through 2010, all of the office space would be absorbed by 2037 (45 years), the retail space by 2048 (56 years), and the industrial space in 134 years - the year 2126. As indicated earlier, Rocklin's residential development potential fits within a more reasonable 34 year planning horizon - the year 2026.

Land Use	1992	2010	Buildout	2010 as Percent of Buildout
Residential	8,568 du	18,861 du	27,778 du	68%
Non-Residential (thousands of gross square feet)				
Retail	825	3,780	10,011	38%
Office	182	1,394	3,191	44%
Industrial	1,890	3,477	13,838	25%

Source: City of Rocklin and Rech Hausrath & Associates

Land Use	Growth 1992-2010	Annual Absorption 1992-2010	Total Growth 1992-Buildout	Years to Buildout	Year at Buildout
Residential	10,293	572	19,210	34	2026
Non-Residential (thousands of gross square feet)					
Retail	2,955	164	9,186	56	2048
Office	1,212	67	3,009	45	2037
Industrial	1,587	88	11,748	134	2126

Source: City of Rocklin and Rech Hausrath & Associates

Traffic Forecasts

Conditions under full buildout of the City of Rocklin have been used to demonstrate future traffic problems and needs, as well as to serve as a benchmark for the comparison of alternative projects. This process was used to determine what would happen in the North Rocklin area if both the land uses allowed under the General Plan are fully developed and the roadway improvements identified in the Circulation Element of the General Plan are fully implemented.

Travel demand will grow as the City's land uses develop. Figure 4 outlines the growth in daily vehicle trips resulting from buildout of the City. It indicates that vehicle trips related to Rocklin's residential and non-residential land uses will increase by about 230 percent and 1,030 percent respectively between today and buildout levels. Figure 4 also provides forecasts of travel demand in Rocklin for the year 2010.

The analysis of buildout assumed that the roadway improvements that are allowed in the Circulation Element are fully implemented. This may not ultimately be the case since each improvement will require environmental review and approval by the City Council. Figure 5 presents the roadway improvements that are outlined in the Circulation Element of the City's General Plan, and that were assumed in the buildout analysis.

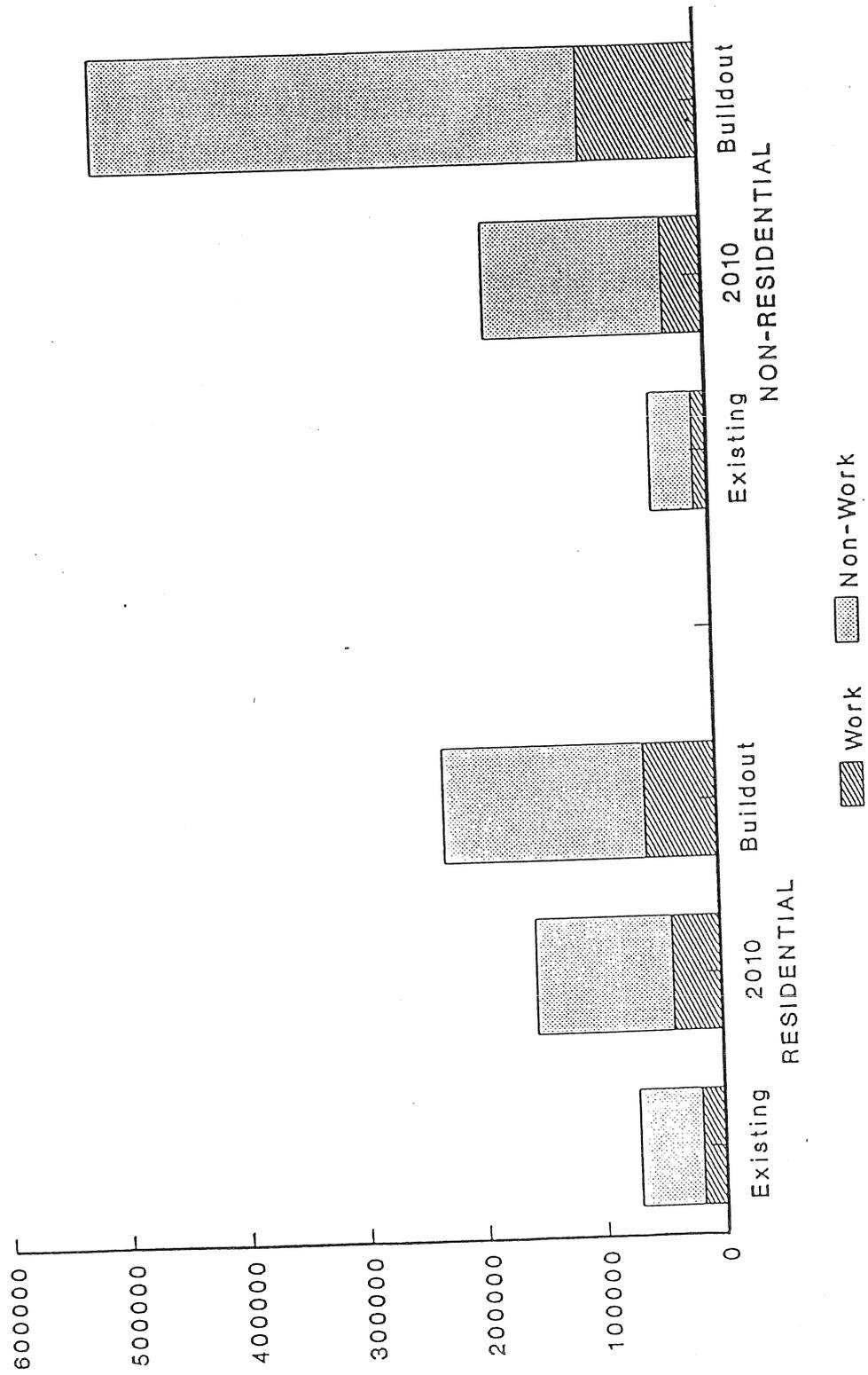
The analysis of buildout also included improvements to the transit system. These transit improvements were consistent with those listed in the Placer County Transportation Commissions' Regional Transportation Plan. These include the following:

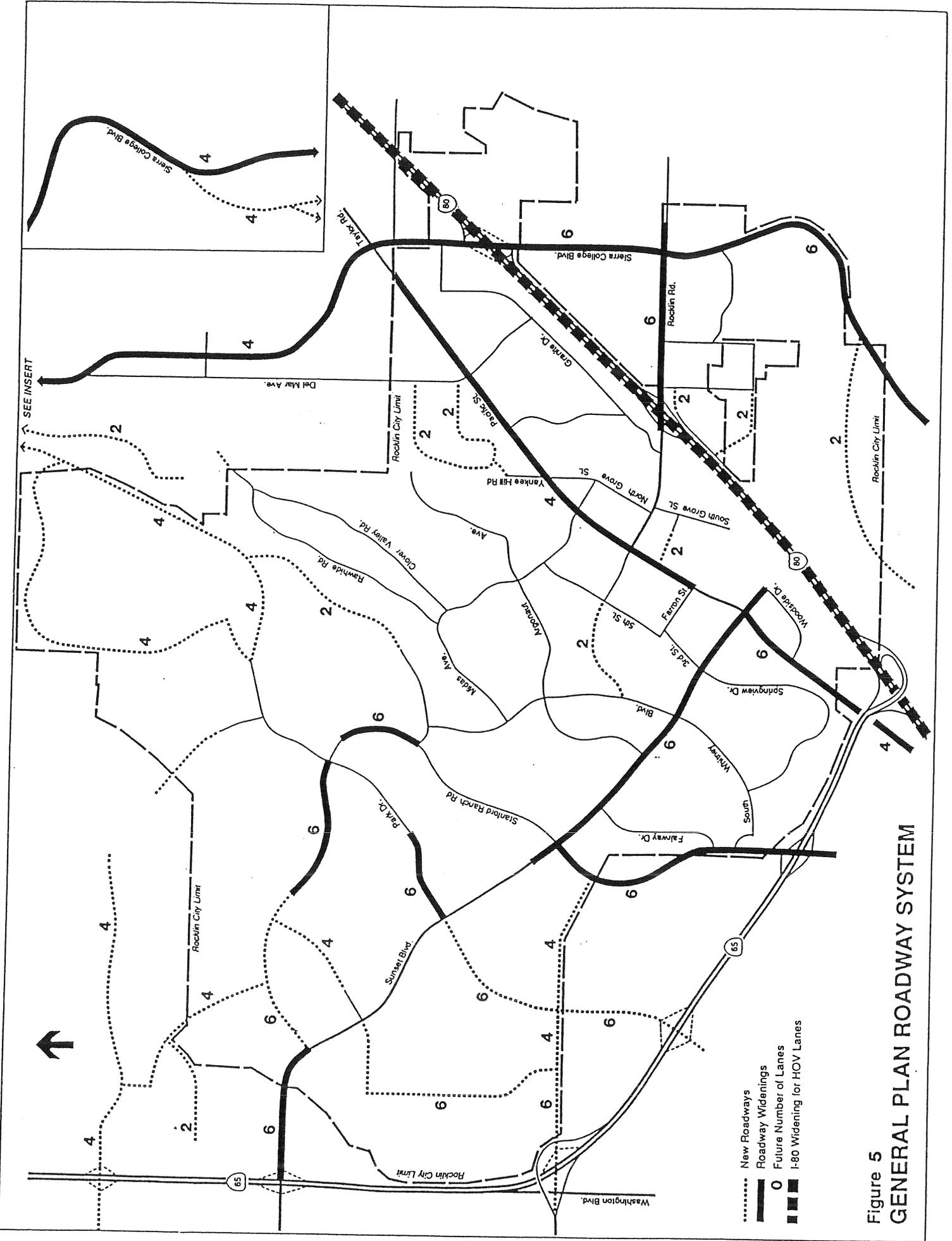
- extension of Regional Transit's light rail system to Roseville
- implementation of "commuter rail" service between Davis and Colfax with several intermediate stops including one in Rocklin
- implementation of bus service in the urbanized areas of South Placer County consistent with that assumed by Regional Transit in their recent System Planning Study.

Figure 6 shows the forecasted daily traffic volumes on major street system of North Rocklin under both year 2010 and buildout conditions assuming full implementation of the roadway improvements shown in Figure 5.

Figure 4

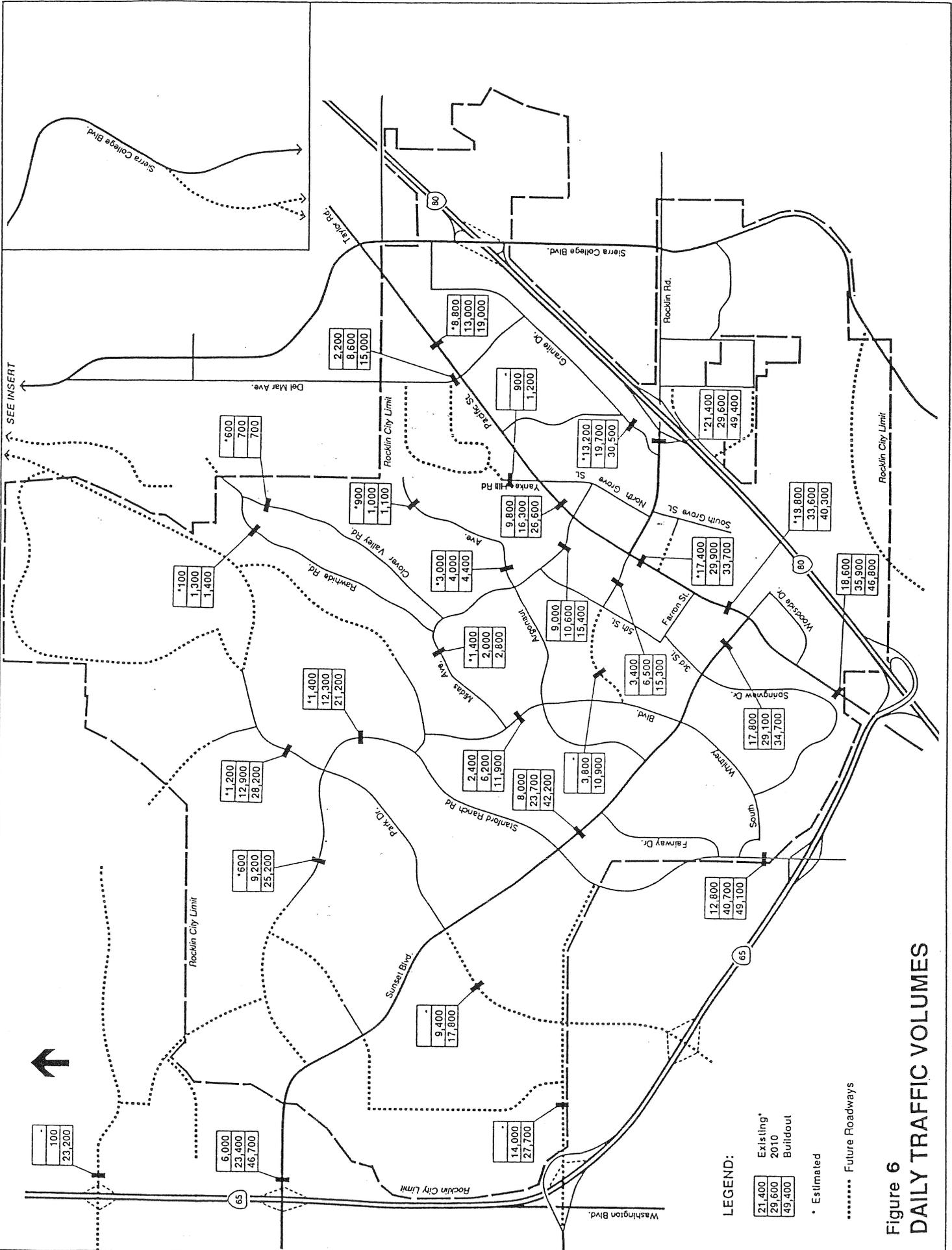
Daily Vehicle Trips City of Rocklin





- New Roadways
- Roadway Widening
- 0 Future Number of Lanes
- I-80 Widening for HOV Lanes

Figure 5
GENERAL PLAN ROADWAY SYSTEM



3. Problem Identification - City of Rocklin Buildout

3. Problem Identification - City of Rocklin Buildout

Traffic operations on Rocklin's arterial/collector roadway system is primarily controlled by the capacity of signalized intersections. Peak hour roadway operating conditions are described by "levels of service". As discussed in Section 2 of this report, levels of service are designated "A" through "F" from the best to worst, which cover the entire range of traffic operations that might occur. Levels of service (LOS) "A" through "E" generally represent traffic volumes at less than roadway capacity, while LOS "F" represents over-capacity and/or forced flow conditions. The level of service policy in the City's General Plan calls for LOS "C" for all roadways, except those roadways within one-half mile of a freeway where LOS "D" conditions are acceptable. Table 1 (in section 2 of this report) presents level of service definitions.

Figure 7 presents the level of service analysis for the major intersections in North Rocklin. It shows the estimated levels of service that would result in 2010 and at buildout if the Circulation Element of the City's General Plan (shown in Figure 5) is fully implemented.

A problem definition map is shown in Figure 8. It identifies locations which would have unacceptable levels of service under buildout of the City. It also indicates those collector roadways having residential frontage that would experience traffic increases over today's levels. The critical future traffic problems in North Rocklin can be summarized as follows:

- The worst traffic congestion under buildout would occur near the Rocklin Road/I-80 interchange, with LOS "F" conditions occurring on the freeway ramps and along Rocklin Road and Granite Drive for several hours each day.
- Pacific Street between Sunset Boulevard and Del Mar Avenue (a 4 lane roadway under the Circulation Element of the General Plan) would also experience unacceptable traffic operations at buildout.
- The City's level of service policy would not be achieved at a total of 15 major intersections in North Rocklin.
- Future development in North Rocklin would increase traffic volumes on some collector roadways with residential frontage; some receiving minor increases and other significant increases.

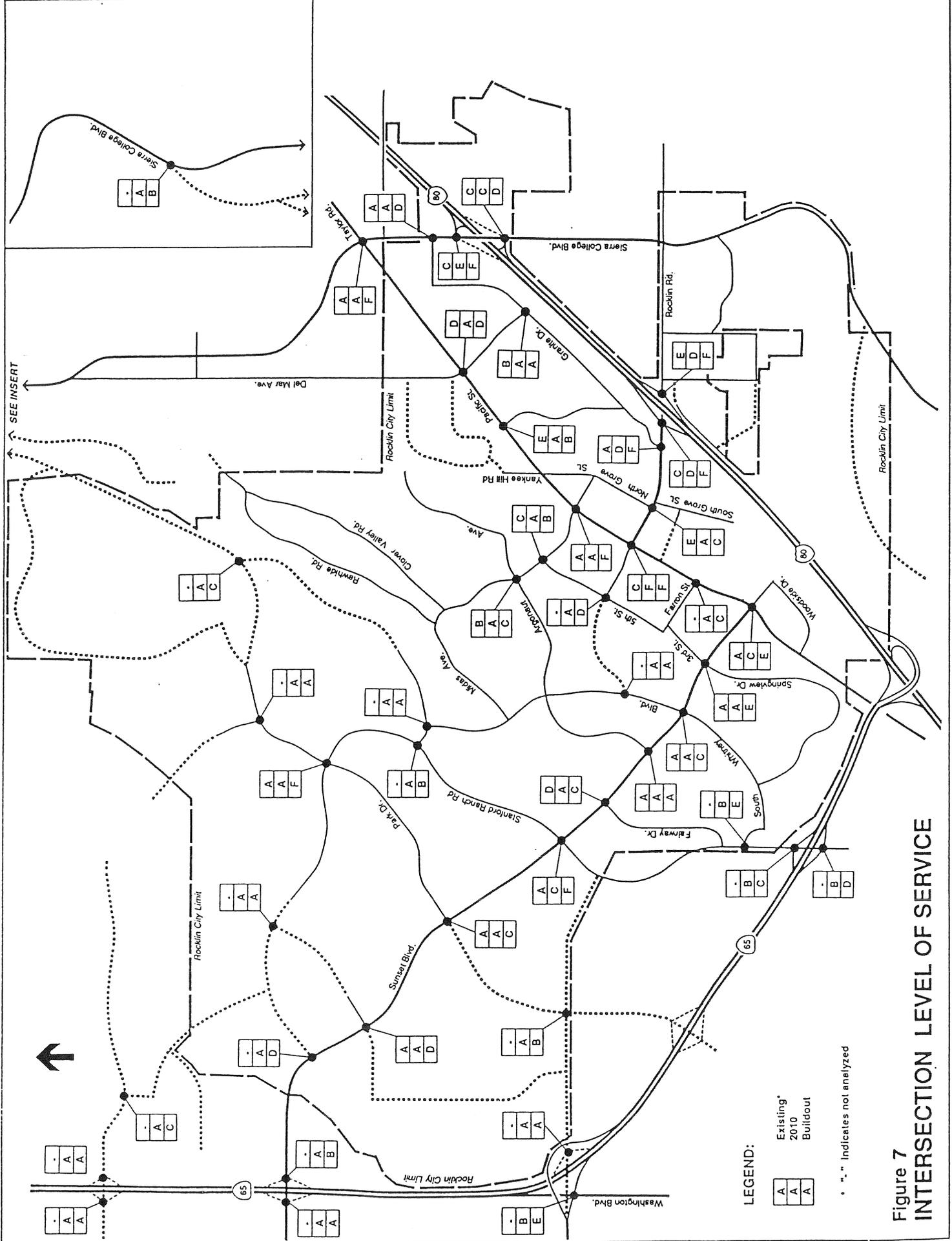


Figure 7
INTERSECTION LEVEL OF SERVICE

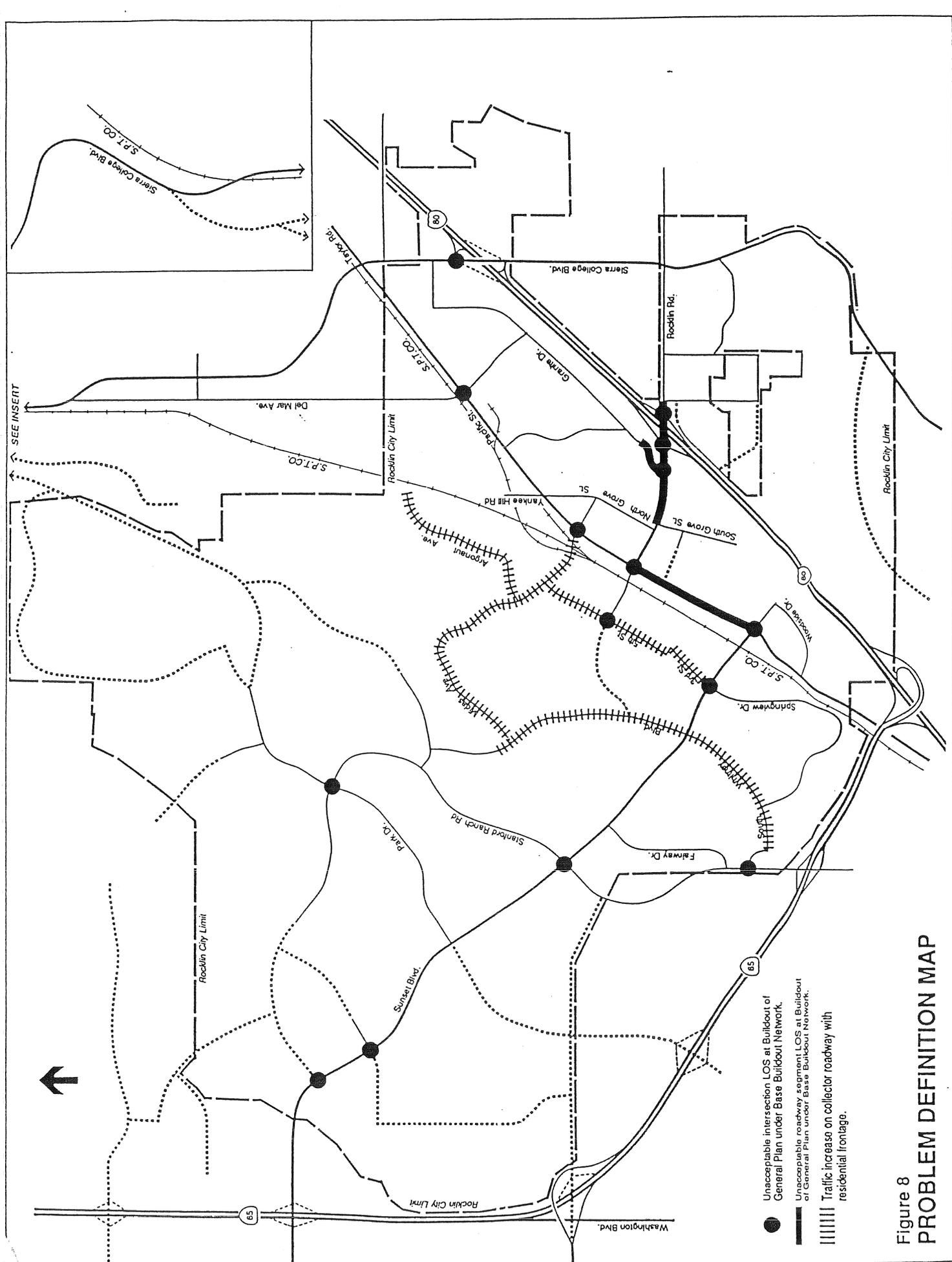


Figure 8
PROBLEM DEFINITION MAP