Countywide Regional Transportation Impact Fee Program

Final Report

Prepared for:

Lake County/City
Area Planning Council

Prepared by:

omni · means
ENGINEERS · PLANNERS

COUNTYWIDE REGIONAL TRANSPORTATION IMPACT FEE PROGRAM

FINAL REPORT

PREPARED FOR:
LAKE COUNTY/CITY
AREA PLANNING COUNCIL

PREPARED BY

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDIX

EXECUTIVE SUMMARY

The Countywide Regional Transportation Impact Fee Program study was conducted by the Lake County/City Area Planning Council to facilitate adoption of an AB 1600 fee program. This program will provide partial funding for future transportation improvement needs. These needs are specifically required to support future development anticipated by Year 2030.

WHY ADOPT A TRANSPORTATION IMPACT FEE PROGRAM?

Impact fee programs are specifically designed to develop funding sources to ensure adequate infrastructure is constructed concurrent with new development. Adopting this program will help to ensure that necessary multi-modal transportation improvements are constructed as new development projects are approved.

This fee program is not intended (and restricted by AB 1600 fee program requirements) to fund improvements required to mitigate (fix) existing problems. All existing transportation system deficiencies were first identified and the costs required to mitigate these conditions removed from the fee program improvement projects.

IS THE FEE PROGRAM CONSISTENT WITH CURRENT PLANNING STUDIES?

To ensure conformance with previously prepared studies, the following planning documents are considered as support documents to this study:

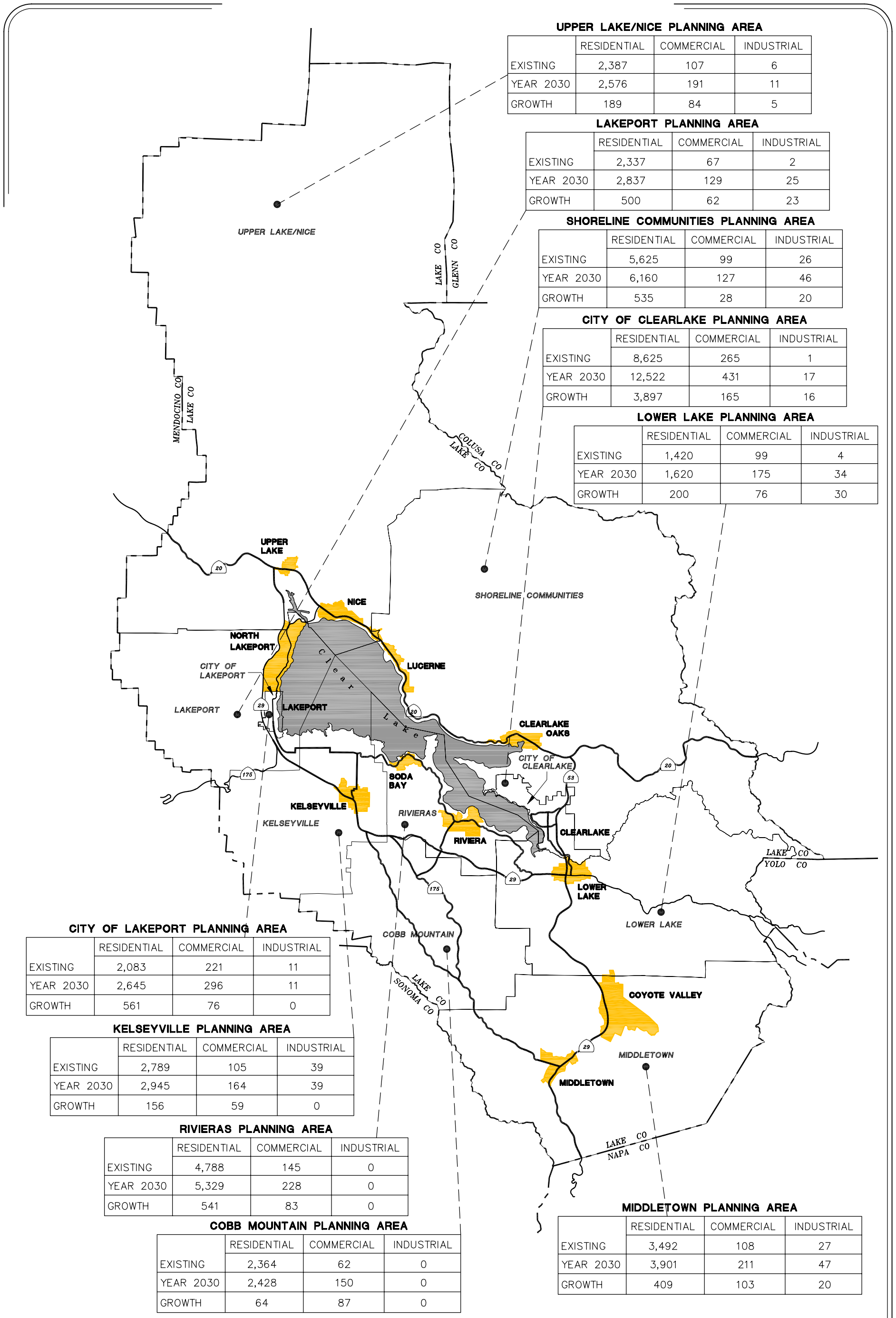
- *Transit Development Plan* (June 2004)
- *Wine Country IRP Final Report* (June 30, 2004)
- *Lake County Regional Transportation Plan* (October 2005)
- *Lake 20/29/53 Comprehensive Corridor Study* (November 8, 2005)
- *Highway 20 Traffic Calming and Beautification Plan* (August 2006)
- *Lake County Regional Bikeway Plan* (August 9, 2006)
- *Wine Country IRP Origin Destination Study* (December 29, 2006)

HOW WERE TRANSPORTATION IMPROVEMENT NEEDS DETERMINED?

Future transportation improvement needs within Lake County, City of Lakeport, and City of Clear Lake were identified first by developing a travel demand model. The model included all significant transportation networks within both the County and City areas. Both existing and future land use estimates were prepared and divided into zones. Figure ES-1 provides a summary by County Planning Areas and Cities of both existing and anticipated future development estimates.

The software used to develop the travel demand model provides the ability to determine daily travel characteristics for each land use type. Origin and destination data obtained from the *Wine Country IRP Jobs Housing Imbalance* and *Wine County IRP Origin Destination Study* reports were used to calibrate these models. Existing and anticipated home-to-work trip characteristics were specifically modeled for each of the separate population areas (Cities/communities) within the County.

Daily roadway traffic volume forecasts obtained from the travel demand model were used to prepare roadway Level of Service (LOS) calculations. Transportation facilities that are anticipated to operate below adopted LOS thresholds were identified as deficient and needing improvements.



UPPER LAKE/NICE PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	2,387	107	6
YEAR 2030	2,576	191	11
GROWTH	189	84	5

LAKEPORT PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	2,337	67	2
YEAR 2030	2,837	129	25
GROWTH	500	62	23

SHORELINE COMMUNITIES PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	5,625	99	26
YEAR 2030	6,160	127	46
GROWTH	535	28	20

CITY OF CLEARLAKE PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	8,625	265	1
YEAR 2030	12,522	431	17
GROWTH	3,897	165	16

LOWER LAKE PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	1,420	99	4
YEAR 2030	1,620	175	34
GROWTH	200	76	30

CITY OF LAKEPORT PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	2,083	221	11
YEAR 2030	2,645	296	11
GROWTH	561	76	0

KELSEYVILLE PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	2,789	105	39
YEAR 2030	2,945	164	39
GROWTH	156	59	0

RIVIERAS PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	4,788	145	0
YEAR 2030	5,329	228	0
GROWTH	541	83	0

COBB MOUNTAIN PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	2,364	62	0
YEAR 2030	2,428	150	0
GROWTH	64	87	0

MIDDLETOWN PLANNING AREA

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
EXISTING	3,492	108	27
YEAR 2030	3,901	211	47
GROWTH	409	103	20

Countywide Regional Transportation Impact Fee Program

Figure ES1

Existing and Anticipated Future Land Uses

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WHICH TRANSPORTATION IMPROVEMENT PROJECTS ARE INCLUDED IN IMPACT FEE PROGRAM?

Year 2030 transportation improvement needs were first determined by identifying all facilities that would operate with volumes in excess of daily LOS C capacity thresholds. Capacity thresholds were identified for each transportation facility type including facilities with sub-standard alignments and cross sections (i.e., roadways with narrow lanes and/or no shoulders). Substandard roadway configurations result in significantly lower capacities.

Future development anticipated by Year 2030 will significantly increase existing traffic volumes on most roadways within the County. The highest increases will occur on the State Highway system (i.e. State Routes 20, 29 and 53). Adding the required capacity to the State Highway system would require widening to a four-lane expressway standard. The majority of this highway system is located within areas of steep slopes, significantly increasing construction costs. Construction and full funding of many of these improvements have been determined by Caltrans to be infeasible. Total estimated costs to provide adequate Year 2030 capacity improvements are in excess of $1.97 billion dollars.

Year 2030 capacity improvements needs that were considered infeasible to either fund and/or construct within the next twenty years were removed from the list of anticipated Year 2030 improvements. This refined list of feasible transportation projects form the basis for the transportation improvement fee program. Any facility that is currently operating at deficient daily LOS conditions was then removed from this list as required by AB 1600 fee program requirements.

Figure ES-2 illustrates Year 2030 improvement needs. Figure ES-3 illustrates the Year 2030 transportation improvements included in the Transportation Impact Fee Program. Table ES-1 provides a detailed summary of all Year 2030 transportation fee program improvement needs along with costs included within the program. Improvements are categorized by recommended transportation impact fee zone of benefit areas (as discussed the following section). Funding for projects included within the fee program totals $313 million.

All County and City improvement projects included in the fee program are funded one hundred percent. Caltrans projects would be funded at a twenty five percent level. Partial funding of State owned transportation facilities ensures local agency support for these important projects.

WHAT ARE SAFETY AND OPERATIONAL IMPROVEMENTS?

Roadways where Year 2030 improvement needs were considered infeasible, alternative short-term improvements have been included. The majority of these improvements can be characterized as “safety and operational” improvements. These projects would include improvements that include (are but not limited to); intersection and sight distance improvements, shoulder widening, and alignment improvements.

Safety and operation level improvements add an incremental amount of facility capacity by increasing comfortable and perceived safe travel speeds. Intersection and roadway alignment improvements provide the greatest added traffic carrying capacity. Safety and operational improvements have been included within the fee program consistent with nexus requirements between new development and the roadway capacity improvements required to support this new growth.

HOW WERE THE VARIOUS IMPACT FEE ZONES OF BENEFIT DETERMINED?

Impact fee zones of benefit were established based upon the nexus (direct relationship) between anticipated areas of future development and transportation facility needs required to support these development areas. Existing County Planning Area and City Limit boundaries were used to standardize

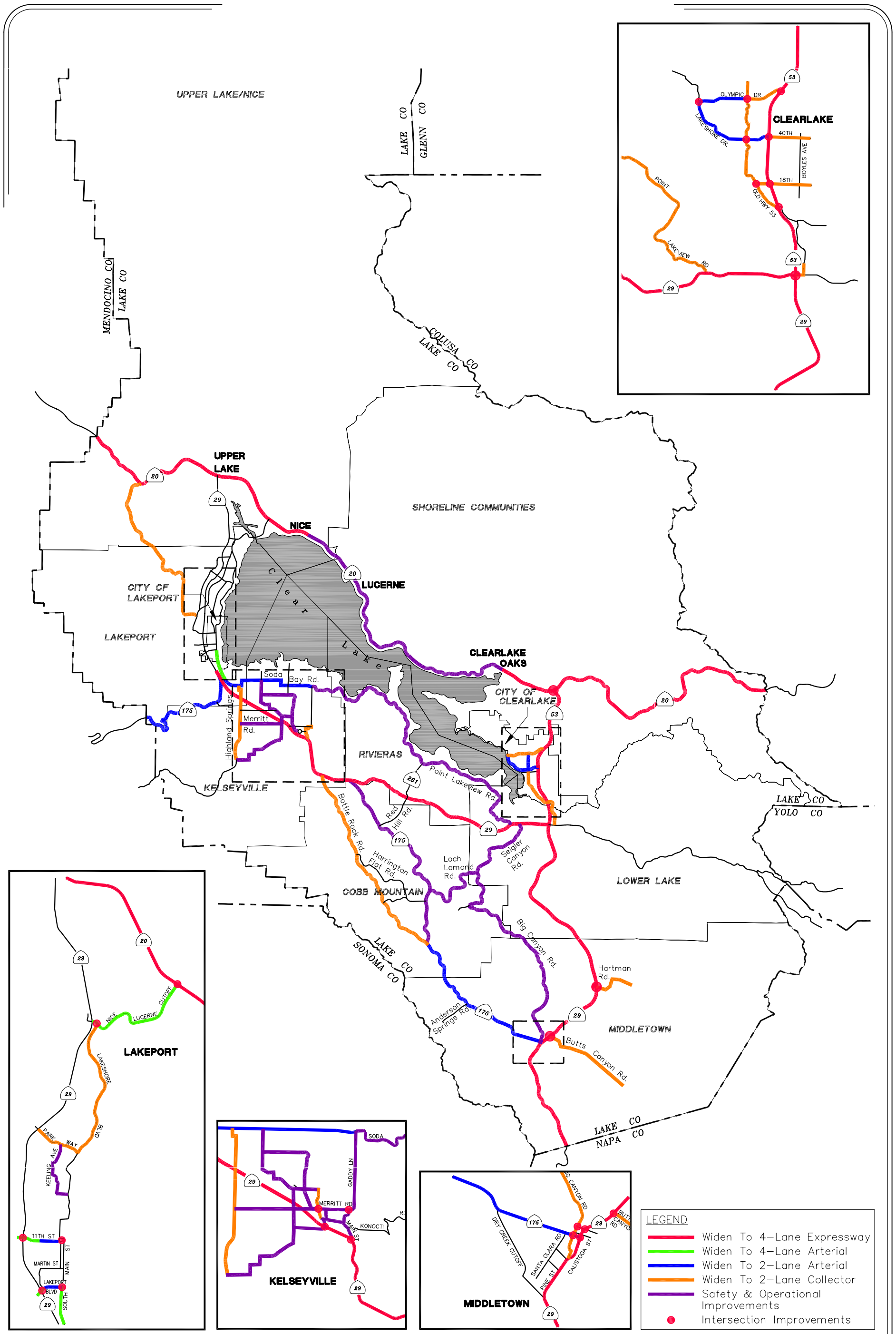
these development areas. A total of five (5) local zones have been recommended as illustrated in Figure ES-4.

In addition to the five localized zones, a sixth regional countywide zone has been recommended. This zone would include a majority of State (Caltrans) facility improvements, along with other significant regionally important roadways. Each of the five local zones would pay two different impact fees, one for local improvements, and a second regional facility fee (represented by this sixth countywide zone). Fees collected from each zone would be spent only on those facility improvements identified within that zone. The separate regional facility fee would be combined from all five local zones and spent on all regionally significant facility improvements throughout the County (as identified in the fee program).

Facility improvements within the Upper Lake/Nice/Shoreline Communities fee zone would include the beautification and traffic calming improvements along SR 20. These improvements are considered as local improvements with a direct benefit to future development within this zone. Traffic calming along this section of roadway will result in lower daily capacities. These reductions would be offset by payment of the regional facility fee that provides additional capacity along the State Route (SR) 53/SR 29 preferred Principle Arterial Corridor, consistent with the Regional Transportation Plan.

HOW WERE IMPACT FEES CALCULATED?

Transportation impact fees for each zone were calculated by dividing the estimated facility improvement costs by the anticipated traffic volumes associated with new development. Specifically, the fee is based upon total PM peak hour trip generation. Development projects would pay a fee directly related to the anticipated volume of PM peak hour traffic. The higher the traffic, the higher the fee. The standardized unit of measure is Equivalent Dwelling Units (EDU). The relationship between EDUs and PM peak hour trips is simple, one PM peak hour trip equals one EDU.



Countywide Regional Transportation Impact Fee Program Figure ES2

Year 2030 Travel Demand Model Roadway Capacity Needs

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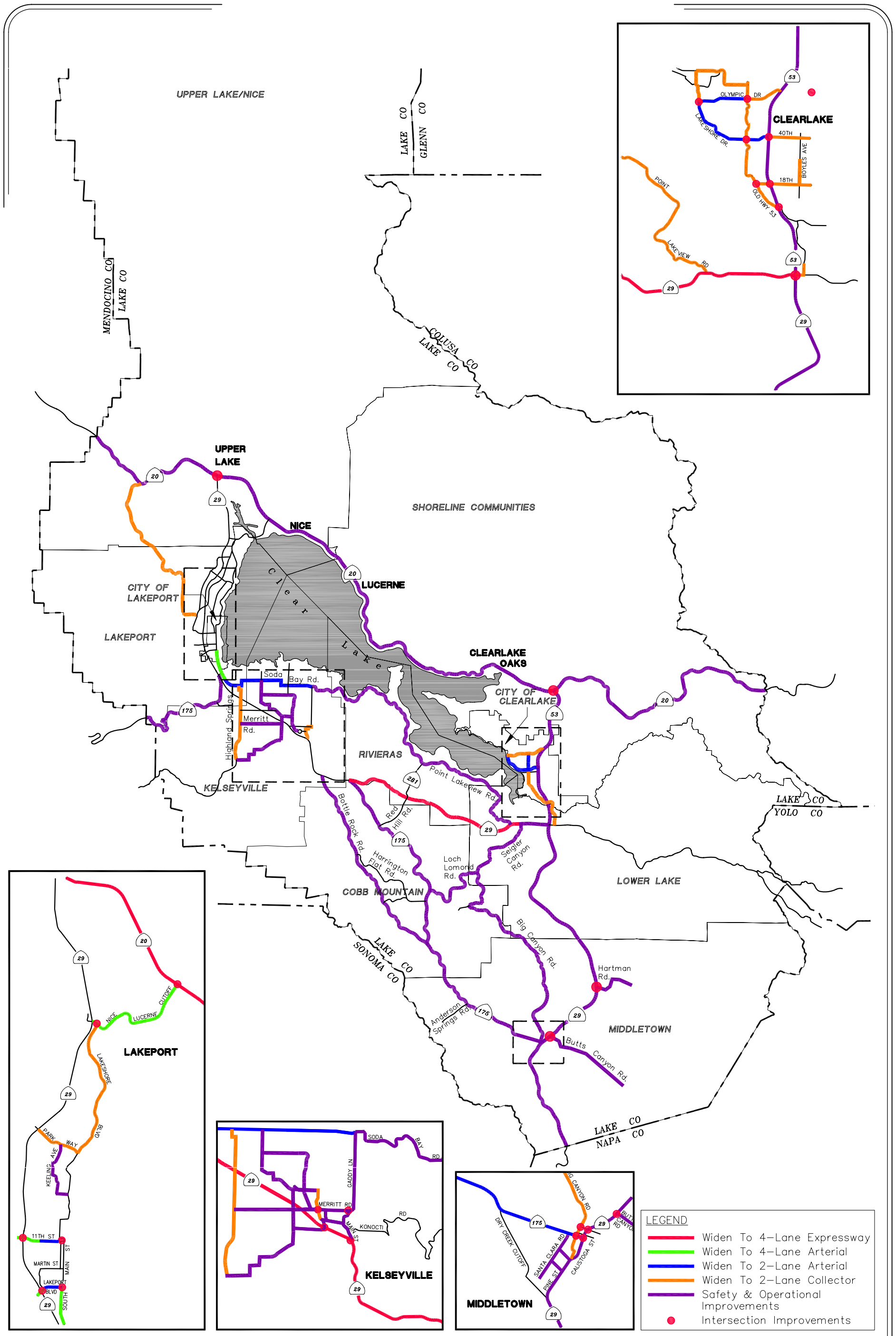

Countywide Regional Transportation Impact Fee Program

Figure ES3

Year 2030 Transportation Impact Fee Program Improvements

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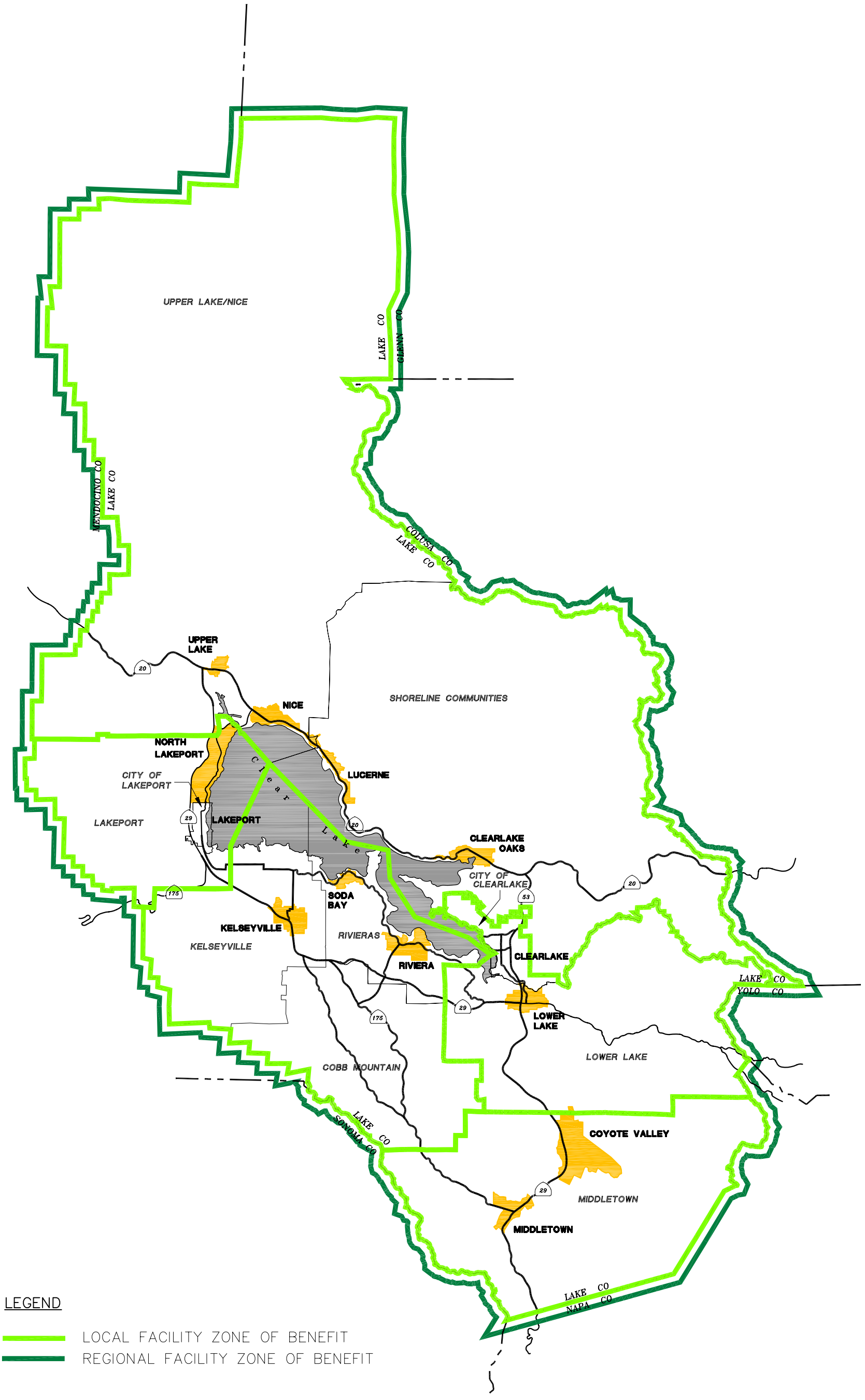

Countywide Regional Transportation Impact Fee Program

Figure ES4

Transportation Impact Fee Zone of Benefit Boundaries

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Table ES-1
Year 2030 Fee Program Improvements

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1,000 $)	Cost Imcluded in the Fee Program
Kelseyville/Rivieras/Cobb Planning Areas	**KRC#4**	**Gaddy Ln.** - Loasa Rd. to Soda Bay Rd.	Two lane rural raodway	Roadway Improvements	$6,383	$6,383
	KRC#10	**Merritt Rd.** - SR 29 to Big Valley Rd.	Two lane rural raodway	Safety and operational improvements	$3,119	$3,119
	KRC#11	**Highland Springs Rd**. - SR 29 to Bell Hill Rd.	Two lane rural raodway	Improve to two-lane collector	$2,652	$2,652
	KRC#12	**Main St**. (Kelseyville) - Bell Hill Rd. to State St.	Two lane rural roadway	Widen to two-lane undivided arterial	$2,679	$2,679
				Total Cost	**$14,833**	**$14,833**
Lakeport Planning Area incl. City of Lakeport	**LP #1**	**Park Way.** - SR 29 SB ramps to Lakeshore Blvd.	Two lane roadway	Improve to two-lane collector	$5,270	$5,270
	LP #2	**S.Main St**. - Lakeport Blvd. to SR 175	Two lane roadway	Improve to four-lane undivided arterial	$5,511	$5,511
	LP #3	**11th St.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway improvements and signalization at some intersections	$7,353	$7,353
	LP #4	**High St**. - 16th St. to 20th St.	Two lane roadway	Traffic signals at 16th St. and 20th St.	$560	$560
	LP #5	**Lakeshore Blvd.** - city limits to Nice Lucerne Cut-off	Two lane roadway	Roadway improvements and signalization at some intersections	$20,588	$20,588
	LP #6	**Lakeport Blvd.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway and intersection improvements	$6,238	$6,238
	LP #10	**Soda Bay Rd.** - SR 175/S.Main St. to Lakeport Planning Area boundary	Two lane roadway	Roadway & intersection improvements	$10,285	$10,285
	LP #11	**Scotts Valley Rd.** - Hill Rd./Halberg Rd. to SR 29 SB ramps	Two lane roadway	Widen to two-lane undivided arterial	$6,304	$6,304
				Total Cost	**$62,109**	**$62,109**

Table ES-1
Year 2030 Fee Program Improvements

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1,000 $)	Cost Imcluded in the Fee Program
City of Clear Lake/Lower Lake Planning Area	**CL #1**	**Lakeshore Dr.** - SR 53/W 40th Ave. to Park St./Manakee St.	Two lane roadway	Roadway widening and intersection improvements incl. parking lot construction	$9,097	$9,097
	CL #2	**Old Hwy. 53** - Olympic Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements	$8,465	$8,465
	CL #3	**Olympic Dr.** - Lakeshore Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements	$4,189	$4,189
	CL #4	**40th Ave.** - SR 53 to Phillips Ave.	Two lane roadway	Widen to two-lane undivided arterial	$1,300	$1,300
	CL #5	**18th Ave.** - SR 53 to Boyles Ave.	Two lane roadway	Widen to two lane undivided arterial	$2,658	$2,658
	CL #6	**Dam Rd.** - Lake St. to SR 53	Two lane roadway	Roadway and intersection improvements	$1,275	$1,275
	CL #7	**Boyles Ave.** - 18th Ave. to 33rd Ave.	Two lane roadway	Improve to 2-lane collector	$2,047	$2,047
	CL #8	**Burns Valley Rd** - Old Hwy. 53 to Arrowhead Rd.	Two lane roadway	Roadway and intersection improvements	$3,721	$3,721
	CL #9	**Arrowhead Rd.** - Burns Valley Rd. to Pomo Rd.	Two lane roadway	Improve to 2-lane collector	$828	$828
	CL #=10	**Pomo Rd.** - Arrowhead Rd. to Lakeshore Dr.	Two lane roadway	Improve to 2-lane collector	$768	$768
				Total Cost	**$34,348**	**$34,348**
Middletown Planning Area	**MID#2**	**Hartmann Rd.** - SR 29 to Stinson Ranch Rd.	Two lane rural roadway	Safety and operational improvements	$1,343	$1,343
	MID#7	**Butts Canyon Rd.** - SR 29 to Loconomi Ln.	Two lane rural roadway	Widen to two-lane undivided arterial	$9,118	$9,118
				Total Cost	**$10,461**	**$10,461**
Upper Lake/Nice	**ULS #1**	**SR 20** - Nice Lucerne Cut-off to Sulphur Banks Drive	Two lane roadway	Safety and operational improvements	$19,648	$19,648
				Total Cost	**$19,648**	**$19,648**

Table ES-1
Year 2030 Fee Program Improvements

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1,000 $)	Cost Imcluded in the Fee Program
Countywide Regional Transportation Facilities	**LAK#1**	**SR 29** - Nice Lucerne Cut-off to Lakeport Blvd.	Four-lane freeway	Intersection improvements at ramp intersections	$2,518	$630
	LAK#3	**SR 29** (SR 175 to Diener Dr.)	Two lane arterial with some sections having a passing lane	Widen to a four-lane expressway	$200,000	$50,000
	LAK#5	**SR 29** - Diener Dr. to SR 53	Two lane arterial	Safety and operational improvements	$2,032	$2,032
	LAK#7	**SR 29** - SR 29/SR 53 to Lake/Napa County line	Two lane arterial	Safety and operational improvements	$12,477	$12,477
	LAK#9	**SR 53** - SR 29 (Lowerlake) to SR 20/SR 53	Two lane arterial wth some sections being four-lane	Safety and operational improvements	$5,240	$5,240
	LAK#11	**SR 20** - SR 53 to Lake/Yolo County line	Two lane arterial with some sections having a passing lane	Safety and operational improvements	$8,855	$8,855
	LAK#12	**SR 20** - SR 29 jct to Lake/Mendocino County line	Two lane arterial with some sections having a passing lane	Safety and operational improvements	$7,299	$7,299
	LAK#14	**SR 175** - Lake/Mendocino County line to SR 29	Two lane roadway	Safety and operational improvements	$4,745	$4,745
	LAK#16	**SR 175** -Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Safety and operational improvements	$3,462	$3,462
	LAK#17	**Nice Lucerne Cut-off** -SR 29 ramps to SR 20	Two lane roadway	Widen to two lane/four lane undivided arterial	$13,830	$13,830
	LAK#18	**Bottle Rock Rd.** - SR 29 to SR 175	Two lane roadway	Safety and operational improvements	$6,494	$6,494
	LAK#19	**SR 20/SR 53 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements	$3,000	$750
	LAK#20	**SR 20/SR 29 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements	$3,000	$750
				Total Cost	**$272,952**	**$116,564**
				TOTALS	**$414,351**	**$257,963**

HOW MUCH WOULD THE FEES COST?

The following two tables provide a summary of the local and regional impact fees by zone of benefit. Table ES-2 contains fee costs separated into the local facility cost and regional facility cost components. Table ES-3 contains fee costs associated with payment of both the local and regional facility fee.

TABLE ES-2
TRANSPORTATION IMPACT FEE ZONE OF BENEFIT
COSTS PER EQUIVALENT DWELLING UNITS

Zone of Benefit	Transportation Improvement Cost Estimates (Exclding State Facilities Improvements)	State Facility Cost Estimates Included In Fee Program	Total Transportation Improvement Cost Estimates	Equivalent Dwelling Units (EDU's)	Transportation Impact Fee Program Cost Per EDU
Lakeport Planning Area	$62,102,127	$0	$62,102,127	3,088	$20,111
City of Clear Lake/Lower Lake Planning Area	$34,329,075	$0	$34,329,075	6,560	$5,233
Middletown Planning Area	$10,460,640	$0	$10,460,640	1,966	$5,321
Kelseyville/Rivieras/Cobb Planning Areas	$14,831,159	$0	$14,831,159	3,396	$4,367
Upper Lake/Nice/Shoreline Communities Planning Areas	$19,647,775	$0	$19,647,775	2,929	$6,708
Countywide Regional Transportation Facilities	$0	$116,712,485	$116,712,485	17,939	$6,506
Totals	**$141,370,776**	**$116,712,485**	**$258,083,261**		

TABLE ES-3
TRANSPORTATION IMPACT FEE COSTS BY ZONE OF BENEFIT

Zone of Benefit	Equivalent Dwelling Units (EDU's)	Percent of total	Local Zone of Benefit Cost Per EDU	Regional Zone of Benefit Cost per EDU	Combined Local/Regional Cost Per EDU
Lakeport Planning Area	3,088	17.2%	$20,111	$6,506	$26,617
City of Clear Lake/Lower Lake Planning Area	6,560	36.6%	$5,233	$6,506	$11,739
Middletown Planning Area	1,966	11.0%	$5,321	$6,506	$11,827
Kelseyville/Rivieras/Cobb Planning Areas	3,396	18.9%	$4,367	$6,506	$10,873
Upper Lake/Nice/Shoreline Communities Planning Areas	2,929	16.3%	$6,708	$6,506	$13,214

WHO WOULD PAY IMPACT FEES?

Transportation impact fees would only be charged on new development projects. Existing development within the County and Cities would not be required to pay any fees. However, fees would be charged to any significant redevelopment of existing buildings.

HOW DO THE PROPOSED FEES COMPARE WITH OTHER LAKE COUNTY/CITY FEES

The transportation impact fees would be additive to existing building permit fees. Table ES-4 provides a summary of typical residential development fees for the County and both Cities. Table ES-5 provides the estimated total fee structure within inclusion of the proposed transportation impact fees.

TABLE ES-4
LAKE COUNTY/CITY FEE SUMMARY
(BASED ON TYPICAL SINGLE FAMILY RESIDENCE)

Fee Type	Lake County	City of Lakeport	City of Clearlake
Building Permit	$2,200	$3,200	$1,500
Plan Check Fee	$60	-	$1,000
Water	$4,500	$4,600	$4,000
Sewer	$5,500	$7,500	$4,300
Fire	$2,000	$2,500	$1,100
School	$5,260	$4,500	$5,260
Construction Traffic Road Fee	$1,000	-	-
Total Existing Fees	**$20,520**	**$22,300**	**$17,160**
Note: These fees are estimated fees ONLY, and are based upon a typical 2,000 square foot dwelling unit. Actual fees will differ.			

TABLE ES-5
LAKE COUNTY/CITY FEE SUMMARY
INCLUDING NEW TRANSPORTATION IMPACT FEE (TIF)
(BASED ON TYPICAL SINGLE FAMILY RESIDENCE)

Locations within Lake County	Existing Fees	Proposed New TIF	Total Fees Including New TIF
Lakeport Planning Area	$20,520	$24,119	$44,639
City of Lakeport	$22,300	$24,119	$46,419
City of Clear Lake	$17,160	$11,739	$28,899
Lower Lake Planning Area	$20,520	$11,739	$32,259
Middletown Planning Area	$20,520	$11,827	$32,347
Kelseyville Planning Area	$20,520	$10,873	$31,393
Riveras Planning Area	$20,520	$10,873	$31,393
Cobb Planning Area	$20,520	$10,873	$31,393
Upper Lake/Nice Planning Area	$20,520	$13,214	$33,734
Shoreline Communities Planning Area	$20,520	$13,214	$33,734
Note: These fees are estimated fees ONLY, and are based upon a typical 2,000 square foot dwelling unit. Actual fees will differ.			

HOW DO THE PROPOSED FEES COMPARE TO SURROUNDING AGENCY FEES?

Other agencies throughout California have adopted transportation impact fees to fund future facility needs. Table ES-6 provides a summary of fees from agencies within California, and those in the vicinity of Lake County that currently have adopted this type of fee program. As identified in Table ES-6, the proposed new TIF fees for Lake County are significantly higher than those adopted by adjacent agencies. Adoption of fees lower than identified within this study would require additional transportation funding from other sources.

TABLE ES-6
ADJACENT AGENCY TRAFFIC FEE PROGRAMS AND TOTAL FEES

Location	Local Traffic Fee	Total Fees
Sonoma County	$8,915	$37,009
City of Windsor	$7,552	$37,438
City of Vacaville	$8,047	$40,582
City of Napa	$6,820	$45,889
Yuba City	$3,318	$21,086
City of St. Helena	$1,337	$53,137
Averages	**$5,998**	**$39,190**

Source: Department of Housing and Community Development (Year 1998 data adjusted for Year 2007 values per single family dwelling units

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Transportation Impact Fee Joint Meeting Follow-up

The following are comments/questions/concerns that APC staff heard at the joint meeting. We need to ensure that the final report addresses each of these issues.

1. The biggest problem we have is street/road maintenance; we should be focusing on that. You tell us you can't use the fees for maintenance.

   Response: Impact fees cannot be used to for roadway maintenance. The law requires that fees be only accessed to new construction projects and specifically fund roadway capacity projects required to support the new construction.

2. I don't understand why the fees in Lakeport would be so high.

   Response: Fees within the Lakeport area were established based upon the cost of new roadway projects divided by the new traffic associated with new construction anticipated over the next twenty years. The fees within the Lakeport area are comparatively higher than other zones because the roadway project costs are higher and the new traffic volumes relatively lower.

3. If we are going to implement these, shouldn't the fees be the same all around the county?

   Response: Ideally, fees within each zone of benefit should be similar. The fee amounts identified in the Draft Report represent the highest fees within each zone that could be adopted. Fees can be adjusted lower by removing projects from the list of improvements funded within a specific zone. Removing projects can create an even fee amounts.

4. Does a developer have to make improvements to the adjacent street/road and then have to pay this fee as well?

   Response: If the adjacent roadway is within the fee program a developer may be required to construct an improvement, and also pay the fee. However, the developer would be ultimately reimbursed for the full cost of construction. If the adjacent roadway is not within the fee program,

and the local agency requires improvements, then these improvements would be additional to paying the fee, and no reimbursement would be provided.

5. Implementation of these fees will be a burden on development, especially now when we are experiencing a downturn

   Response: Impact fee amounts can be adjusted to correspond with the economy. However, fee amounts greater than those identified in the Draft Report cannot be adopted, only lower fees.

6. This is just another tax that will feed the bureaucracy of a broken system

   Response: Impact fees are a legitimate funding mechanism for roadway improvement projects. Fee programs have fairly low administrative costs.

7. I do not know why we need to create another bureaucracy to administer this fee program.

   Response: Implementation of a regional fee program with multiple zones is best managed by a Joint Powers Authority. This agency would provide oversight, ensure that the adopted priority methodologies are properly followed, and manage the various impact fee accounts

8. The city should be in charge of any fees collected in the city.

   Response: The zone of benefit structure identified within the proposed fee program include areas within City, County, and State jurisdictions. Administration of fees by each agency would be duplicative and result in an overly complex and confusing program.

9. The proposed fees are much too high for an area like Lake County.

   Response: Fees within the Draft Report represent the highest fees that can be legally adopted. Lower fees can be adopted by removing roadway projects within certain zones.

10. One way of lowering the proposed fees is to eliminate the Regional Fee portion.

    Response: Elimination of the regional fee component would reduce funding of critical State and County regional facilities within Lake County. Fees can also be lowered by removing projects from individual zones, including the regional zone.

11. The State should be paying for improvements to State highways, not us.

    Response: The proposed impact fee program includes funding for twenty five percent of the feasible State highway improvements. State or Federal money would be required for the remaining seventy-five percent.

12. Who is going to decide what the priorities are for construction of these improvements?

    Response: The final report would include a proposed priority methodology.

13. We need some time to look into the underlying assumptions of this fee program and understand it.

    Response: The Draft Report will be circulated for review and comment.

14. There is going to be more development in Lakeport than you indicate in this program.

    Response: Development assumptions used in this study were obtained directly from local agencies, and are consistent with existing general plans (including the County's General Plan Update).

15. Who established the proposed list of projects?

    Response: Transportation projects identified within the fee program were established primarily from Year 2030 roadway capacity needs. Extensive coordination with local agencies and Caltrans helped to refine this list.

16. In the ZOBs that include a city and unincorporated area it is evident that each agency will want perceive their project as a priority, so how will it be determined which are done first?

    Response: The final report would include a proposed priority methodology.

17. In the ZOBs that include a city and unincorporated area, who will collect the fees if this is not a countywide effort?

    Response: If a Joint Powers Authority were not established to collect fees then each local agency would collect fees within their respective jurisdictions. However, each agency would need to coordinate the funding of priority project collectively.

18. Can more projects be added to the regional list?

    Response: Transportation projects that are required to provide Year 2030 capacity can be added to the regional list. Many of these projects were removed based upon feasibility and funding constraints.

INTRODUCTION

Lake County experienced tremendous growth in the 1970's. The decades that followed have resulted in slower growth however local, State, and federal revenues have not kept pace with transportation infrastructure needs. New revenue sources are required to provide adequate transportation facilities to support growth anticipated by the Year 2030. The Countywide Regional Transportation Impact Fee Program study was conducted by the Lake County/City Area Planning Council to facilitate adoption of an AB 1600 fee program. This program will provide partial funding for future transportation improvement needs. These needs are specifically required to support future development anticipated by Year 2030.

Impact fee programs are specifically designed to develop funding sources to ensure adequate infrastructure is constructed concurrent with new development. Adopting this program will help to ensure that necessary multi-modal transportation improvements are constructed as new development projects are approved. This fee program is not intended (and restricted by AB 1600 fee program requirements) to fund improvements required to mitigate (fix) existing problems. All existing transportation system deficiencies were first identified and the costs required to mitigate these conditions removed from the fee program improvement list.

CONSISTENCY WITH CURRENT PLANNING STUDIES

To ensure conformance with previously prepared studies, the following planning documents are considered as support documents to this study:

- Transit Development Plan (June 2004)
- Wine County IRP Final Report (June 30, 2004)
- Lake County Regional Transportation Plan (October 2005)
- Lake 20/29/53 Comprehensive Corridor Study (November 8, 2005)
- Highway 20 Traffic Calming and Beautification Plan (August 2006)
- Lake County Regional Bikeway Plan (August 9, 2006)
- Wine County IRP Origin Destination Study (December 29, 2006)

STUDY AREA

Included in this report is a description of the existing transportation setting; the current PM peak hour and roadway ADT traffic operations at selected intersections and roadway segments. Also included in this report is an analysis and discussion of the following items:

- Summary of existing and Year 2030 land uses within different planning areas.
- The projected *Year 2030 Base* (Year 2030) peak hour and roadway segment traffic operations.
- Facilities which are identified to operate at unacceptable LOS including possible mitigation measures that could reduce these impacts to less than significant levels

Lake County is located in northwestern California and fall under the jurisdiction of Caltrans District 1. The California Department of Finance estimates that Lake County's year 2005 population is 65,147. State Route 29 and State Route 20 provide north-south and east west regional access to/from the County. Lake County has two incorporated` cities namely the City of Lakeport and the City of Clear Lake. It also includes the following planning areas:

- Upper Lake including Nice
- Lakeport
- Kelseyville
- Cobb Mountain
- Middletown
- Lowerlake
- Shoreline Communities
- Rivieras

Figure 1 illustrates the location and boundaries of Lake County including the planning areas, which it consists of.

Countywide Regional Transportation Impact Fee Program

Figure 1

Lake County Planning Areas and Boundaries

FILE: T990TG01.DWG(28MAY08)25-4306-01

LEVEL OF SERVICE METHODOLOGIES

Traffic operations within this traffic impact fee study have been quantified through the determination of "Level of Service" (LOS). Level of service is a qualitative measure of traffic operating conditions, whereby, a letter grade A through F is assigned to an intersection or roadway segment representing progressively worsening traffic conditions.

Levels of Service will be calculated for all intersection control types using methods documented in the Transportation Research Board (TRB) Publication *Highway Capacity Manual, Fourth Edition, 2000* (HCM-2000). For two-way-stop-controlled (TWSC) intersections, the "worst-case" movement delays and LOS will be reported, computed based on HCM-2000. For signalized intersections and all-way-stop-controlled (AWSC) intersections, the intersection delays and LOS reported are the average values for the whole intersection, computed based on HCM-2000. The delay-based LOS criteria for different types of intersection control are identified in Table 1. The delay-based LOS criteria for different types of roadways as identified d in Table 2.

LOS C will be taken as the minimum acceptable threshold for intersection and roadway segment operations.

To determine whether "significance" should be associated with unsignalized intersection operations, a supplemental traffic signal "warrant" analysis has also been completed. The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an otherwise unsignalized intersection. This study has employed the signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD),* as amended by the *MUTCD 2003 California Supplement,* for all study intersections. The signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, frequency of accidents, location of school areas etc. Both the FHWA's MUTCD and the *MUTCD 2003 California Supplement* indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, this study will utilize the Peak-Hour-Volume based Warrant 3 as one representative type of traffic signal warrant analysis. Warrant 3 criteria are basically identical for both the FHWA's MUTCD and the *MUTCD 2003 California Supplement*. Since Warrant 3 provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating at above 40 mph), study intersections which use this specialized criteria will be clearly identified.

Within this study, a warrant analysis has been performed for all study intersections, which are projected to operate at unacceptable LOS.

TABLE 1
LEVEL OF SERVICE (LOS) CRITERIA FOR INTERSECTIONS

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle		
				Signalized	Un signalized	All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	< 10.0	< 10.0	< 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel some what restricted within groups of vehicles.	>10.0 and < 20.0	>10.0 and < 15.0	>10.0 and < 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and < 35.0	>15.0 and < 25.0	>15.0 and < 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and < 55.0	>25.0 and < 35.0	>25.0 and < 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and < 80.0	>35.0 and < 50.0	>35.0 and < 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0	> 50.0	> 50.0

TABLE 2
LEVEL OF SERVICE (LOS) CRITERIA FOR ROADWAYS

Roadway Type	Average Daily Traffic (ADT) – Total of Both Directions				
	LOS A	LOS B	LOS C	LOS D	LOS E
4-Lane Freeway	50,000	60,000	70,000	80,000	90,000
4-Lane Expressway (high access control)	24,000	28,000	32,000	36,000	40,000
4-Lane Divided Arterial (with left-turn lane)	22,000	25,000	29,000	32,500	36,000
4-Lane Undivided Arterial (no left-turn lane)	18,000	21,000	24,000	27,000	30,000
2-Lane Arterial (with left-turn lane)	11,000	12,500	14,500	16,000	18,000
2-Lane Arterial (no left-turn lane)	9,000	10,500	12,000	13,500	15,000
4-Lane Collector	12,000	15,000	18,000	21,000	24,000
2-Lane Collector	6,000	7,500	9,000	10,500	12,000
Sub-standard 2-Lane Collector	900	1800	3600	5900	10100

Notes: 1. Based on Highway Capacity Manual, Fourth Edition, Transportation Research Board, 2000.

2. All volume thresholds are approximate and assume ideal roadway characteristics. Actual thresholds for each LOS listed above may vary depending on a variety of factors including (but not limited to) roadway curvature and grade, intersection or interchange spacing, driveway spacing, percentage of trucks and other heavy vehicles, lane widths, signal timing, on-street parking, volume of cross traffic and pedestrians, etc.

EXISTING TRANSPORTATION CONDITIONS

EXISTING ROADWAY NETWORK

The following roadways form the primary roadway system within Lake County.

State Route 20 (SR 20) is a state facility that provides and east-west connection through northern California between Highway 1 on the coast and Interstate 80 in the Sierras. Regionally, SR 20 serves as an inter-regional auto and truck travel route that connects the Central Valley with the Cities of Williams, Marysville, Grass Valley, and Nevada City. Within Lake County, SR 20 provides for inter-regional through travel as well as locally based travel between the communities of Clear Lake, Clear Lake Oaks, Glenhaven, Lucerne, Nice, Upper Lake, and Lakeport.

Within the study area SR 20 is a two-lane undivided arterial with some passing lanes. The *1998 California Interregional Transportation Strategic Plan* added SR 20 as a "Principal Arterial Corridor" since it provides critical accessibility for the interregional movement of people, goods, agriculture, and recreational travel across the northern part of the state. It is one of ten corridors in the state to receive the highest priority for completion to minimum four-lane expressway facility standards over the next 20 years.

State Route 29 (SR 29) is a state facility that provides a north-south connection through central and northwestern California. Within the project area, SR 29 connects the Middletown area with the Lowerlake, Kelseyville, Rivieras, Lakeport, and Upper Lake/Nice planning areas. SR 29 is predominantly a two-lane arterial with short segments of passing lanes. In the Lakeport area, there is a 7.5 mile of full four-lane freeway with interchanges at Lakeport Blvd., 11th Street/Scotts Valley Road, Park Way, and the Nice Lucerne Cut-off.

State Route 53 (SR 53) is a rural principal arterial that provides north south circulation within Lake County, connecting SR 20 in the Shoreline Communities planning area with SR 29 in the Lowerlake Planning Area.

Bottle Rock Road and Nice Lucerne Cut-off are minor arterials providing circulation within the Lakeport and Cobb Mountain planning areas respectively.

State Route 175 (SR 175) provides east west connectivity within Lake County, and is functionally classified as a major collector between Bottle Rock Road.

The following study intersections are chosen for analysis during the PM peak hour, and were included for existing and Year 2030 traffic impact analysis.

1) State Route 20/Scotts Valley Road
2) State Route 20/State Route 29
3) State Route 20/Nice Lucerne Cut-off/Pyle Road
4) State Route 29/Lakeshore Blvd.
5) Country Club Drive/State Route 20
6) Foothill Drive (southern location)/State Route 20
7) State Route 20/State Route 53
8) Lakeshore Drive/Olympic Drive
9) State Route 53/Olympic Drive
10) State Route 29/State Route 53/Morgan Valley Road
11) State Route 29/Seigler Canyon Road
12) State Route 29/Point Lakeview Road

13) State Route 29/Butts Canyon Road
14) State Route 29/State Route 175 (in Middletown)
15) State Route 29/Dry Creek Cut-off
16) State Route 29/Red Hills Road/State Route 281(Soda Bay Road)
17) Soda Bay Road (State Route 281)/Pt. Lakeview Road
18) State Route 29/Main Street
19) State Route 29/Merrit Road
20) State Route 29/Argonaut Road
21) State Route 29/State Route 175 (in Kelseyville)
22) Lakeport Blvd./State Route 29 NB ramps
23) Lakeport Blvd./State Route 29 SB ramps
24) (Scotts Valley Road) 11th Street/State Route 29 NB ramps
25) (Scotts Valley Road) 11th Street/State Route 29 SB ramps
26) Nice Lucerne Cut-off/State Route 29 NB ramps
27) Nice Lucerne Cut-off/State Route 29 SB ramps
28) Nice Lucerne Cut-off/Lakeshore Blvd./Westlake Drive

Existing PM peak hour traffic counts were conducted by OMNI-MEANS on a weekday between March 14, and March 20, 2007. The PM peak hour is defined as one continuous hour of peak traffic flow counted between 4:00 p.m. and 6:00 p.m. under typical weekday conditions. Existing roadway counts at different locations were conducted by Dow & Associates.

Lane geometrics and control at all study intersections are illustrated on Figure 2. Existing AM and PM peak hour traffic volumes at the study intersections are illustrated on Figure 3.

PRINCIPAL ARTERIAL CORRIDOR (PAC)

The Principal Arterial Corridor (PAC) starts at the Route 101/20 junction north of the community of Calpella and continues on Route 20 southeast across the remainder of Mendocino County into Lake County. The PAC then follows Route 29 southeast to Route 53, then Route 53 north back to Route 20, then follows Route 20 east into Colusa County to Route I-5.

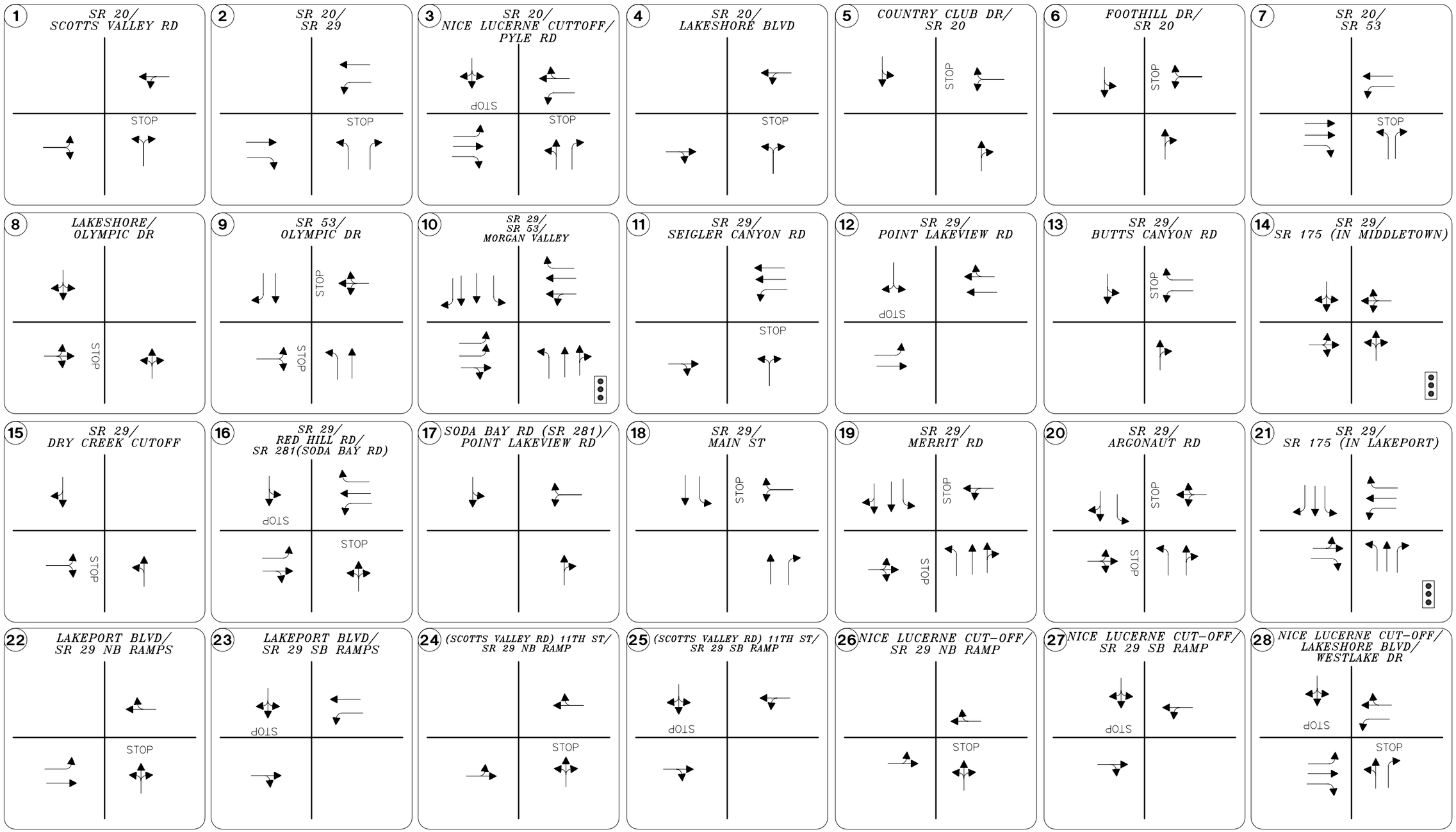
The PAC consists of the following segments of Routes 20, 29, 53:

- MEN-20-33.2/44.1 (State Route 101 to Lake County Line)
- LAK-20-0.0/8.3 (Lake County Line to Route 20/29 intersection)
- LAK-29-20.3/52.5 (South-Shore Lake 29 to State Route 53)
- LAK-53-0.0/7.45 (All of State Route 53)
- LAK-20-31.6/46.5 (Route 20/53 intersection to Colusa County Line)
- COL-20-0.0/R22.1 (Colusa County Line to Interstate 5)

Corridor Purpose

A Rural Principal Arterial (functional classification) serves corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel. This Principal Arterial was selected since major development along the North Shore of Clear Lake (Route 20) is not feasible due to environmental constraints. As the intervening Minor Arterial portion of Route 20 along the North Shore of Clear Lake becomes more congested, and improvements are made to Routes 29 and 53, it is anticipated that the PAC will be utilized by the majority of interregional traffic.

The PAC links Lake County with the Route 101 corridor near Ukiah on the west, and the Sacramento Valley on the east. Access to both of these areas is essential to Lake County's agricultural (fruit and nut orchards, vineyards) and tourist industries. In addition, the PAC provides access to communities along the Route.



Countywide Regional Transportation Impact Fee Program

Figure 2

Existing Intersection Lane Geometrics and Control

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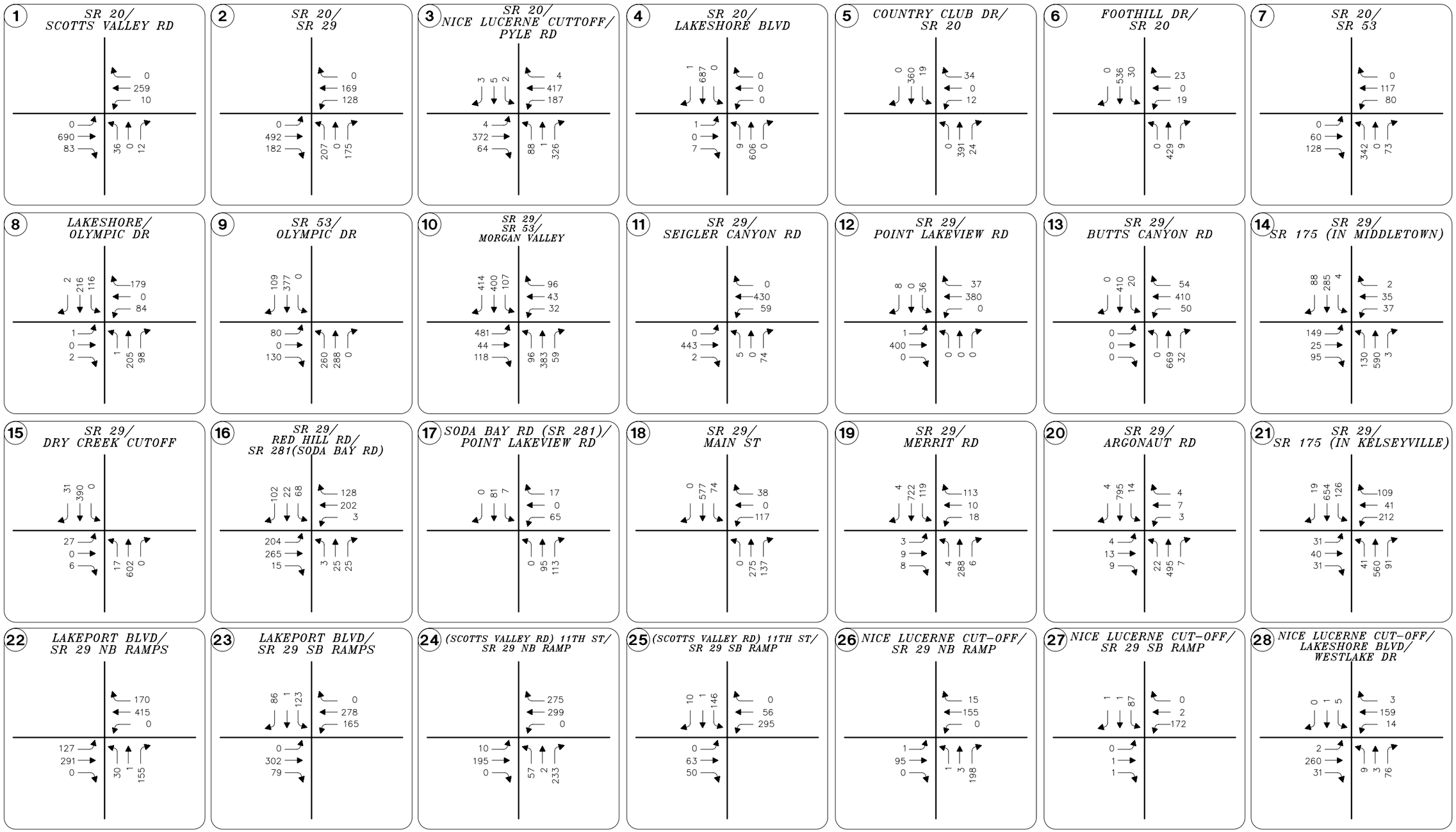

Countywide Regional Transportation Impact Fee Program

Figure 3

Existing PM Peak Hour Traffic Volumes

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The Route 53 segments of the PAC serve moderate to high volumes of local traffic in the community of Lower Lake, and through the City of Clear Lake, the largest City in Lake County. The Route also serves Anderson Marsh State Park, which is located about one mile north of the Community of Lower Lake along Route 53.

The PAC generally experiences light to moderate volumes of non-motorized traffic, with concentrations around the populated areas adjacent to the Route.

The following additional intersections were not included for peak hour intersection analysis, but are identified as important intersections within the County.

State Highway Intersections:

1. State Route 20/Main Street (in Upper Lake)
2. State Route 53/40th Avenue (in Clear Lake)
3. State Route 53/18th Avenue (in Clear Lake)
4. State Route 53/Dam Road/Old Highway 53 (in Clear Lake)
5. State Route 29/Wardlaw Street (in Middletown)
6. State Route 29/Hartmann Road (in Middletown)
7. State Route 29/Spruce Grove (southern location) (in Middletown)
8. State Route 29/Bottle Rock Road
9. State Route 29/Live Oak Drive (in Kelseyville)
10. State Route 29/Highland Springs Road (in Kelseyville)
11. State Route 175/Bottle Rock Road (in Kelseyville)
12. State Route 175/Loch Lomond (Cobb)
13. State Route 281 (Red Hills Road)/Fairway Drive (in Rivieras)

Clear Lake Intersections:

1. Lakeshore Drive/Old Highway 53
2. Lakeshore Drive/Olympic Drive
3. Olympic Drive/Old Highway 53 (Burns Valley Road)
4. Dam Road/Dam Road Extension
5. Dam Road/Lake Street

Lakeport Intersections:

1. Lakeport Blvd./Bevins Street
2. Lakeport Blvd./Main Street
3. 11th Street/Forbes Street
4. 11th Street/Main Street
5. Martin Street/Forbes Street
6. Martin Street/Main Street
7. 20th Street/Hartley Road
8. 20th Street/High Street

County Intersections:

1. Lakeshore Blvd./Park Way
2. Lakeshore Blvd./Hill Road
3. Park Way/Hill Road East
4. Lake Street/Morgan Valley Road (in Lowerlake)
5. State Street/Main Street (in Kelseyville)
6. State Street/Gaddy Lane
7. Konocti Road/Main Street (in Kelseyville)
8. Big Valley Road/Merritt Road
9. Big Valley Road/Soda Bay Road
10. Big Valley Road/Highland Springs Road

11. Soda Bay Road/Gaddy Lane
12. Soda Bay Road/Westlake Road (in Rivieras)
13. Soda Bay Road/S. Main Street (Soda Bay Road (State Route 281))
14. Lakeshore Blvd./Rainbow Road
15. State Route 20/Main Street (Upper Lake)
16. Soda Bay

ROADWAY CLASSIFICATION

Lake County contains many different types of transportation facilities. Each facility within the study area will be covered in this section, with a description of each facility and how these facilities interrelate to one another. This section provides an overview of the existing roadway classification system based on the existing Lake County General Plan Circulation plan element, the existing transportation setting and the performance methodologies used to analyze the County's existing and future transportation system. Any deficient roadway segments and intersections are identified and alternative roadway configurations are recommended.

The term "Roadway Classification" refers to the hierarchy by which streets and highways are grouped according to the type of service they are intended to provide. The following section discusses the roadway classification systems as defined in the Lake County General Plan Transportation and Circulation Element. This document currently is used by the County as a policy document for the County's roadway system.

Arterial Systems generally consist of a road network connecting regions, towns, and other major traffic generators to serve commercial, economic development and employment centers. It is intended to move people and goods into, through and out of the valley and generally be continuous from the point of entry into the Valley to the point of exit. The following classes of roadways fall under this category of road system.

- ***Freeways*** - Federally designated highway with two or more lanes in each direction separated by a barrier or median.
- ***Arterials*** - Facilities that link towns and major traffic generators. They are often heavily traveled and serve as a main street within a community. Their main function is to provide for the movement of traffic, with direct land access clearly a minor function

Collectors are facilities similar in nature to arterials where predominant travel distances are shorter when compared to the arterial route. These facilities generally originate and terminate at arterials, collectors, or neighborhood entrance with the primary purpose of moving the traffic between arterials and residential neighborhoods, or commercial/employment areas. These are again sub-divided into major and minor collectors and facilitate both through movement of traffic as well as provide for direct land access.

- ***Major Collectors*** are facilities that may be upgraded to an arterial in the future and usually limit on-street parking to maintain smooth flow. They provide travel within the County to communities not directly served by the State Highway System. Major collectors within Lake County include Lakeport Blvd, 11th Street, Nice Lucerne Cut-off, Old Highway 53, Olympic Drive, West 40th Avenue.
- ***Minor Collectors*** are facilities that collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road. This type of road accounts for less than 10% of the County road system.

- ***Local Roads*** are facilities consisting of rural and residential roads not otherwise classified, primarily serving travel over relatively short distances with a primary function of providing access to adjacent lands.

EXISTING TRAFFIC OPERATIONS

Intersections

Existing intersection traffic operations have been quantified using the traffic volumes, as identified in Figure 3, and the intersection lane geometrics, as identified in Figure 2. Table 3 shows the resulting intersection LOS.

TABLE 3
EXISTING CONDITIONS INTERSECTION LOS

#	Intersection	Control Type	Target LOS	PM Peak Hour		
				Delay	LOS	Warrant Met?
1	SR 20/Scotts Valley Rd.	TWSC	C	22.5	C	No
2	**SR 20/SR 29**	**TWSC**	**C**	**62.3**	**F**	**Yes**
3	**SR20/Nice Lucerne Cutoff/ Pyle Rd.**	**TWSC**	**C**	**49.8**	**E**	**Yes**
4	SR 20/Lakeshore Blvd.	TWSC	C	16.9	C	No
5	Country Club Dr./SR 20	TWSC	C	13.1	B	No
6	Foothill Dr. (southern location)/SR 20	TWSC	C	17.3	C	No
7	SR 20/SR 53	TWSC	C	22.6	C	No
8	Lakeshore Dr./Olympic Dr.	TWSC	C	21.1	C	No
9	**SR 53/Olympic Dr.**	**TWSC**	**C**	**35.8**	**E**	**Yes**
10	SR 29/SR 53/Morgan Valley Rd.	Signal	C	33.6	C	-
11	SR 29/Seigler Canyon Rd.	TWSC	C	13.6	B	No
12	SR 29/Point Lakeview Rd.	TWSC	C	17.9	C	No
13	SR 29/Butts Canyon Rd.	TWSC	C	22.9	C	No
14	SR 29/SR 175	Signal	C	15.1	B	-
15	SR 29/Dry Creek Cutoff.	TWSC	C	21.8	C	No
16	**SR 29/Red Hills Rd./SR 281(Soda Bay Rd.)**	**TWSC**	**C**	**29.3**	**D**	No
17	Soda Bay Rd. (SR 281)/Pt. Lakeview Rd.	TWSC	C	10.5	B	No
18	**SR 29/Main St.**	**TWSC**	**C**	**38.8**	**E**	**No**
19	**SR 29/ Merrit Rd.**	**TWSC**	**C**	**29.8**	**D**	No
20	SR 29/ Argonaut Rd.	Signal	C	2.9	A	No
21	SR 29/SR 175	Signal	C	24.2	C	-
22	Lakeport Blvd./SR 29 NB ramps	TWSC	C	19.1	C	No
23	**Lakeport Blvd./SR 29 SB ramps**	**TWSC**	**C**	**64.5**	**F**	**No**
24	(Scotts Valley Rd.) 11th St./SR 29 NB ramps	TWSC	C	15.9	C	No
25	**(Scotts Valley Rd.) 11th St./SR 29 SB ramps**	**TWSC**	**C**	**40.1**	**E**	**No**
26	Nice Lucerne Cut-off/ SR 29 NB ramps	TWSC	C	10.0	A	No
27	Nice Lucerne Cut-off/ SR 29 SB ramps	TWSC	C	13.3	B	No
28	Nice Lucerne Cutoff/Lakeshore Blvd./Westlake Dr.	TWSC	C	14.5	B	No

Notes: TWSC = Two Way Stop Control AWSC = All Way Stop Control
LOS = Worst case movement's LOS for TWSC intersections; OVR = overflow
Warrant = Caltrans Peak hour volume based signal warrant

As shown above, several intersections are currently operating at unacceptable LOS. All intersections that are operating unacceptably are currently unsignalized.

Roadway Segments

Roadway segment operations have been quantified using the existing ADT counts and with the existing roadway capacity configurations. Table 4 shows the roadway segment LOS for different roadways in Lake County.

TABLE 4
YEAR 2007 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2007 Two-WayADT Count	2007 LOS
SR 29	SR 29	SR 20/SR 29 jct.	Nice Lucerne cutoff	4-Lane Freeway	6100	A
	SR 29	Nice Lucerne cutoff	Park Way	4-Lane Freeway	9700	A
	SR 29	Park Way.	11th St.	4-Lane Freeway	12500	A
	SR 29	11th St.	Lakeport Blvd.	4-Lane Freeway	15100	A
	SR 29	Lakeport Blvd.	end of freeway	4-Lane Freeway	12700	A
	SR 29	enf of freeway segment	SR 175/Main St.	4-Lane Freeway	14200	A
	SR 29	SR 175 jct(Lakeport)	Ackley Rd.	2-Lane Div Art.	12100	B
	SR 29	Ackley Rd.	Highland Springs Rd.	2-Lane Undiv Art.	11500	C
	SR 29	Highland Springs Rd.	Argonaut Rd.	2-Lane Undiv Art.	11400	C
	SR 29	Argonaut Rd.	Thomas Dr.	2-Lane Undiv Art.	12200	**D**
	SR 29	Renfro Dr.	Merritt Rd.	2-Lane Undiv Art.	9000	B
	SR 29	Kelsey Creek Dr.	Live Oak Dr.	2-Lane Undiv Art.	10500	C
	SR 29	Live Oak Dr.	Main St.(Kelseyville)	2-Lane Undiv Art.	10200	B
	SR 29	Cole Creek Rd.	Bottle Rock Rd.	2-Lane Undiv Art.	10300	B
	SR 29	Bottle Rock Rd.	Oak Creek Ranch	2-Lane Undiv Art.	10200	B
	SR 29	Oak Creek Ranch	SR 175	2-Lane Undiv Art.	9300	B
	SR 29	SR 175 (Kelseyville)	SR 281 (Red Hills Rd.)	2-Lane Undiv Art.	8900	A
	SR 29	SR 281(Red Hills Rd.)	Eagles Nest Ln.	2-Lane Undiv Art.	8600	A
	SR 29	Diener Dr.	Pt. Lakeview Rd.	2-Lane Undiv Art.	8600	A
	SR 29	Pt. Lakeview Rd.	Siegler Canyon Rd.	2-Lane Undiv Art.	9600	B
	SR 29	Siegler Canyon Rd.	SR 29/SR 53 jct.	2-Lane Undiv Art.	10600	C
	SR 29	SR29/SR 53 jct	Clayton Creek Rd.	2-Lane Undiv Art.	10600	C
	SR 29	Spruce Grove Rd. (southern)	Hartmann Rd.	2-Lane Undiv Art.	9000	B
	SR 29	Butts Canyon Rd.	Diamond Ranch Rd.	2-Lane Undiv Art.	11300	C
	SR 29	Butts Canyon Rd.	Wardlaw St.	2-Lane Undiv Art.	10900	C
	SR 29	Wardlaw St.	SR 29/SR 175 jct	2-Lane Undiv Art.	10900	C
	SR 29	SR 29/SR 75 jct	Douglas St.	2-Lane Undiv Art.	10800	C
	SR 29	Lake Ave.	Dry Creek Cut off	2-Lane Undiv Art.	10200	B
	SR 29	Dry Creek Cutoff	Western Mine Rd.	2-Lane Undiv Art.	9000	B
SR 53	SR 53	SR29/SR 53 jct	Anderson Ranch Pkwy.	4-Lane Div Art.	17000	A
	SR 53	Anderson Ranch Pkwy.	Old Hwy. 53	4-Lane Div Art.	17000	A
	SR 53	Old Hwy. 53	18th Ave.	4-Lane Div Art.	16000	A
	SR 53	18th Ave.	40th Ave.	4-Lane Div Art.	17000	A
	SR 53	40th Ave.	Olympic Dr.	2-Lane Undiv Art.	8400	A
	SR 53	Olympic Dr.	Old Hwy. 53	2-Lane Undiv Art.	9957	B
	SR 53	Old Hwy. 53	SR20/SR 53 jct.	2-Lane Undiv Art.	7000	A
SR 20	SR 20	LAK/YOL County Line	SR 20/SR 53 jct	2-Lane Undiv Art.	6600	A
	SR 20	SR 20/SR 53 jct	Sulphur Bank Dr.	2-Lane Undiv Art.	6600	A
	SR 20	Sulphur Bank Dr.	Country Club Dr.(Lucerne)	2-Lane Undiv Art.	7956	A
	SR 20	Country Club Dr. (Lucerne)	Lakeview Blvd.	2-Lane Undiv Art.	9064	B
	SR 20	Lakeview Blvd.	Nice Lucerne cutoff	2-Lane Undiv Art.	11500	C
	SR 20	Nice Lucerne cutoff	SR 29/SR 20 jct.	2-Lane Undiv Art.	8000	A
	SR 20	SR 29/SR 20 jct	Scotts Valley Rd.	2-Lane Undiv Art.	8800	A
	SR 20	Scotts Valley Rd.	LAK/MEND County line	2-Lane Undiv Art.	8300	A
SR175	SR 175	SR 175 jct(Lakeport)	LAK/MEND bdy.	Substd. 2-Lane Undiv. Art.	2000	A
	SR 175	SR 29 (Cobb)	Red Hills Rd.	Substd. 2-Lane Undiv. Art.	680	A
	SR 175	Red Hills Rd.	Loch Lomond Rd.	Substd. 2-Lane Undiv. Art.	680	A
	SR 175	Loch Loomond Rd.	Bottle Rock Rd.	Substd. 2-Lane Undiv. Art.	4032	A
	SR 175	Bottle Rock Rd.	Golf Rd.	Substd. 2-Lane Undiv. Art.	3900	A
	SR 175	Golf Rd.	Anderson Springs Rd.	Substd. 2-Lane Undiv. Art.	2800	A
	SR 175	Anderson Springs Rd.	Dry Creek Cut off	Substd. 2-Lane Undiv. Art.	3500	A
	SR 175	Dry Creek Cutoff	SR 29	Substd. 2-Lane Undiv. Art.	3100	A
er Lake/Nice	Scotts Valley Rd.	Hill Rd./Halber Rd.	Riggs Rd.	Substd. 2-Lane Collector	1900	C
	Scotts Valley Rd.	Riggs Rd.	SR 29 SB ramps	Substd. 2-Lane Collector	2000	C
	Elk Mtn. Rd.	SR 20	LAK/MEND County line	Substd. 2-Lane Collector	828	A
	Upper Lake/Lucerne Rd	SR 20	Hillcrest Dr.	Substd. 2-Lane Collector	170	A

TABLE 4
YEAR 2007 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2007 Two-WayADT Count	2007 LOS
Upp	Upper Lake/Lucerne Rd	SR 20	Foothill Oaks Dr.	Substd. 2-Lane Collector	110	A
	Country Club	SR 20	Odgen Rd.	Substd. 2-Lane Collector	540	A
Upper Lake/Nice	Foothill	SR 20	Durant Rd.	Substd. 2-Lane Collector	560	A
	Pyle	SR 20	Old Lake County Rd.	Substd. 2-Lane Collector	260	A
	Sayre Ave.	SR 20	Lakeshore Blvd.	Substd. 2-Lane Collector	330	A
	Sayre Ave.	SR 20	Broadway Ave.	Substd. 2-Lane Collector	660	A
	Lakeview Dr.	SR 20	north of SR 20	Substd. 2-Lane Collector	1510	B
	Nice Lucerne cut-off	SR 29 SB ramps	Lakeshore Blvd.	Substd. 2-Lane Undiv. Art.	6243	C
	Nice Lucerne cut-off	Lakeshore Blvd.	Mackie Rd.	Substd. 2-Lane Undiv. Art.	6243	C
	Nice Lucerne cut-off	Mackie Rd.	Stokes Ave.	Substd. 2-Lane Undiv. Art.	6300	C
	Nice Lucerne cut-off	Stokes Ave.	SR 20	Substd. 2-Lane Undiv. Art.	6300	C
Lakeport incl. City of Lakeport	16th St.	Hartley St.	High St.	Substd. 2-Lane Collector	1650	B
	16th St.	N. High St.	Forbes St.	Substd. 2-Lane Collector	195	A
	11th St.	Mountview Rd.	SR 29 SB ramps	2-Lane Collector	2000	B
	11th St.	SR 29 NB ramps	Central Park Ave.	2-Lane Collector	10650	C
	11th St.	Central Park Ave.	Mellor Dr.	2-Lane Collector	11500	C
	11th St.	Mellor Dr.	Brush St.	2-Lane Collector	9820	C
	11th St.	High St.	Forbes St.	2-Lane Collector	7400	C
	11th St.	Forbes St.	Main St.(Kelseyville)	2-Lane Collector	4500	C
	Berry	Spurr St.	Armstrong St.	Substd. 2-Lane Collector	110	A
	Armstrong St.	Spurr St.	Russell St.	Substd. 2-Lane Collector	170	A
	Armstrong St.	Brush St.	Forbes St.	Substd. 2-Lane Collector	630	A
	Armstrong St.	Forbes St.	Main St.	Substd. 2-Lane Collector	650	A
	N.Brush St.	11th St.	10th St.	Substd. 2-Lane Collector	380	A
	N.Brush St.	7th St.	6th St.	Substd. 2-Lane Collector	310	A
	N.Brush St.	6th St.	5th St.	Substd. 2-Lane Collector	260	A
	N.Brush St.	Armstrong St.	Martin St.	Substd. 2-Lane Collector	65	A
	Compton Ave,	Keeling Ave.	Samuelson Ct.	Substd. 2-Lane Collector	420	A
	Crystal Lake Way	Hartley St.	Keeling	Substd. 2-Lane Collector	490	A
	Crystal Lake Way	Lakeshore Blvd.	Howard Ave.	Substd. 2-Lane Collector	355	A
	Forbes St	Armstrong St.	Martin St.	Substd. 2-Lane Collector	2600	C
	Hartley Rd	Scotts Valley Rancheria Rd.	20th St.	2-Lane Collector	760	A
	Hartley Rd	Sunset Dr.	Boggs Ln.	Substd. 2-Lane Collector	1450	B
	Hartley Rd	16th St.	17th St.	2-Lane Collector	2000	B
	High Street	17th St.	Lakeshore Blvd.	2-Lane Undiv Art.	7700	A
	Main Street	11th St.	9th St.	2-Lane Div Art.	7021	A
	Main Street	9th St.	6th St.	2-Lane Div Art.	6671	A
	Main Street	6th St.	2nd St.	2-Lane Div Art.	6746	A
	Main Street	2nd St.	Martin St.	2-Lane Div Art.	6452	A
	Main Street	Martin St.	Lakeport Blvd.	2-Lane Div Art.	8805	A
	S.Main St.	Lakeport Blvd.	SR 175/Soda Bay intx.	2-Lane Undiv Art.	8191	A
	Lakeport Blvd.	Todd Rd./Parallel Dr.	SR 29 SB ramps	2-Lane Undiv Art.	520	A
	Lakeport Blvd.	SR 29 SB ramps	Bevins Rd.	Substd. 2-Lane Collector	14300	C
	Lakeport Blvd.	Bevins Rd.	S.Main St.	2-Lane Undiv Art.	9900	B
	Park Way	Hill Rd. West	SR 29 SB ramps	Substd. 2-Lane Collector	890	A
	Park Way	SR 29 SB ramps	Keeling Ave.	Substd. 2-Lane Collector	2600	C
	Park Way	Keeling Ave.	Lakeshore Blvd.	Substd. 2-Lane Collector	2200	C
	Russell St.	2nd St.	Armstrong St.	Substd. 2-Lane Collector	810	A
	Russell St.	Armstrong St.	Martin St.	Substd. 2-Lane Collector	960	B
	Walnut Dr.	Lakeshore Blvd.	3rd Ave.	Substd. 2-Lane Collector	410	A
	Lakeshore Blvd.	Hillview Dr.	Walnut Dr.	Substd. 2-Lane Collector	3703	C
	Lakeshore Blvd.	Walnut Dr.	Lowen Ln.	Substd. 2-Lane Collector	3645	C
	Lakeshore Blvd.	Lowen Ln.	Park Way	Substd. 2-Lane Collector	4595	C
	Lakeshore Blvd.	Park Way.	Wight Ln.	Substd. 2-Lane Collector	5179	C
	Lakeshore Blvd.	Wight Ln.	Crystal Lake Way	Substd. 2-Lane Collector	5589	C
	Lakeshore Blvd	Crystal Lake Way.	Rainbow Rd.	Substd. 2-Lane Collector	5585	C

TABLE 4
YEAR 2007 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2007 Two-WayADT Count	2007 LOS
Kelseyville	Highland Springs	SR 29	Bell Hill Rd.	Substd. 2-Lane Collector	1700	B
	Highland Springs	Red Rock Rd.	Bell Hill Rd.	Substd. 2-Lane Collector	280	A
	Bell Hill Rd.	Highland Springs Rd.	SR 29	Substd. 2-Lane Collector	665	A
	Bell Hill Rd.	SR 29	Main St.	Substd. 2-Lane Collector	432	A
Kelseyville	Konocti Bay	SR 281	Bay Ln.	Substd. 2-Lane Collector	85	A
	Konocti Bay	Pt. Lakeview Rd.	Sequoia Rd.	Substd. 2-Lane Collector	700	A
	Live Oak Dr.	Main St. (Kelseyville)	SR 29	2-Lane Collector	2630	B
	Live Oak Dr.	SR 29	Cruickshank Rd.	2-Lane Collector	1260	A
	Meritt	Renfro Dr.	SR 29	2-Lane Collector	150	A
	Meritt	SR 29	Lossa Rd.	Substd. 2-Lane Collector	3650	C
	Meritt	Big Valley Rd.	Gaddy Ln.	Substd. 2-Lane Collector	1881	C
	Gaddy Lane	Merritt Rd.	Soda Bay Rd.	Substd. 2-Lane Collector	1619	B
	State St.	Gaddy Ln.	Sylar Ln.	Substd. 2-Lane Collector	2000	C
	State St.	Sylar Ln.	Main St.	Substd. 2-Lane Collector	2500	C
	Main St.	Bell Hill Rd.	State St.	Substd. 2-Lane Collector	1552	B
	Wight Way	Kelsey Creek Dr.	Adobe Creek Rd.	Substd. 2-Lane Collector	305	A
	Gifford Springs	SR 175	Cobb Blvd.	2-Lane Collector	740	A
	Soda Bay Rd.	SR 175/S.Main St.	Sylva Ln.	Substd. 2-Lane Collector	4257	C
	Soda Bay Rd.	Sylva Ln.	Highland Springs Rd.	Substd. 2-Lane Collector	3832	C
	Soda Bay Rd.	Highland Springs Rd.	Stone Dr.	Substd. 2-Lane Collector	3559	C
	Soda Bay Rd.	Stone Dr.	Park Dr.	Substd. 2-Lane Collector	3210	C
	Soda Bay Rd.	Park Dr.	Gaddy Ln.	Substd. 2-Lane Collector	3210	C
	Bottle Rock Rd.	SR 29	Kelseyville/Cobb bdy.	Substd. 2-Lane Collector	2275	C
Cobb	Bottle Rock Rd.	Kelseyville/Cobb bdy.	Harrington Flat Rd.	Substd. 2-Lane Collector	2125	C
	Bottle Rock Rd.	Harrington Flat Rd.	Sulphur Creek Rd.	Substd. 2-Lane Collector	1350	B
	Bottle Rock Rd.	Sulphur Creek Rd.	SR 175	Substd. 2-Lane Collector	1650	B
	Sulphur Creek	Harrington Flat Rd.	SR 175	Substd. 2-Lane Collector	320	A
	Harrington Flat Rd.	Bottle Rock Rd.	Sulphur Creek Rd.	Substd. 2-Lane Collector	172	A
	Harrington Flat Rd.	Sulphur Creek Rd.	SR 175	Substd. 2-Lane Collector	411	A
	Golf Road	SR 175	Cobb Blvd.	Substd. 2-Lane Collector	890	A
	Loch Lomond Rd.	Siegler Springs Rd.	SR 175	Substd. 2-Lane Collector	742	A
	Red Hills Rd. (SR 281)	Rivieras Cobb Bdy.	SR 175	2-Lane Collector	910	A
Middletown	Big Canyon Rd.	Siegler Springs Rd.	Harbin Springs Rd.	Substd. 2-Lane Collector	132	A
	Big Canyon Rd.	Harbin Springs Rd.	SR 175	Substd. 2-Lane Collector	1137	B
	Hartmann Rd.	SR 29	Hidden Valley Rd.	2-Lane Collector	3000	B
	Butts Canyon Rd.	SR 29	Eureka Rd.	Substd. 2-Lane Collector	1900	C
	Washington St.	Main St. (Middletown)	Armstrong St.	Substd. 2-Lane Collector	570	A
	Main St.	SR 29	Washington St.	Substd. 2-Lane Collector	950	B
	Santa Clara	SR 175	Lake Ave.	Substd. 2-Lane Collector	550	A
	Spruce Grove Rd.	Spruce Grove Rd.	Deer Hill Rd.	2-Lane Collector	4150	C
	Spruce Grove Rd.	Deer Hill Rd.	Jerusalem Grade	2-Lane Collector	350	A
	Stewart St.	SR 175	Douglas St.	Substd. 2-Lane Collector	320	A
	Stewart St.	Douglas St.	Pine St.	Substd. 2-Lane Collector	130	A
	Barnes St.	Stewart St.	Wardlaw St.	Substd. 2-Lane Collector	220	A
	Wardlaw St.	SR 29	Jefferson St.	Substd. 2-Lane Collector	320	A
	Washington St.	Wardlaw St.	Young St.	Substd. 2-Lane Collector	930	B
	Washington St.	Young St.	SR 29 (Main St.)	Substd. 2-Lane Collector	1000	B
	Washington St.	Main St.	Armstrong St.	Substd. 2-Lane Collector	610	A
	Young St.	SR 29	Bush St.	Substd. 2-Lane Collector	640	A
	Young St.	SR 29	Washington St.	Substd. 2-Lane Collector	570	A
	Young St.	Washington St.	Jackson St.	Substd. 2-Lane Collector	140	A
	SR 281	Cobb Rivieras bdy.	SR 29	2-Lane Collector	910	A
Rivieras	SR 281	SR 29	Pt. Lakeview Rd.	2-Lane Collector	2600	B
	Fairway Dr	west of SR 281	SR 281 (Soda Bay Rd.)	2-Lane Collector	1900	B
	Fairway Dr	SR 281 (Soda Bay Rd.)	Pt.Lakeview Rd.	2-Lane Collector	1430	A
	Point Lake View Rd.	SR 281	Fairway Dr.	Substd. 2-Lane Collector	2800	C

TABLE 4
YEAR 2007 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2007 Two-WayADT Count	2007 LOS
	Point Lake View Rd.	Fairway Dr.	Konocti Vista Dr.	Substd. 2-Lane Collector	960	B
	Point Lake View Rd.	Konocti Vista Dr.	SR 29	Substd. 2-Lane Collector	610	A
Lowerlake	Lake St.	Morgan Valley Rd.	Dam Rd.	Substd. 2-Lane Collector	1200	B
	Mill St.	Morgan Valley Rd.	2nd St.	Substd. 2-Lane Collector	750	A
	Mill St.	Morgan Valley Rd.	Rose St.	Substd. 2-Lane Collector	45	A
	Seigler Canyon Rd.	SR 29	Perini Rd. N	Substd. 2-Lane Collector	1250	B
Lowerlak e	Seigler Canyon Rd.	Perni Rd. N	Perini Rd. S	Substd. 2-Lane Collector	850	A
	Seigler Canyon Rd.	Perini Rd. S	Siegler Springs N. Rd.	Substd. 2-Lane Collector	990	B
	Tish-a-tang Rd.	Lake St.	east of Lake St.	Substd. 2-Lane Collector	410	A
Clear Lake	Arrowhead Rd.	Golf Club Rd.	Park St.	2-Lane Collector	3600	C
	Arrowhead Rd.	Park St.	Pomo Rd.	Substd. 2-Lane Collector	860	A
	Boyles Avenue	Davis Ave.	44th Ave.	Substd. 2-Lane Collector	90	A
	Boyles Avenue	44th Ave.	40th Ave.	Substd. 2-Lane Collector	30	A
	Boyles Avenue	40th Ave.	33rd Ave.	Substd. 2-Lane Collector	40	A
	Boyles Avenue	33rd Ave.	18th Ave.	Substd. 2-Lane Collector	1070	B
	18th Avenue	SR 53	Phillips Ave.	Substd. 2-Lane Collector	2710	C
	18th Avenue	Phillips Ave.	Boyles Ave.	Substd. 2-Lane Collector	1710	B
	40th Ave.	SR 53	Phillips Ave.	Substd. 2-Lane Collector	4100	C
	40th Ave.	Phillips Ave.	Boyles Ave.	Substd. 2-Lane Collector	290	A
	Burns Valley Road	Arrowhead Rd.	Sonoma Way	Substd. 2-Lane Collector	1280	B
	Burns Valley Road	Olympic Dr./Old Hwy 53	Bowers Ave.	Substd. 2-Lane Collector	3400	C
	Cypress St.	Olympic Dr.	Austin Ave.	Substd. 2-Lane Collector	460	A
	Dam Rd.	just west of Dam Rd./Lake St.	Lake St.	2-Lane Collector	2400	B
	Davis St	Eureka Ave.	Phillips Ave.	2-Lane Collector	1775	A
	Davis St	Phillips Ave.	Irvine Ave.	2-Lane Collector	1110	A
	Davis St	Boyles Ave.	Konocti Ave.	2-Lane Collector	880	A
	Huntington Ave.	Pomo Rd.	Manakee St.	2-Lane Collector	220	A
	Huntington Ave.	Manakee St.	Lakeshore Dr.	2-Lane Collector	230	A
	Lakeshore Drive	SR 53	Old Hwy. 53.	Substd. 2-Lane Undiv. Art.	15600	C
	Lakeshore Drive	Old Hwy. 53.	Mullen Ave.	Substd. 2-Lane Undiv. Art.	11100	B
	Lakeshore Drive	Mullen Ave.	Divison Ave.	Substd. 2-Lane Undiv. Art.	8900	C
	Lakeshore Drive	Division Ave.	Olympic Dr.	Substd. 2-Lane Undiv. Art.	8000	B
	Lakeshore Drive	Olympic Dr.	Pomo Rd.	Substd. 2-Lane Undiv. Art.	7650	B
	Lakeshore Drive	Pomo Rd.	Park St.	Substd. 2-Lane Undiv. Art.	4950	A
	Lakeshore Drive	Park St.	Country Club Dr.	Substd. 2-Lane Undiv. Art.	1280	A
	Lakeshore Drive	Country Club Dr.	San Joaquin Dr.	Substd. 2-Lane Undiv. Art.	1020	A
	Moss Street	Davis Ave.	40th Ave.	2-Lane Undiv Art.	2500	A
	Old Hwy 53.	SR 53	Park Blvd.	2-Lane Collector	620	A
	Burns Valley Rd.	Arrowhead Rd./Pomo Rd.	Woodlawn Dr.	Substd. 2-Lane Collector	962	B
	Burns Valley Rd.	Woodlawn Dr.	Bowers Ave.	Substd. 2-Lane Collector	1030	B
	Burns Valley Road	Bowers Ave.	Olympic Dr.	Substd. 2-Lane Collector	3400	C
	Old Hwy 53.	Olympic Dr.	Austin Dr.	Substd. 2-Lane Undiv. Art.	5350	C
	Old Hwy 53.	Austin Dr.	Davis Ave.	Substd. 2-Lane Undiv. Art.	7450	C
	Old Hwy 53.	Davis Ave.	W 40th St.	Substd. 2-Lane Undiv. Art.	7450	C
	Old Hwy 53.	Lakeshore Dr. (W 40th St.)	Crawford Ave.	Substd. 2-Lane Undiv. Art.	7200	C
	Old Hwy 53.	Crawford Ave.	18th Ave. extn.	Substd. 2-Lane Undiv. Art.	5750	C
	Old Hwy 53.	18th Ave. extn.	SR 53	Substd. 2-Lane Undiv. Art.	5600	C
	Olympic Dr.	Lakeshore Dr.	Cypress St.	Substd. 2-Lane Collector	6550	C
	Olympic Dr.	Cypress St.	Old. Hwy 53	Substd. 2-Lane Collector	8250	C
	Olympic Dr.	Old Hwy. 53	Washington St.	Substd. 2-Lane Collector	8150	C
	Olympic Dr.	Washington St.	SR 53	Substd. 2-Lane Collector	7500	C
	Pomo Rd.	Arrowhead Rd.	Lakeshore Dr.	2-Lane Undiv Art.	465	A
	Arrowhead Rd.	Pomo Rd.	Burns Valley Rd.	Substd. 2-Lane Collector	962	B
	West 40th St.	Mullen Ave.	Laddell Ave	Substd. 2-Lane Collector	330	A
	Woodland Dr.	Burns Valley Rd.	Koloko St.	Substd. 2-Lane Collector	165	A
	Arrowhead/Pomo Rd.	Burns Valley Rd.	Lakeshore Dr.	Substd. 2-Lane Collector	5600	C

TRAVEL DEMAND MODEL DEVELOPMENT

This section presents a technical discussion of the process used to create the Lake County's countywide Traffic Model. The traffic model is being developed for a weekday under "Winter Daily" condition when tourism and vacation oriented trips are very minimal. Winter conditions traffic volumes will then be used to derive summer conditions traffic forecasts, based on which roadway improvements will be recommended.

DATA SOURCES

The travel demand model is based on land use information at parcel level resolution as provided by Lake County in ESRI ArcView Shape file format. This data was compiled from various public and private sources by the Lake County Assessor's Office. Parcel attributes typically found in an assessor's database are:

- FID
- Perimeter
- Area
- APN
- Address
- City
- State
- Situs
- Land Value
- Structural Value
- Net Value
- Tax Amount
- Size of building
- Number of Bedrooms
- Land Use Code
- Land Use Description

The roads, county boundary, and city limits shape files along with AutoCAD drawing files for the General Plan land use and zoning maps were also provided by Lake County. The parcel and road shape files cover the entire county. ESRI data for counties, states, river, and interstates were also used throughout the project. The parcel, road and city limit shape file were permanently projected into California State Plane, Zone II, US Foot, coordinate systems using the Lambert Conformal Conic projection.

DATA EVALUATION

As previously stated, the shape files provided to OMNI-MEANS covered the entire county. The resulting parcel data consisted of more then 63,800 parcels. In order to generate an accurate representation of the existing land use patterns within the study area, an evaluation of the parcel land use data was performed.

The County Assessor uses a five digit alpha-numeric code to describe the land use of parcels within the county. A county land use code legend was provided by the assessor's office. The legend consists of major land use categories as follows: Residential, Commercial, Industrial, Agricultural, Governmental, and Miscellaneous. Based on the existing Lake County General Plan, each major land use category is broken down into the following sub-categories. A brief description is included:

- Resort Commercial (CR): includes restaurants, hotels
- Local Commercial (CL): includes medical and professional offices, food services, limited retail sales, personal services (beauty/barber shop), minor repair services, such as jewelry and shoe repair
- Community Commercial (CC): Retail sales, personal services (beauty/barber shop), banking, administrative and professional offices, health care services, indoor entertainment, hotels, nurseries

- Service Commercial (CS): Warehouses and mini storage, construction-related services, retail sales of large bulky items, indoor entertainment facilities (movie theaters)
- Industrial, Heavy Commercial and Mixed Light/Heavy Commercial (I) : Manufacturing, processing of natural resources, lumber yards, welding and fabrication shops, warehouses
- Public Facilities (PF) includes publicly-owned or government-owned lands and structures, including State Forests and water treatment plants. This designation does not include offices.

After the initial review of the use codes, their formats and sources, a series of queries were performed to generalize the land use codes. A new "MODEL_EXLU" field was added to the parcel attribute table and parcels were selected based on the attribute values of the "USE_CODE" field. Intuitive land use designations were used to fill the "MODEL_EXLU" field starting with the major land use categories then followed by the generalized specific uses. The parcel attribute table was also joined to the General Plan layer, to determine the general plan designations of each parcel. The queries were saved for future use. Further analysis of the land use codes and ownership information was undertaken to establish existing land use information for parcels with ambiguous land use codes. Based on these queries, land uses in Lake County have been categorized as follows:

1) Residential land uses which include:
   a) Single-family dwelling units
   b) Multi-family dwelling units
   c) Suburban and rural residential uses

2) Commercial land uses which are further subdivided as:
   a) Community Commercial
   b) Local Commercial
   c) Resort Commercial
   d) Service Commercial

3) Industrial land uses

4) Other land uses which include:
   a) Agricultural Lands
   b) Public lands
   c) Public facilities

EXISTING LAND USE SUMMARIES

The following table, Table 5, shows the summary of land uses within each planning area and the two Cities, namely the City of Clear Lake and the City of Lakeport.

TABLE 5
EXISTING LAND USE SUMMARY

EXISTING LAND USES					
Planning Area	**TAZ_#**	**Residential (du's)**	**Commercial (acres)**	**Industrial (acres)**	**Other (acres)**
Upper Lake/Nice	100-133	2,387	107	6	290,239
Lakeport excl. City of Lakeport	200-230	2,337	67	2	39,671
Kelseyville	300-338	2,789	105	39	35,740
Cobb Mtn	400-436	2,364	62	0	42,557
Middletown	500-544	3,492	108	27	99,390
Lowerlake	600-645	1,420	99	4	69,793
Rivieras	700-733	4,788	145	0	14,621
Shoreline Communities excl. City of Clear Lake	800-845	5,625	99	26	174,405
City of Clear Lake	900-940	8,625	265	1	3,255
City of Lakeport	950-987	2,083	221	11	546
TOTAL		**35,911**	**1,279**	**116**	**770,218**

As identified in Table 5, Lake County currently has 35,911 residential units, 1,279 acres of developed commercial lands, and 116 acres of developed industrial lands. These are consistent with socio-economic data stated in the U.S. Census Bureau and Department of Finance estimates.

The U.S. Census Bureau has estimated the Year 2005 population of Lake County to be approximately 65,147 people, which represents a growth of 11.7% between year 2000 and year 2005. Based on the U.S. Census Bureau, there were approximately 34,061 households in Lake County as of year 2005, and this number is consistent with the number of dwelling units estimated (35,911).

Second Homes in Lake County

Given the location of Lake County and its attraction as a resort place, it is reasonable to assume that not all of these 35,911 dwelling units will be at full occupancy on all days of the week. Some of these units are more likely to serve as second homes or vacation homes with greater occupancy during the weekend. Based on the year 2000 population and information as presented in the U.S. Census Bureau, Lake County had approximately 2.39 persons per household. Applying this factor to the 2005 population estimate we have:

- Population (year 2005)/Persons per household = 65147/2.39 = 27,258 households.

It is reasonable to assume that these are the actual number of full occupancy households while the remaining 8,653 i.e., (35,911-27,258) are only second or vacation homes. Further, it is assumed that these second homes are likely to be distributed within the following areas

- City of Lakeport
- City of Clear Lake
- Shoreline Communities excl. City of Clear Lake
- Rivieras
- Kelseyville
- Cobb Mountain

These 8,653-second homes are assumed to be distributed within these five planning areas according in proportion to the actual number of single-family dwelling units within each area. It is noted that trip generation from second homes will not be significant during the “winter conditions model”.

Employment Characteristics

The U.S. Census Bureau estimates that approximately 25,782 people are employed in Lake County, of which 24,809 are associated with commercial and industrial type land uses (including office, administration duties, recreation, hotels etc. Thus the ratio of employees to population = 24809/65147 = 0.38, i.e., 38% of the population are employed.

Also, given that 1,395 (1,279 + 116, as identified in Table 5, acres of land is assumed to be developed as commercial/industrial, this translates to 24,809/1,395 = 17.784 employees per acre, which is less than 1 employee/1000 sq. ft (often considered as a conservative employment density for modeling purposes).

TRAVEL DEMAND MODELING SOFTWARE

The integrated urban transportation planning software package called TP+ (copyright *Citilabs*) was used as the modeling software for the Lake County Traffic Model. The TP+ package represents a popular and powerful modeling environment that provides a Windows-based implementation of the traditional "four-step" urban transportation planning methodology.

TAZ MAP

The first modeling step was the creation of a land use database that can be utilized by the model. Each parcel is analyzed to determine how the traffic it generates will logically shed to the model network. The land use information, as read by the model, is organized into discrete traffic-generating units referred to as "Traffic Analysis Zones" (TAZ's). A TAZ is defined as a geographical area that comprises of contiguous land development (parcels, subdivisions etc.) aggregated into a "traffic shed" for modeling purposes. Each TAZ would have one or more "connectors" feeding traffic generated from that TAZ on to the adjacent street system at logical but schematic access points. The TAZ definitions were developed using closed boundaries contained within natural geographic barriers like rivers, creeks etc., as well as "man-made" barriers like major street right-of-ways, railroads etc., and taking into account how traffic generated from localized development would logically "shed" to the adjacent street system.

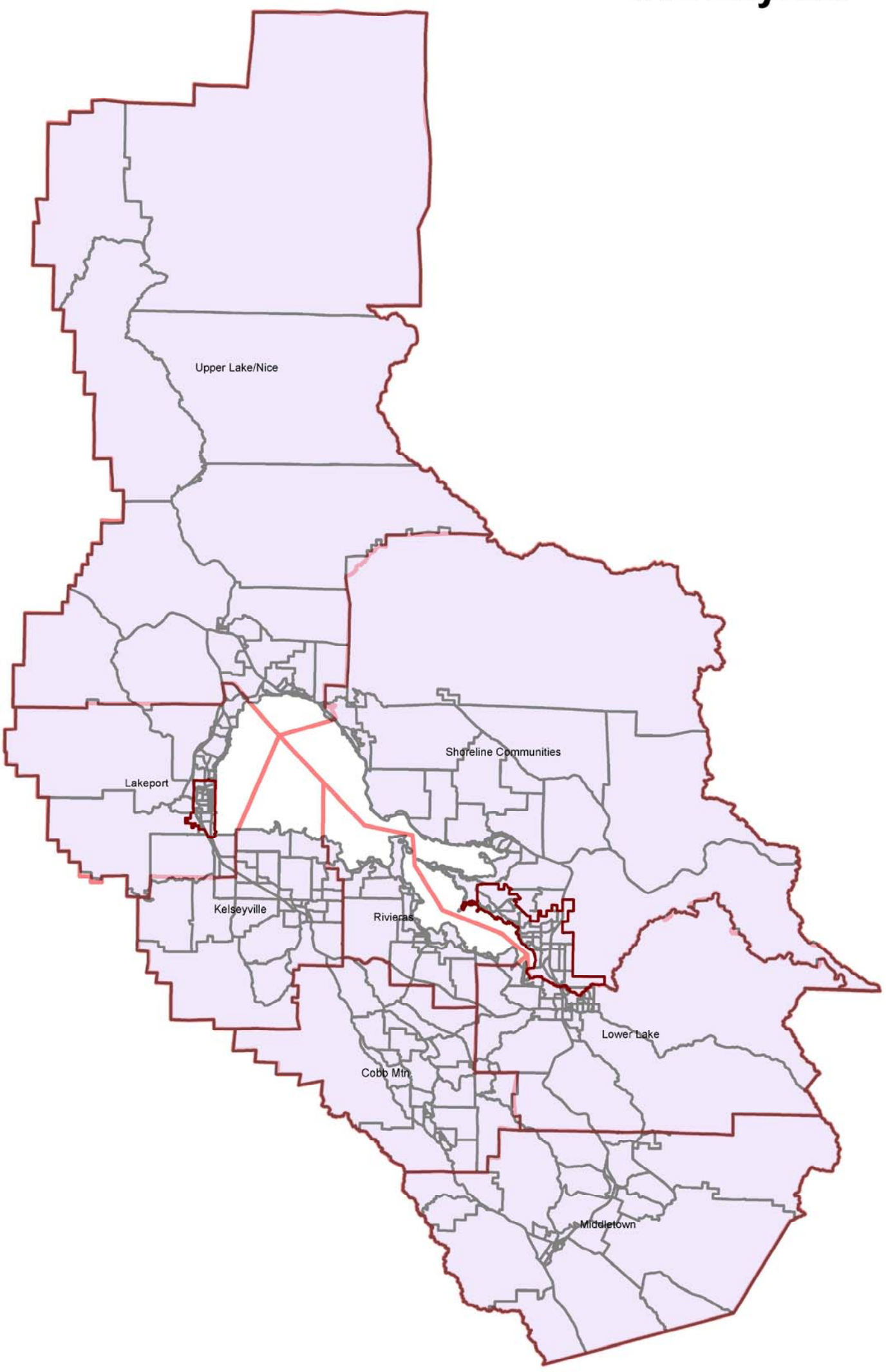
TAZ's within the two Cities of Lakeport and Clear Lake were kept separate from the adjacent planning areas, to facilitate in the development of future fee development programs. The TAZ numbering scheme is described as follows:

- Upper Lake Planning Area – TAZ # 100-133
- Lakeport Planning Area excluding City of Lakeport – TAZ # 200-230
- Kelseyville Planning Area– TAZ # 300-338
- Cobb Mountain Planning Area– TAZ # 400-436
- Middletown Planning Area– TAZ # 500-544
- Lowerlake Planning Area – TAZ # 600-645
- Rivieras Planning Area– TAZ # 700-733
- Shoreline Communities excl. City of Clear Lake – TAZ # 800-845
- City of Clear Lake – TAZ # 900-940
- City of Lakeport – TAZ # 950-987

Figure 4 shows the TAZ layout for Lake County.

Lake County TAZ Layout

N



Legend

- TAZ_shapefile
- planning_areas
- city_poly

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Figure 4

Lake County TAZ Map

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LAND USE –TAZ INTEGRATION

Land use information represents the primary basis for deriving vehicular travel/traffic flow patterns on the County street system. Therefore, land use data, categorized basically in terms of residential and non-residential uses, was summarized under each TAZ, in order to provide a basis for estimating zonal trip productions and attractions.

In order to incorporate existing land use data into the TAZs, OMNI-MEANS utilized the Lake County parcel land use database. The assessor's parcel database contained a variety of information, including Assessor's Parcel Number (APN), parcel size (in acreage/square feet), assessed land value, and existing County land use code for the parcel, property ownership and address information. As described earlier, land use codes were generalized and aggregated into four (4) major uses: residential, commercial, industrial and other; with each being sub categorized into different uses.

Using *ArcView GIS*, the TAZ map was geographically overlaid on top of the assessors' parcel map covering the study area, and thus a "TAZ attribute" was added to the parcel database. A TAZ-wise breakdown of existing land use data by model land use categories, was then prepared.

TRAFFIC MODEL NETWORK CREATION

The next step was the creation of a street network system that the model would utilize to distribute and assign trips generated by the zonal land uses.

The model roadway network was created using the base road data provided by the County. A review of the Lake County General and individual planning areas General Plan was performed to identify the roads to be included in the network. Additional roads were included as appropriate to facilitate accurate modeling of the existing grid road system. Network roads were classified based on their functional class and ownership. A field named "MODEL FUNC_CLASS" was added to the road network database and populated with functional class and ownership designations. The following roadway hierarchy and functional class is adopted for development of this traffic model:

- Freeway
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Street
- Ramps

The model's street network was first created by editing and manipulating centerlines of the assessor's parcel mapping data using *AutoCAD Map* and *ArcView GIS* software and then the "shape-files" were imported into TP+ for further editing and attribute enhancements. Each "node" in the network represents an intersection or some other intermediate point on the street system. Each "link" in the network represents a roadway segment connecting between two nodes.

Using an "overlay" of the TAZ Map on top of the street network, additional nodes that represent "TAZ centroids" and additional links that represent "centroid connectors" were defined. The TAZ centroid is a logical point within a TAZ where all land development contained within that TAZ may be assumed to be concentrated, for traffic modeling purposes. The centroid connectors are schematic links that carry traffic (in both directions) between the TAZ centroids and the adjacent street system. Special zones known as "gateways" were also coded in order that the terminal links of the model can be connected to "external"

sources of traffic generation. In all, six (6) gateways were defined for the Lake County travel demand model. These are as follows:

- Gateway 1 – State Route 20 at the Lake County/Mendocino County line
- Gateway 2 – State Route 175 at the Lake County/Mendocino County line
- Gateway 3 – State Route 29 at the Lake County/Napa County line
- Gateway 4 – Butts Canyon Road at the Lake County/Napa County line
- Gateway 5 – Morgan Valley Road at the Lake County/Napa county line
- Gateway 6 – State Route 20 at the Lake County/Colusa County line

Figure 5 shows the gateways as defined for the Lake County traffic model.

The TAZ centroids, centroid connectors, and gateways were all integrated into a single TP+ network layer. Using TP+ a database of records containing "attributes" of each link was coded and attached to the network layer. The link attributes coded include length of link segment, link travel speeds, functional capacity class, and flag variable indicating one T way/two T way link directionality, number of lanes per direction, travel capacity per lane and other traffic assignment parameters, street name, and two-way daily ADT traffic counts at critical locations where count data was obtained/available.

The GIS approach in the creation of the TP+ network represents a significant improvement over the traditional "stick figure" type representation of the street network. The GIS approach resulted in a relatively more accurate modeling of link distances and travel times, because of the ability to replicate the curvi-linearities in the street system.

MODEL JOB-STREAM CREATION

TP+ offers the capability of creating and running travel demand models in a "batch" (or script) mode. In the batch mode, the entire sequence of modeling steps can be run automatically from a script, using pre-specified input data and parameters. The batch mode of running travel demand models offers greater computational speed, convenience, and efficiency in running the entire model, upon completion of the initial model setups. OMNI-MEANS first created the basic model modules and then "batched" the model processes into a model "script file" also referred to as the model's "job-stream". The term "job-stream" refers to the computer file that contains the entire set of "instructions" issued to the TP+ modeling engine as to how to perform model tasks and what methodologies, parameters, adjustments, and assumptions to apply in individual tasks. The job-stream file was written/edited using the VIPER scripting language supported by TP+, and contains the following modules.

TRIP GENERATION

As a "pre-processor" to the trip generation module, the land use quantities already summarized by TAZ were first grouped into broader categories for trip generation purposes. These include "trip production" categories that include single-family and multi-family residential dwelling units, and "trip attraction" categories that broadly include retail, office, industrial, educational, governmental/public, parks/recreational, agricultural, and other miscellaneous types. Within the pre-processor (which can be run using spreadsheet software like *Excel*), the individual zonal land use quantities were multiplied by appropriate zonal trip generation rates to obtain an estimate of total daily trip generation by TAZ. The trip generation rates were deduced based on standard reference sources like Institute of Transportation Engineers (ITE) Publication *Trip Generation (Sixth Edition)*. Since the Lake County traffic model was not envisioned to have a separate transit component, generic "vehicular trip generation rates" were used.

Countywide Regional Transportation Impact Fee Study

Figure 5

Lake County Gateways

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The daily trip generation tables prepared using the *Excel* pre-processor were exported to TP+ in a DBF format. The TP+ trip generation module disaggregates zonal trip generation by "trip purpose" using a series of linear regression equations. The Lake County traffic model utilizes five basic trip purposes, listed as follows:

- Home-based-Work (HBW)
- Home-based-Shopping (HBS)
- Home-based-Other (HBO)
- Work-based-Other (WBO)
- Other-based-Other (OBO)

For each TAZ, trip "productions" and trip "attractions" were estimated by trip purpose. Finally, a "production controlled" trip total adjustment, referred to as "trip balancing", was performed such that total zonal trip attractions were adjusted to match total zonal trip productions for each trip purpose.

TRIP DISTRIBUTION

In order to initiate the trip distribution process an inter-zonal matrix of free-flow travel times on the shortest path between all pairs of zones was created. Special adjustments to gateway-to-gateway impedances were performed so that gateway productions and attractions would be matched with zonal productions and attractions, as either internal-external (I-X) or external-internal (X-I) trips. Gamma function parameters (from *NCHRP-365,* 1998) were specified for use as "friction factors" in the trip distribution process. A matrix of special zone-to-zone attractively factors (referred to as "K factors") was also built so that inter-zonal travel characteristics, which cannot be solely explained using link impedances, can be accounted for.

The trip distribution module performs trip distribution based on a 'gravity model'. The conventional "gravity model" assumes that trips between two zones are directly proportional to the number of trips produced by the production zone and the number of trips attracted by the attraction zone and inversely proportional to the impedance (travel time, travel distance, travel cost, etc.) on the shortest travel path(s) between the two zones. The inter-zonal travel time matrices, friction factor functions and K-factors were incorporated in the trip distribution process. As an end-product of the trip distribution process, an inter-zonal production-attraction trip matrix between all zone pairs was created, for each trip purpose.

TRIP TRANSFORMATION

The trip matrices in a "production-attraction" format were transformed to the "origin-destination" format by using a symmetrical matrix transformation operation. Finally, the gateway-to-gateway "through" (or external-external, X-X) trip matrix was superimposed over the origin-destination trip matrix by adding the appropriate trips in the script file. This final inter-zonal daily trip matrix in origin- destination format was then used for traffic assignment.

TRAFFIC ASSIGNMENT

The final origin-destination trip matrix was assigned to the street network within the "Assignment" module of the script file. The "User Equilibrium" assignment procedure was used. Travel capacities for network links were computed using "functional capacity class" hierarchy, daily and peak hour travel capacities per lane (in vehicles per lane) and the number of travel lanes on the facilities. The *Bureau of Public Roads* (BPR) function format was used for computing congested travel times as a function of volume-to-capacity ratios. "Alpha" and "Beta" parameter values for use with the BPR functions were specified by functional capacity class, for each link in the network. The assigned average daily traffic

(ADT) and peak hour volume flows by network link were saved to output tables, which were then "loaded" on to the street network.

Model Calibration and Post-Calibration Analyses

The steps described above represent the creation of a complete but "un-validated" existing conditions model. For "calibrating" the model to available field data, several model runs with different parameter adjustments were tested in order that average daily traffic (ADT) volume at critical roadway segments and screenline analyses yielded satisfactory levels of accuracy. Localized adjustments that included specific zonal trip generation adjustments, refinement of link speeds and capacities, adjustment of congested travel time expressions/parameters etc., were tested until realistic and acceptable traffic flows were obtained. The model was essentially calibrated to achieve a reasonable simulation of ADT flows over the entire model street system.

To help with the post-assignment calibration procedure, percentage deviations are computed between model forecasts and ground counts at locations where daily traffic counts were conducted/available. Model forecasts were regarded as being acceptable if percentage deviations fell within *Target Percentage Deviations*, as prescribed for the particular roadway type. The target percentage is computed by expressing the ratio of the difference of existing count and year 2030 forecasts to the existing count, as s percentage.

- Percentage deviation = (Year 2030 forecast – Existing Count)/Existing count * 100

The percentage based calibration method provides for a stricter calibration standard on high-capacity, high-volume facilities like arterial streets, while allowing for larger margins of variability on low-capacity, low-volume facilities like collectors and local streets. However, given modeling limitations, it is often possible to not meet the target percentage threshold standards on low-volume, low capacity facilities without significantly affecting level of service and/or other improvement thresholds established for these low-volume street segments. Therefore, a difference of less than 1,000 vehicles per day in the absolute magnitude of ADT variation is generally regarded as acceptable for most low-volume facilities. Conversely, on high-volume, high capacity facilities it is possible to meet the target percentage deviation even when absolute magnitude of ADT variation is well over 1,000 vehicles per day. Therefore, often a combination of target percentage deviation and absolute magnitude of variation best meets model calibration target requirements.

YEAR 2030 MODEL FORECASTS

The calibrated existing conditions model was used to determine the Year 2030 conditions roadway ADT forecasts. Year 2030 land uses were deduced following markups provided by the County and Cities on several TAZ maps provided to them. The final Year 2030 land uses were derived in consultation with several agencies and are shown in Table 6. It is noted that these land uses are anticipated to be consistent with the proposed General Plan scenario.

TABLE 6
YEAR 2030 LAND USE SUMMARY

FUTURE LAND USES					
Planning Area	**TAZ_#**	**Residential (du's)**	**Commercial (acres)**	**Industrial (acres)**	**Other (acres)**
Upper Lake/Nice	100-133	2,576	191	11	290,251
Lakeport excl. City of Lakeport	200-230	2,837	129	25	39,671
Kelseyville	300-338	2,945	164	39	35,740
Cobb Mtn	400-436	2,428	150	0	42,557
Middletown	500-544	3,901	211	47	99,390
Lowerlake	600-645	1,620	175	34	69,806
Rivieras	700-733	5,329	228	0	14,621
Shoreline Communities excl. City of Clear Lake	800-845	6,160	127	46	174,415
City of Clear Lake	900-940	12,522	431	17	3,255
City of Lakeport	950-987	2,645	296	11	546
TOTAL		**42,963**	**2,101**	**230**	**770,253**

The future year land uses shown in Table 6 were used as input into the calibrated existing conditions model described earlier to develop future year traffic forecasts.

Floor Area Ratios

Based on discussions with Lake County Community Development, it is assumed that a Floor Area Ratio (FAR) of 12.5% (i.e., .125) be applied to all commercial growth occurring within the Community Area boundaries. Outside the community area boundaries, an FAR of 5% i.e., 0.05 has been applied to the growth in commercial land uses.

YEAR 2030 TRANSPORTATION CONDITIONS

As development occurs within Lake County, additional transportation facilities will be required to support this growth. Forecasting how this development will affect existing traffic volumes and distribution patterns is a critical component of this study. Traffic volumes and circulation patterns will change within Lake County over the next 20 years due to development within and around the County.

Forecasting the exact nature of these changes is always challenging. To assist in the process, a Countywide average daily traffic model was developed in order to project daily traffic volumes on all County roadway segments for Year 2030 (future build-out) conditions. PM peak hour turning movement counts were deduced from the Year 2030 segmental volumes. This chapter presents future traffic conditions within Lake County under Year 2030 conditions.

GROWTH PROJECTIONS

Traffic volumes within Lake County will change significantly over the next 25 years, primarily due to development within and around Lake County. Future year land uses for all planning areas including the two Cities were derived based on marked up maps and plots provided by different agencies.

Table 7 provides a summary of existing, as identified in Table 5, and future land uses, as identified in Table 6, within different planning areas and the two Cities of Clear Lake and Lakeport.

YEAR 2030 TRAFFIC OPERATIONS

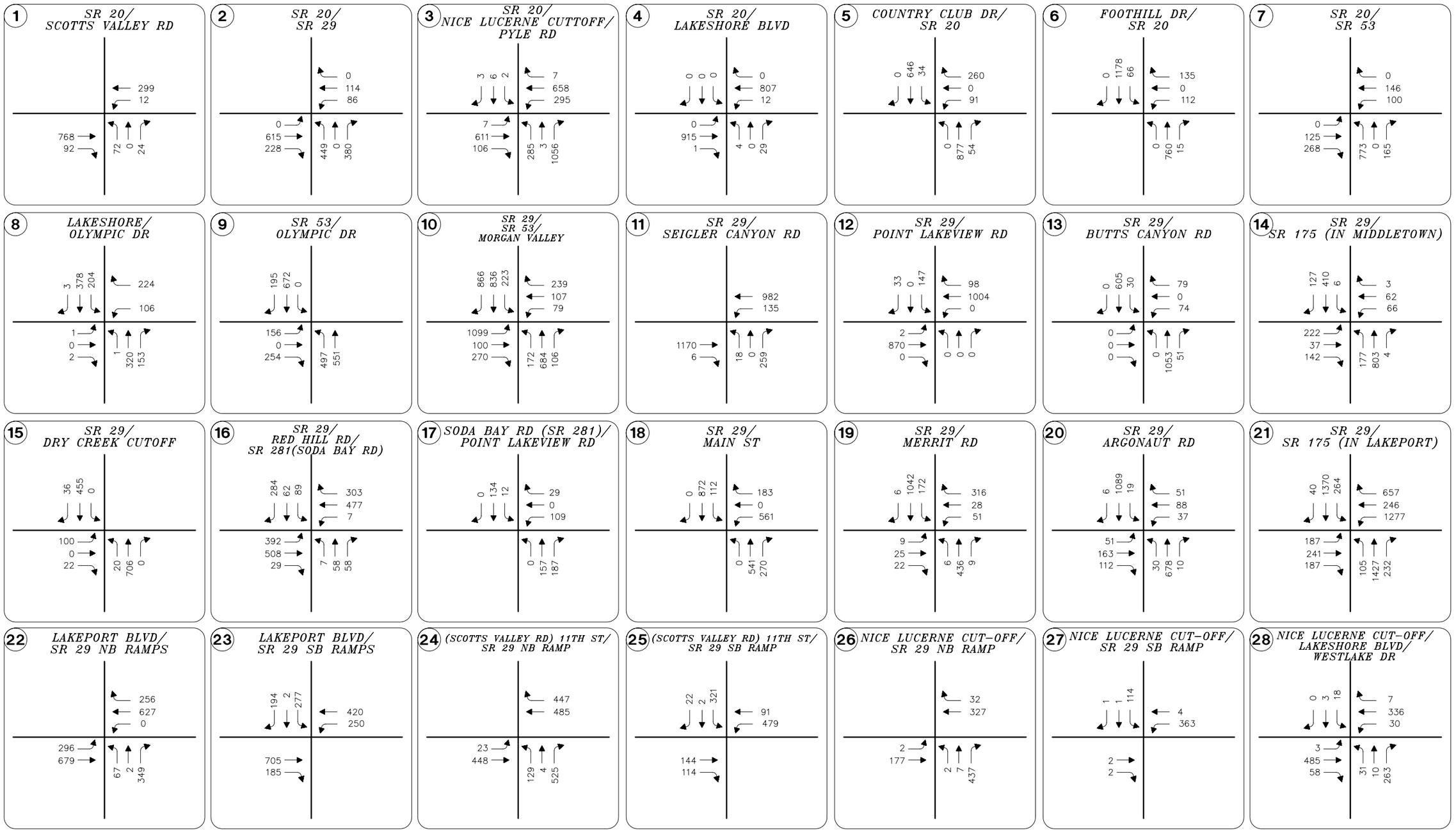
Year 2030 daily traffic volumes were deduced by using these build-out land uses and incorporating them into the Lake County Traffic model. The daily volumes forecasted from the traffic model were used to derive the winter conditions PM peak hour turning movement volumes.

As noted earlier, Lake County and areas around the Lake are popular tourist attractions and attract visitors during the summer months. A traffic and parking analysis was completed for the City of Clear Lake by Crane Transportation Group. This study was incorporated into the Provinsalia Golf Community EIR, July 2005.

Based on this study by Crane Transportation Group, there is significant seasonal variation in traffic counts within Lake County between winter and summer conditions (when schools are still in session). To account for this variation, winter AM peak hour counts are adjusted upwards by 7%, while winter PM and mid-afternoon counts are adjusted upwards by 10%. Summer conditions Year 2030 intersection and roadway volumes were derived by adjusting Winter Year 2030 forecasts upward by 10%. Figure 6 shows the Year 2030 summer conditions PM peak hour traffic volumes. Figure 7A, 7B, 7C and 7D show a bandwidth plot of the roadways within Lake County on which traffic volumes are expected to increase from existing conditions.

TABLE 7
LAKE COUNTY LAND USE SUMMARIES

EXISTING LAND USES					
Planning Area	**TAZ_#**	**Residential (du's)**	**Commercial (acres)**	**Industrial (acres)**	**Other (acres)**
Upper Lake/Nice	100-133	2,387	107	6	290,239
Lakeport excl. City of Lakeport	200-230	2,337	67	2	39,671
Kelseyville	300-338	2,789	105	39	35,740
Cobb Mtn	400-436	2,364	62	0	42,557
Middletown	500-544	3,492	108	27	99,390
Lowerlake	600-645	1,420	99	4	69,793
Rivieras	700-733	4,788	145	0	14,621
Shoreline Communities excl. City of Clear Lake	800-845	5,625	99	26	174,405
City of Clear Lake	900-940	8,625	265	1	3,255
City of Lakeport	950-987	2,083	221	11	546
TOTAL		**35,911**	**1,279**	**116**	**770,218**
GROWTH IN LAND USES					
Planning Area	**TAZ_#**	**Residential (du's)**	**Commercial (acres)**	**Industrial (acres)**	**Other (acres)**
Upper Lake/Nice	100-133	189	84	5	12
Lakeport excl. City of Lakeport	200-230	500	62	23	0
Kelseyville	300-338	156	59	0	0
Cobb Mtn	400-436	64	87	0	0
Middletown	500-544	409	103	20	0
Lowerlake	600-645	200	76	30	12
Rivieras	700-733	541	83	0	0
Shoreline Communities excl. City of Clear Lake	800-845	535	28	20	10
City of Clear Lake	900-940	3,897	165	16	0
City of Lakeport	950-987	561	76	0	0
TOTAL		**7,052**	**823**	**114**	**35**
FUTURE LAND USES					
Planning Area	**TAZ_#**	**Residential (du's)**	**Commercial (acres)**	**Industrial (acres)**	**Other (acres)**
Upper Lake/Nice	100-133	2,576	191	11	290,251
Lakeport excl. City of Lakeport	200-230	2,837	129	25	39,671
Kelseyville	300-338	2,945	164	39	35,740
Cobb Mtn	400-436	2,428	150	0	42,557
Middletown	500-544	3,901	211	47	99,390
Lowerlake	600-645	1,620	175	34	69,806
Rivieras	700-733	5,329	228	0	14,621
Shoreline Communities excl. City of Clear Lake	800-845	6,160	127	46	174,415
City of Clear Lake	900-940	12,522	431	17	3,255
City of Lakeport	950-987	2,645	296	11	546
TOTAL		**42,963**	**2,101**	**230**	**770,253**
% GROWTH IN LAND USES					
Planning Area	**TAZ_#**	**Residential (du's)**	**Commercial (acres)**	**Industrial (acres)**	**Other (acres)**
Upper Lake/Nice	100-133	8%	78%	83%	0%
Lakeport excl. City of Lakeport	200-230	21%	93%	1499%	0%
Kelseyville	300-338	6%	56%	0%	0%
Cobb Mtn	400-436	3%	140%	-	0%
Middletown	500-544	12%	95%	74%	0%
Lowerlake	600-645	14%	77%	750%	0%
Rivieras	700-733	11%	57%	-	0%
Shoreline Communities excl. City of Clear Lake	800-845	10%	28%	77%	0%
City of Clear Lake	900-940	45%	62%	1235%	0%
City of Lakeport	950-987	27%	34%	0%	0%
TOTAL		**20%**	**64%**	**98%**	**0%**



Countywide Regional Transportation Impact Fee Study

Figure 6

Year 2030 Summer Conditions PM Peak Hour Traffic Volumes

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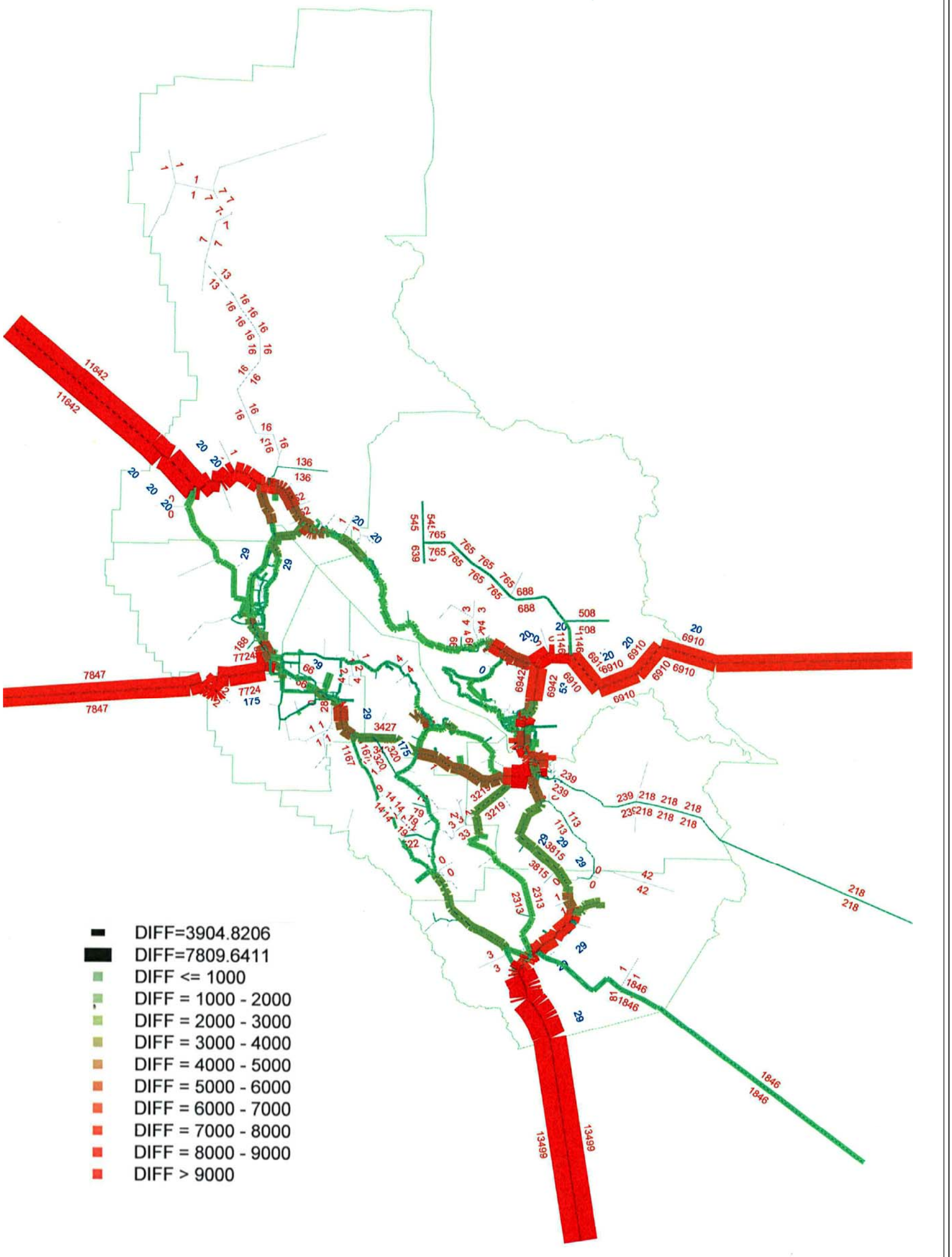

Countywide Regional Transportation Impact Fee Study

Figure 7A

Lake County Year 2030 - Year 2007 Model Forcasts (Incremental Traffic)

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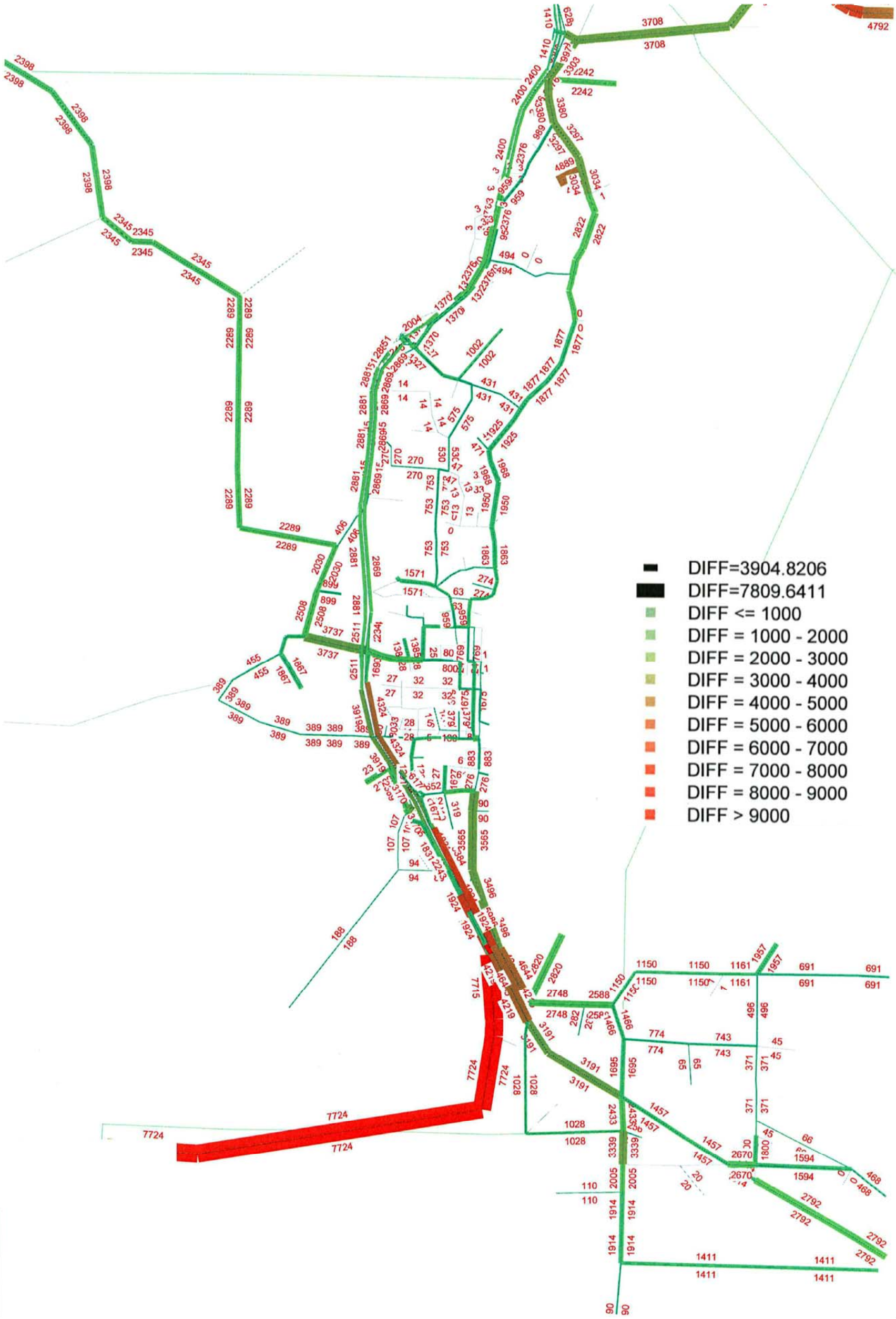

Countywide Regional Transportation Impact Fee Study

Figure 7B

Lakeport Zone of Benefit Year 2030-Year 2007 Model Forcasts (Incremental Traffic)

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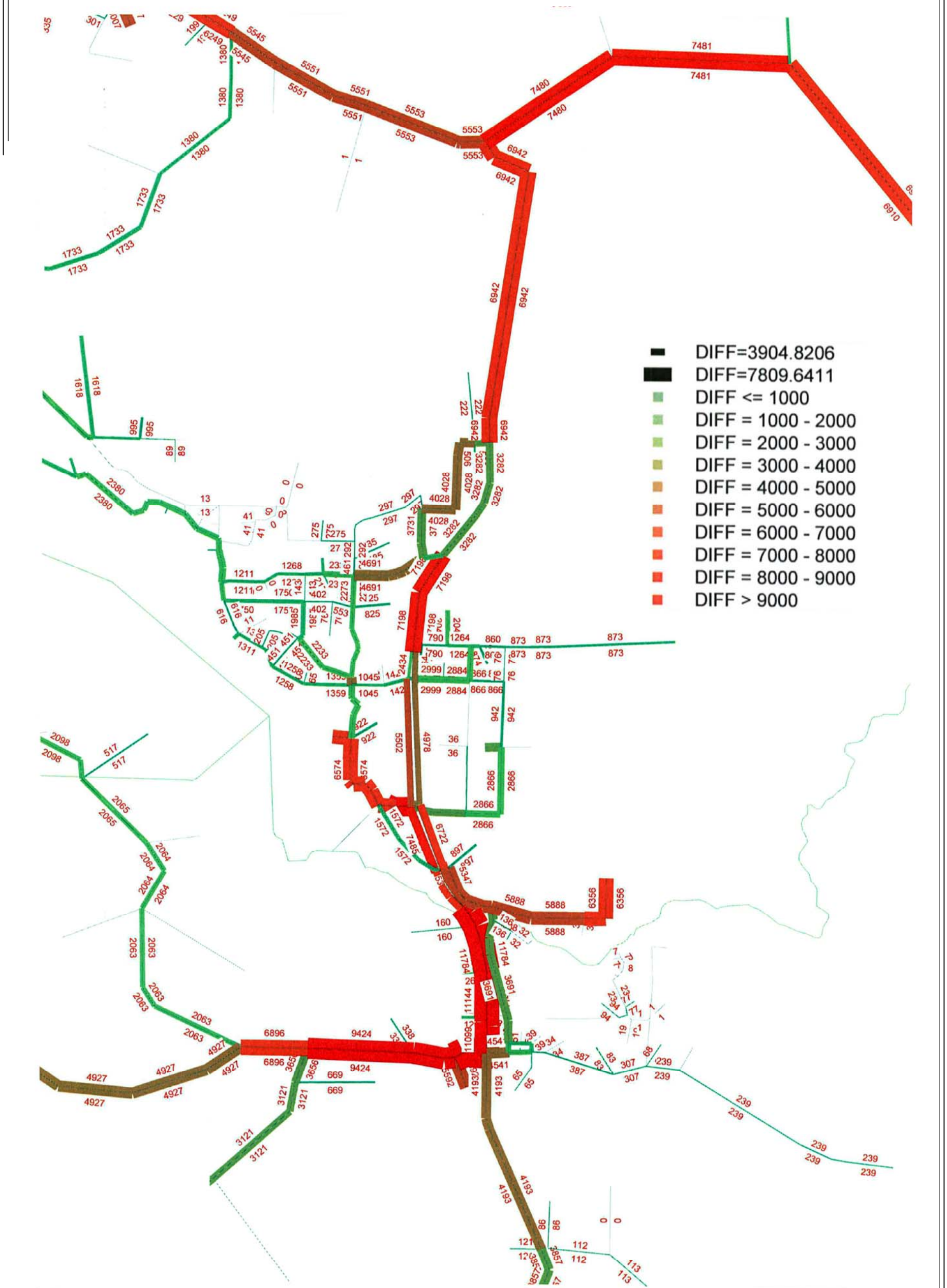

Countywide Regional Transportation Impact Fee Study Figure 7C

Clearlake Zone of Benefit Year 2030-Year 2007 Model Forcasts (Incremental Traffic)

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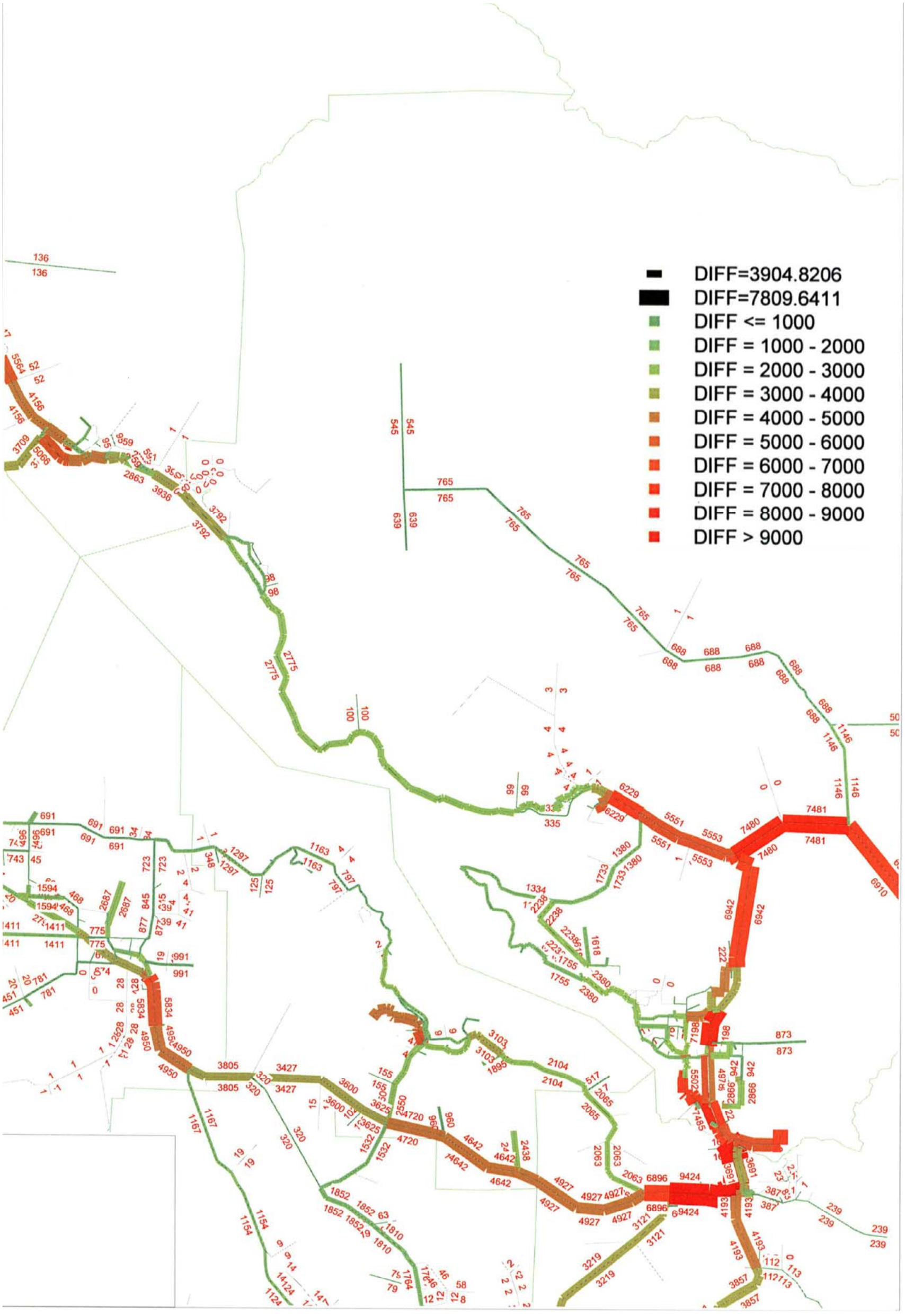

Countywide Regional Transportation Impact Fee Study Figure 7D

Shoreline Communities Zone of Benefit Year 2030-Year 2007 Model Forcasts (Incremental Traffic)

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Intersections

Year 2030 intersection traffic operations have been quantified using the traffic volumes in Figure 6 and the intersection lane geometrics, as identified in Figure 2. Table 8 shows the resulting intersection LOS.

TABLE 8
YEAR 2030 SUMMER CONDITIONS WITHOUT IMPROVEMENTS: INTERSECTION LOS

#	Intersection	Control Type	Target LOS	PM Peak Hour		
				Delay	LOS	Warrant Met?
1	**SR 20/Scotts Valley Rd.**	**TWSC**	**C**	**36.6**	**E**	**No**
2	**SR 20/SR 29**	**TWSC**	**C**	**296.3**	**F**	**Yes**
3	**SR20/Nice Lucerne Cutoff/ Pyle Rd.**	**TWSC**	**C**	**OVR**	**F**	**Yes**
4	**SR 20/Lakeshore Blvd.**	**TWSC**	**C**	**26.8**	**D**	**No**
5	**Country Club Dr./SR 20**	**TWSC**	**C**	**536.1**	**F**	**Yes**
6	**Foothill Dr. (southern location)/SR 20**	**TWSC**	**C**	**OVR**	**F**	**Yes**
7	**SR 20/SR 53**	**TWSC**	**C**	**398.8**	**F**	**Yes**
8	**Lakeshore Dr./Olympic Dr.**	**TWSC**	**C**	**228.7**	**F**	**Yes**
9	**SR 53/Olympic Dr.**	**TWSC**	**C**	**OVR**	**F**	**Yes**
10	**SR 29/SR 53/Morgan Valley Rd.**	**Signal**	**C**	**54.3**	**D**	**-**
11	**SR 29/Seigler Canyon Rd.**	**TWSC**	**C**	**704.2**	**F**	**Yes**
12	**SR 29/Point Lakeview Rd.**	**TWSC**	**C**	**OVR**	**F**	**Yes**
13	**SR 29/Butts Canyon Rd.**	**TWSC**	**C**	**131.2**	**F**	**Yes**
14	**SR 29/SR 175 (in Middletown)**	**Signal**	**C**	**74.2**	**E**	**-**
15	**SR 29/Dry Creek Cutoff.**	**TWSC**	**C**	**57.1**	**F**	**No**
16	**SR 29/Red Hills Rd./SR 281(Soda Bay Rd.)**	**TWSC**	**C**	**OVR**	**F**	**Yes**
17	Soda Bay Rd. (SR 281)/Pt. Lakeview Rd.	TWSC	C	13.0	B	No
18	**SR 29/Main St.**	**TWSC**	**C**	**OVR**	**F**	**Yes**
19	**SR 29/ Merrit Rd.**	**TWSC**	**C**	**OVR**	**F**	**Yes**
20	**SR 29/ Argonaut Rd.**	**TWSC**	**C**	**OVR**	**F**	**Yes**
21	**SR 29/SR 175 (in Lakeport)**	**Signal**	**C**	**692.4**	**F**	**-**
22	**Lakeport Blvd./SR 29 NB ramps**	**TWSC**	**C**	**OVR**	**F**	**Yes**
23	**Lakeport Blvd./SR 29 SB ramps**	**TWSC**	**C**	**OVR**	**F**	**Yes**
24	**(Scotts Valley Rd.) 11th St./SR 29 NB ramps**	**TWSC**	**C**	**520.1**	**F**	**Yes**
25	**(Scotts Valley Rd.) 11th St./SR 29 SB ramps**	**TWSC**	**C**	**OVR**	**F**	**Yes**
26	Nice Lucerne Cut-off/ SR 29 NB ramps	TWSC	C	15.2	C	No
27	**Nice Lucerne Cut-off/ SR 29 SB ramps**	**TWSC**	**C**	**33.4**	**D**	**No**
28	**Nice Lucerne Cutoff/Lakeshore Blvd./Westlake Dr.**	**TWSC**	**C**	**73.9**	**F**	**Yes**

Notes:
TWSC = Two Way Stop Control AWSC = All Way Stop Control
LOS = Worst case movement's LOS for TWSC intersections; OVR = overflow
Warrant = Caltrans Peak hour volume based signal warrant

As shown above, many intersections are projected to operate unacceptably. Improvements to mitigate operations at these intersections along with those for roadway segments (outlined below) are included in subsequent CIP cost estimate section.

Roadway Segments

Year 2030 Roadway segment operations have been quantified using the Year 2030 ADT counts (developed from the model) and assuming the existing roadway capacity configurations. The following table, Table 9**,** shows the Year 2030 conditions roadway segment LOS for different roadways in Lake County.

TABLE 9
YEAR 2030 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2030 Vol. (WINTER Conditions)	2030 Vol. (SUMMER Conditions)	Summer Conditions Year 2030 LOS
SR 29	SR 29	SR 20/SR 29 jct.	Nice Lucerne cutoff	4-Lane Freeway	10963	12059	A
	SR 29	Nice Lucerne cutoff	Park Way	4-Lane Freeway	15121	16633	A
	SR 29	Park Way	11th St.	4-Lane Freeway	21334	23467	A
	SR 29	11th St.	Lakeport Blvd.	4-Lane Freeway	24583	27041	A
	SR 29	Lakeport Blvd.	end of freeway	4-Lane Freeway	22922	25214	A
	SR 29	end of freeway segment	SR 175/Main St.	4-Lane Freeway	22859	25145	A
	SR 29	SR 175 jct. (Lakeport)	Ackley Rd.	2-Lane Div Art.	18302	20132	**F**
	SR 29	Ackley Rd.	Highland Springs Rd.	2-Lane Undiv Art.	16675	18343	**F**
	SR 29	Highland Springs Rd.	Argonaut Rd.	2-Lane Undiv Art.	15790	17369	**F**
	SR 29	Argonaut Rd.	Thomas Dr.	2-Lane Undiv Art.	14922	16414	**F**
	SR 29	Renfro Dr.	Merritt Rd.	2-Lane Undiv Art.	16321	17953	**F**
	SR 29	Kelsey Creek Dr.	Live Oak Dr.	2-Lane Undiv Art.	15040	16544	**F**
	SR 29	Live Oak Dr.	Main St.(Kelseyville)	2-Lane Undiv Art.	13235	14559	**E**
	SR 29	Cole Creek Rd.	Bottle Rock Rd.	2-Lane Undiv Art.	16091	17700	**F**
	SR 29	Bottle Rock Rd.	Oak Creek Ranch	2-Lane Undiv Art.	10274	11301	C
	SR 29	Oak Creek Ranch	SR 175	2-Lane Undiv Art.	13880	15268	**F**
	SR 29	SR 175 (Kelseyville)	SR 281 (Red Hills Rd.)	2-Lane Undiv Art.	10868	11955	C
	SR 29	SR 281 (Red Hills Rd.)	Eagles Nest Ln.	2-Lane Undiv Art.	13862	15248	**F**
	SR 29	Diener Dr.	Pt. Lakeview Rd.	2-Lane Undiv Art.	14071	15478	**F**
	SR 29	Pt. Lakeview Rd.	Siegler Canyon Rd.	2-Lane Undiv Art.	16889	18578	**F**
	SR 29	Siegler Canyon Rd.	SR 29/SR 53 jct.	2-Lane Undiv Art.	20359	22395	**F**
	SR 29	SR29/SR 53 jct.	Clayton Creek Rd.	2-Lane Undiv Art.	14914	16405	**F**
	SR 29	Spruce Grove Rd. (southern)	Hartmann Rd.	2-Lane Undiv Art.	12987	14286	**E**
	SR 29	Butts Canyon Rd.	Diamond Ranch Rd.	2-Lane Undiv Art.	17915	19707	**F**
	SR 29	Butts Canyon Rd.	Wardlaw St.	2-Lane Undiv Art.	18181	19999	**F**
	SR 29	Wardlaw St.	SR 29/SR 175 jct	2-Lane Undiv Art.	15625	17188	**F**
	SR 29	SR 29/SR 75 jct.	Douglas St.	2-Lane Undiv Art.	17559	19315	**F**
	SR 29	Lake Ave.	Dry Creek Cut off	2-Lane Undiv Art.	20596	22656	**F**
	SR 29	Dry Creek Cutoff	Western Mine Rd.	2-Lane Undiv Art.	21765	23942	**F**
SR 53	SR 53	SR 29/SR 53 jct.	Anderson Ranch Pkwy.	4-Lane Div Art.	27553	30308	**D**
	SR 53	Anderson Ranch Pkwy.	Old Hwy. 53	4-Lane Div Art.	28024	30826	**D**
	SR 53	Old Hwy. 53	18th Ave.	4-Lane Div Art.	29760	32736	**E**
	SR 53	18th Ave.	40th Ave.	4-Lane Div Art.	27122	29834	**D**
	SR 53	40th Ave.	Olympic Dr.	2-Lane Undiv Art.	15990	17589	**F**
	SR 53	Olympic Dr.	Old Hwy. 53	2-Lane Undiv Art.	13277	14605	**E**
	SR 53	Old Hwy. 53	SR 20/SR 53 jct.	2-Lane Undiv Art.	13966	15363	**F**
SR 20	SR 20	LAK/YOL County Line	SR 20/SR 53 jct.	2-Lane Undiv Art.	14047	15452	**F**
	SR 20	SR 20/SR 53 jct.	Sulphur Bank Dr.	2-Lane Undiv Art.	12211	13432	**D**
	SR 20	Sulphur Bank Dr.	Country Club Dr.(Lucerne)	2-Lane Undiv Art.	11009	12110	**D**
	SR 20	Country Club Dr. (Lucerne)	Lakeview Blvd.	2-Lane Undiv Art.	13163	14479	**E**
	SR 20	Lakeview Blvd.	Nice Lucerne cutoff	2-Lane Undiv Art.	16480	18128	**F**
	SR 20	Nice Lucerne cutoff	SR 29/SR 20 jct.	2-Lane Undiv Art.	12406	13647	**E**
	SR 20	SR 29/SR 20 jct.	Scotts Valley Rd.	2-Lane Undiv Art.	17161	18877	**F**
	SR 20	Scotts Valley Rd.	LAK/MEND County line	2-Lane Undiv Art.	19887	21876	**F**
SR175	SR 175	SR 175 jct. (Lakeport)	LAK/MEND bdy.	Substd. 2-Lane Undiv. Art.	9843	10827	**F**
	SR 175	SR 29 (Cobb)	Red Hills Rd.	Substd. 2-Lane Undiv. Art.	1143	1257	A
	SR 175	Red Hills Rd.	Loch Lomond Rd.	Substd. 2-Lane Undiv. Art.	2585	2844	A
	SR 175	Loch Loomond Rd.	Bottle Rock Rd.	Substd. 2-Lane Undiv. Art.	5139	5653	C
	SR 175	Bottle Rock Rd.	Golf Rd.	Substd. 2-Lane Undiv. Art.	8143	8957	**F**
	SR 175	Golf Rd.	Anderson Springs Rd.	Substd. 2-Lane Undiv. Art.	6080	6688	**D**
	SR 175	Anderson Springs Rd.	Dry Creek Cut off	Substd. 2-Lane Undiv. Art.	7089	7798	**F**
	SR 175	Dry Creek Cutoff	SR 29	Substd. 2-Lane Undiv. Art.	5033	5536	C
Upper Lake/Nice	Scotts Valley Rd.	Hill Rd./Halber Rd.	Riggs Rd.	Substd. 2-Lane Collector	3962	4358	**D**
	Scotts Valley Rd.	Riggs Rd.	SR 29 SB ramps	Substd. 2-Lane Collector	5765	6342	**E**
	Elk Mtn. Rd.	SR 20	LAK/MEND County line	Substd. 2-Lane Collector	1027	1130	B
	Upper Lake/Lucerne Rd	SR 20	Hillcrest Dr.	Substd. 2-Lane Collector	119	131	A
	Upper Lake/Lucerne Rd	SR 20	Foothill Oaks Dr.	Substd. 2-Lane Collector	157	173	A
	Country Club	SR 20	Odgen Rd.	Substd. 2-Lane Collector	1669	1836	C
	Foothill	SR 20	Durant Rd.	Substd. 2-Lane Collector	2013	2214	C
	Pyle	SR 20	Old Lake County Rd.	Substd. 2-Lane Collector	260	286	A

TABLE 9
YEAR 2030 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2030 Vol. (WINTER Conditions)	2030 Vol. (SUMMER Conditions)	Summer Conditions Year 2030 LOS
Upper Lake/Nice	Sayre Ave.	SR 20	Lakeshore Blvd.	Substd. 2-Lane Collector	2535	2789	C
	Sayre Ave.	SR 20	Broadway Ave.	Substd. 2-Lane Collector	683	751	A
	Lakeview Dr.	SR 20	north of SR 20	Substd. 2-Lane Collector	2648	2913	C
	Nice Lucerne cut-off	SR 29 SB ramps	Lakeshore Blvd.	Substd. 2-Lane Undiv. Art.	9707	10678	**F**
	Nice Lucerne cut-off	Lakeshore Blvd.	Mackie Rd.	Substd. 2-Lane Undiv. Art.	10204	11224	**F**
	Nice Lucerne cut-off	Mackie Rd.	Stokes Ave.	Substd. 2-Lane Undiv. Art.	10262	11288	**F**
	Nice Lucerne cut-off	Stokes Ave.	SR 20	Substd. 2-Lane Undiv. Art.	12170	13387	**F**
Lakeport incl. City of Lakeport	16th St.	Hartley St.	High St.	Substd. 2-Lane Collector	2985	3284	C
	16th St.	N. High St.	Forbes St.	Substd. 2-Lane Collector	831	914	B
	11th St.	Mountview Rd.	SR 29 SB ramps	2-Lane Collector	5765	6342	**D**
	11th St.	SR 29 NB ramps	Central Park Ave.	2-Lane Collector	13812	15193	**D**
	11th St.	Central Park Ave.	Mellor Dr.	2-Lane Collector	14662	16128	**D**
	11th St.	Mellor Dr.	Brush St.	2-Lane Collector	11092	12201	**D**
	11th St.	High St.	Forbes St.	2-Lane Collector	9515	10467	C
	11th St.	Forbes St.	Main St.(Kelseyville)	2-Lane Collector	6379	7017	**D**
	Berry	Spurr St.	Armstrong St.	Substd. 2-Lane Collector	110	121	A
	Armstrong St.	Spurr St.	Russell St.	Substd. 2-Lane Collector	204	224	A
	Armstrong St.	Brush St.	Forbes St.	Substd. 2-Lane Collector	632	695	A
	Armstrong St.	Forbes St.	Main St.	Substd. 2-Lane Collector	717	789	A
	N.Brush St.	11th St.	10th St.	Substd. 2-Lane Collector	1544	1698	B
	N.Brush St.	7th St.	6th St.	Substd. 2-Lane Collector	1474	1621	B
	N.Brush St.	6th St.	5th St.	Substd. 2-Lane Collector	517	569	A
	N.Brush St.	Armstrong St.	Martin St.	Substd. 2-Lane Collector	259	285	A
	Compton Ave,	Keeling Ave.	Samuelson Ct.	Substd. 2-Lane Collector	406	447	A
	Crystal Lake Way	Hartley St.	Keeling Ave.	Substd. 2-Lane Collector	1029	1132	B
	Crystal Lake Way	Lakeshore Blvd.	Howard Ave.	Substd. 2-Lane Collector	388	427	A
	Forbes St	Armstrong St.	Martin St.	Substd. 2-Lane Collector	3104	3414	C
	Hartley Rd	Scotts Valley Rancheria Rd.	20th St.	2-Lane Collector	1489	1638	A
	Hartley Rd	Sunset Dr.	Boggs Ln.	Substd. 2-Lane Collector	2961	3257	C
	Hartley Rd	16th St.	17th St.	2-Lane Collector	2957	3253	B
	High Street	17th St.	Lakeshore Blvd.	2-Lane Undiv Art.	9230	10153	B
	Main Street	11th St.	9th St.	2-Lane Div Art.	8716	9588	A
	Main Street	9th St.	6th St.	2-Lane Div Art.	7735	8509	A
	Main Street	6th St.	2nd St.	2-Lane Div Art.	8322	9154	A
	Main Street	2nd St.	Martin St.	2-Lane Div Art.	7691	8460	A
	Main Street	Martin St.	Lakeport Blvd.	2-Lane Div Art.	9574	10531	A
	S.Main St.	Lakeport Blvd.	SR 175/Soda Bay intx.	2-Lane Undiv Art.	12733	14006	**E**
	Lakeport Blvd.	Todd Rd./Parallel Dr.	SR 29 SB ramps	2-Lane Undiv Art.	3392	3731	A
	Lakeport Blvd.	SR 29 SB ramps	Bevins Rd.	Substd. 2-Lane Collector	18091	19900	**D**
	Lakeport Blvd.	Bevins Rd.	S.Main St.	2-Lane Undiv Art.	12726	13999	**E**
	Park Way	Hill Rd. West	SR 29 SB ramps	Substd. 2-Lane Collector	936	1030	B
	Park Way	SR 29 SB ramps	Keeling Ave.	Substd. 2-Lane Collector	3741	4115	**D**
	Park Way	Keeling Ave.	Lakeshore Blvd.	Substd. 2-Lane Collector	3158	3474	C
	Russell St.	2nd St.	Armstrong St.	Substd. 2-Lane Collector	1620	1782	B
	Russell St.	Armstrong St.	Martin St.	Substd. 2-Lane Collector	1065	1172	B
	Walnut Dr.	Lakeshore Blvd.	3rd Ave.	Substd. 2-Lane Collector	799	879	A
	Lakeshore Blvd.	Hillview Dr.	Walnut Dr.	Substd. 2-Lane Collector	6611	7272	**D**
	Lakeshore Blvd.	Walnut Dr.	Lowen Ln.	Substd. 2-Lane Collector	6035	6639	**D**
	Lakeshore Blvd.	Lowen Ln.	Park Way	Substd. 2-Lane Collector	6660	7326	**D**
	Lakeshore Blvd.	Park Way	Wight Ln.	Substd. 2-Lane Collector	7295	8025	**D**
	Lakeshore Blvd.	Wight Ln.	Crystal Lake Way	Substd. 2-Lane Collector	7754	8529	**D**
	Lakeshore Blvd	Crystal Lake Way.	Rainbow Rd.	Substd. 2-Lane Collector	7734	8507	**D**
Kelseyville	Highland Springs	SR 29	Bell Hill Rd.	Substd. 2-Lane Collector	4094	4503	**D**
	Highland Springs	Red Rock Rd.	Bell Hill Rd.	Substd. 2-Lane Collector	1004	1104	B
	Bell Hill Rd.	Highland Springs Rd.	SR 29	Substd. 2-Lane Collector	1671	1838	C
	Bell Hill Rd.	SR 29	Main St.	Substd. 2-Lane Collector	1406	1547	B
	Konocti Bay	SR 281	Bay Ln.	Substd. 2-Lane Collector	1341	1475	B
	Konocti Bay	Pt. Lakeview Rd.	Sequoia Rd.	Substd. 2-Lane Collector	1956	2152	C
	Live Oak Dr.	Main St. (Kelseyville)	SR 29	2-Lane Collector	2630	2893	B
	Live Oak Dr.	SR 29	Cruickshank Rd.	2-Lane Collector	1260	1386	A

TABLE 9
YEAR 2030 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2030 Vol. (WINTER Conditions)	2030 Vol. (SUMMER Conditions)	Summer Conditions Year 2030 LOS
Kelseyville	Meritt	Renfro Dr.	SR 29	2-Lane Collector	3540	3894	C
	Meritt	SR 29	Lossa Rd.	Substd. 2-Lane Collector	6852	7537	**E**
	Meritt	Big Valley Rd.	Gaddy Ln.	Substd. 2-Lane Collector	3953	4348	**D**
	Gaddy Lane	Merritt Rd.	Soda Bay Rd.	Substd. 2-Lane Collector	4557	5013	**D**
	State St.	Gaddy Lan.	Sylar Lane.	Substd. 2-Lane Collector	2742	3016	C
	State St.	Sylar Ln.	Main St.	Substd. 2-Lane Collector	3022	3324	C
	Main St.	Bell Hill Rd.	State St.	Substd. 2-Lane Collector	5137	5651	**D**
	Wight Way	Kelsey Creek Dr.	Adobe Creek Rd.	Substd. 2-Lane Collector	305	336	A
	Gifford Springs	SR 175	Cobb Blvd.	2-Lane Collector	751	826	A
	Soda Bay Rd.	SR 175/S. Main St.	Sylva Lane.	Substd. 2-Lane Collector	7028	7731	**E**
	Soda Bay Rd.	Sylva Ln.	Highland Springs Rd.	Substd. 2-Lane Collector	4370	4807	**D**
	Soda Bay Rd.	Highland Springs Rd.	Stone Dr.	Substd. 2-Lane Collector	2040	2244	C
	Soda Bay Rd.	Stone Dr.	Park Dr.	Substd. 2-Lane Collector	1989	2188	C
	Soda Bay Rd.	Park Dr.	Gaddy Ln.	Substd. 2-Lane Collector	2008	2209	C
	Bottle Rock Rd.	SR 29	Kelseyville/Cobb bdy.	Substd. 2-Lane Collector	3478	3826	**D**
Cobb	Bottle Rock Rd.	Kelseyville/Cobb bdy.	Harrington Flat Rd.	Substd. 2-Lane Collector	3309	3640	**D**
	Bottle Rock Rd.	Harringnton Flat Rd.	Sulphur Creek Rd.	Substd. 2-Lane Collector	2497	2747	C
	Bottle Rock Rd.	Sulphur Creek Rd.	SR 175	Substd. 2-Lane Collector	3363	3699	**D**
	Sulphur Creek	Harrington Flat Rd.	SR 175	Substd. 2-Lane Collector	522	574	A
	Harrington Flat Rd.	Bottle Rock Rd.	Sulphur Creek Rd.	Substd. 2-Lane Collector	213	234	A
	Harrington Flat Rd.	Sulphur Creek Rd.	SR 175	Substd. 2-Lane Collector	847	932	B
	Golf Road	SR 175	Cobb Blvd.	Substd. 2-Lane Collector	920	1012	B
	Loch Lomond Rd.	Siegler Springs Rd.	SR 175	Substd. 2-Lane Collector	745	820	A
	Red Hills Rd. (SR 281)	Rivieras Cobb Bdy.	SR 175	2-Lane Collector	2310	2541	B
Middletown	Big Canyon Rd.	Siegler Springs Rd.	Harbin Springs Rd.	Substd. 2-Lane Collector	2438	2682	C
	Big Canyon Rd.	Harbin Springs Rd.	SR 175	Substd. 2-Lane Collector	3561	3917	**D**
	Hartmann Rd.	SR 29	Hidden Valley Rd.	2-Lane Collector	6292	6921	**D**
	Butts Canyon Rd.	SR 29	Eureka Rd.	Substd. 2-Lane Collector	3749	4124	**D**
	Washington St.	Main St. (Middletown)	Armstrong St.	Substd. 2-Lane Collector	1881	2069	C
	Main St.	SR 29	Washington St.	Substd. 2-Lane Collector	3159	3475	C
	Santa Clara	SR 175	Lake Ave.	Substd. 2-Lane Collector	2454	2699	C
	Spruce Grove Rd.	Spruce Grove Rd.	Deer Hill Rd.	2-Lane Collector	4072	4479	C
	Spruce Grove Rd.	Deer Hill Rd.	Jerusalem Grade	2-Lane Collector	463	509	A
	Stewart St.	SR 175	Douglas St.	Substd. 2-Lane Collector	1736	1910	C
	Stewart St.	Douglas St.	Pine St.	Substd. 2-Lane Collector	1401	1541	B
	Barnes St.	Stewart St.	Wardlaw St.	Substd. 2-Lane Collector	3573	3930	**D**
	Wardlaw St.	SR 29	Jefferson St.	Substd. 2-Lane Collector	1355	1491	B
	Washington St.	Wardlaw St.	Young St.	Substd. 2-Lane Collector	952	1047	B
	Washington St.	Young St.	SR 29 (Main St.)	Substd. 2-Lane Collector	1800	1980	C
	Washington St.	Main St.	Armstrong St.	Substd. 2-Lane Collector	1921	2113	C
	Young St.	SR 29	Bush St.	Substd. 2-Lane Collector	1021	1123	B
	Young St.	SR 29	Washington St.	Substd. 2-Lane Collector	1259	1385	B
	Young St.	Washington St.	Jackson St.	Substd. 2-Lane Collector	2801	3081	C
	SR 281	Cobb Rivieras bdy.	SR 29	2-Lane Collector	2310	2541	B
Rivieras	SR 281	SR 29	Pt. Lakeview Rd.	2-Lane Collector	5393	5932	**D**
	Fairway Dr	west of SR 281	SR 281 (Soda Bay Rd.)	2-Lane Collector	6414	7055	**D**
	Fairway Dr	SR 281 (Soda Bay Rd.)	Pt.Lakeview Rd.	2-Lane Collector	4387	4826	C
	Point Lake View Rd.	SR 281	Fairway Dr.	Substd. 2-Lane Collector	4053	4458	**D**
	Point Lake View Rd.	Fairway Dr.	Konocti Vista Dr.	Substd. 2-Lane Collector	3947	4342	**D**
	Point Lake View Rd.	Konocti Vista Dr.	SR 29	Substd. 2-Lane Collector	2594	2853	C
Lowerlake	Lake St.	Morgan Valley Rd.	Dam Rd.	Substd. 2-Lane Collector	4471	4918	**D**
	Mill St.	Morgan Valley Rd.	2nd St.	Substd. 2-Lane Collector	2500	2750	C
	Mill St.	Morgan Valley Rd.	Rose St.	Substd. 2-Lane Collector	109	120	A
	Seigler Canyon Rd.	SR 29	Perini Rd. N	Substd. 2-Lane Collector	4376	4814	**D**
Lowerlake	Seigler Canyon Rd.	Perni Rd. N	Perini Rd. S	Substd. 2-Lane Collector	4068	4475	**D**
	Seigler Canyon Rd.	Perini Rd. S	Siegler Springs N. Rd.	Substd. 2-Lane Collector	988	1087	B
	Tish-a-tang Rd.	Lake St.	east of Lake St.	Substd. 2-Lane Collector	1445	1590	B
	Arrowhead Rd.	Golf Club Rd.	Park St.	2-Lane Collector	3600	3960	C
	Arrowhead Rd.	Park St.	Pomo Rd.	Substd. 2-Lane Collector	873	960	B
	Boyles Avenue	Davis Ave.	44th Ave.	Substd. 2-Lane Collector	167	184	A

TABLE 9
YEAR 2030 LOS

Planning Area	Roadway Segment	from location	to location	Capacity Configuration	2030 Vol. (WINTER Conditions)	2030 Vol. (SUMMER Conditions)	Summer Conditions Year 2030 LOS
Clear Lake	Boyles Avenue	44th Ave.	40th Ave.	Substd. 2-Lane Collector	107	118	A
	Boyles Avenue	40th Ave.	33rd Ave.	Substd. 2-Lane Collector	1067	1174	B
	Boyles Avenue	33rd Ave.	18th Ave.	Substd. 2-Lane Collector	3843	4227	**D**
	18th Avenue	SR 53	Phillips Ave.	Substd. 2-Lane Collector	5811	6392	**E**
	18th Avenue	Phillips Ave.	Boyles Ave.	Substd. 2-Lane Collector	4483	4931	**D**
	40th Ave.	SR 53	Phillips Ave.	Substd. 2-Lane Collector	7233	7956	**E**
	40th Ave.	Phillips Ave.	Boyles Ave.	Substd. 2-Lane Collector	1240	1364	B
	Burns Valley Road	Arrowhead Rd.	Sonoma Way	Substd. 2-Lane Collector	1279	1407	B
	Burns Valley Road	Olympic Dr./Old Hwy 53	Bowers Ave.	Substd. 2-Lane Collector	3857	4243	**D**
	Cypress St.	Olympic Dr.	Austin Ave.	Substd. 2-Lane Collector	553	608	A
	Dam Rd.	just west of Dam Rd./Lake St.	Lake St.	2-Lane Collector	8553	9408	**D**
	Davis St	Eureka Ave.	Phillips Ave.	2-Lane Collector	3235	3559	B
	Davis St	Phillips Ave.	Irvine Ave.	2-Lane Collector	2742	3016	B
	Davis St	Boyles Ave.	Konocti Ave.	2-Lane Collector	1752	1927	B
	Huntington Ave.	Pomo Rd.	Manakee St.	2-Lane Collector	219	241	A
	Huntington Ave.	Manakee St.	Lakeshore Dr.	2-Lane Collector	230	253	A
	Lakeshore Drive	SR 53	Old Hwy. 53	Substd. 2-Lane Undiv. Art.	16765	18442	**D**
	Lakeshore Drive	Old Hwy. 53	Mullen Ave.	Substd. 2-Lane Undiv. Art.	12341	13575	**D**
	Lakeshore Drive	Mullen Ave.	Divison Ave.	Substd. 2-Lane Undiv. Art.	10366	11403	**E**
	Lakeshore Drive	Division Ave.	Olympic Dr.	Substd. 2-Lane Undiv. Art.	9902	10892	**D**
	Lakeshore Drive	Olympic Dr.	Pomo Rd.	Substd. 2-Lane Undiv. Art.	10573	11630	**E**
	Lakeshore Drive	Pomo Rd.	Park St.	Substd. 2-Lane Undiv. Art.	7480	8228	**D**
	Lakeshore Drive	Park St.	Country Club Dr.	Substd. 2-Lane Undiv. Art.	3823	4205	A
	Lakeshore Drive	Country Club Dr.	San Joaquin Dr.	Substd. 2-Lane Undiv. Art.	3383	3721	A
	Moss Street	Davis Ave.	40th Ave.	2-Lane Undiv Art.	3062	3368	A
	Old Hwy 53.	SR 53	Park Blvd.	2-Lane Collector	5522	6074	C
	Burns Valley Rd.	Arrowhead Rd./Pomo Rd.	Woodlawn Dr.	Substd. 2-Lane Collector	1000	1100	B
	Burns Valley Rd.	Woodlawn Dr.	Bowers Ave.	Substd. 2-Lane Collector	1391	1530	B
	Burns Valley Road	Bowers Ave.	Olympic Dr.	Substd. 2-Lane Collector	3943	4337	**D**
	Old Hwy 53.	Olympic Dr.	Austin Dr.	Substd. 2-Lane Undiv. Art.	7469	8216	**F**
	Old Hwy 53.	Austin Dr.	Davis Ave.	Substd. 2-Lane Undiv. Art.	9242	10166	**F**
	Old Hwy 53.	Davis Ave.	W 40th St.	Substd. 2-Lane Undiv. Art.	9242	10166	**F**
	Old Hwy 53.	Lakeshore Dr.(W 40th St.)	Crawford Ave.	Substd. 2-Lane Undiv. Art.	10515	11567	**F**
	Old Hwy 53.	Crawford Ave.	18th Ave. extn.	Substd. 2-Lane Undiv. Art.	12761	14037	**F**
	Old Hwy 53.	18th Ave. extn.	SR 53	Substd. 2-Lane Undiv. Art.	7619	8381	**F**
	Olympic Dr.	Lakeshore Dr.	Cypress St.	Substd. 2-Lane Collector	7306	8037	**D**
	Olympic Dr.	Cypress St.	Old. Hwy 53	Substd. 2-Lane Collector	10684	11752	**D**
	Olympic Dr.	Old Hwy. 53	Washington St.	Substd. 2-Lane Collector	12212	13433	**D**
	Olympic Dr.	Washington St.	SR 53	Substd. 2-Lane Collector	11562	12718	**D**
	Pomo Rd.	Arrowhead Rd.	Lakeshore Dr.	2-Lane Undiv Art.	462	508	A
	Arrowhead Rd.	Pomo Rd.	Burns Valley Rd.	Substd. 2-Lane Collector	1000	1100	B
	West 40th St.	Mullen Ave.	Laddell Ave	Substd. 2-Lane Collector	968	1065	B
	Woodland Dr.	Burns Valley Rd.	Koloko St.	Substd. 2-Lane Collector	164	180	A
	Arrowhead/Pomo Rd.	Burns Valley Rd.	Lakeshore Dr.	Substd. 2-Lane Collector	5562	6118	**D**

YEAR 2030 TRANSPORTATION IMPROVEMENT NEEDS

As discussed in the previous section, many roadways within Lake County are projected to operate at unacceptable LOS on a daily ADT basis. Significant improvements are required to mitigate these projected deficiencies, most of which arise due to anticipated growth in the next 20 years.

YEAR TRANSPORTATION IMPROVEMENTS NEED

Based on delay and level of service conditions on both roadway segment and intersections for future year conditions as presented in previous section of this report, roadway improvements for Lake County along with their planning level cost estimates are identified in Table 10.

Table 10
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements
Kelseyville /Rivieras/ Cobb	**KRC#11**	**Highland Springs Rd**. - SR 29 to Bell Hill Rd.	Two lane rural raodway	Improve to two-lane collector
	KRC#12	**Main St**. (Kelseyville) - Bell Hill Rd. to State St.	Two lane rural roadway	Widen to two-lane undivided arterial
Lakeport Planning Area incl. City of Lakeport	**LP #1**	**Park Way.** - SR 29 SB ramps to Lakeshore Blvd.	Two lane roadway	Improve to two-lane collector
	LP #2	**S.Main St**. - Lakeport Blvd. to SR 175	Two lane roadway	Improve to four-lane undivided arterial
	LP #3	**11th St.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway improvements and signalization at some intersections
	LP #4	**High St**. - 16th St. to 20th St.	Two lane roadway	Traffic signals at 16th St. and 20th St.
	LP #5	**Lakeshore Blvd.** - city limits to Nice Lucerne Cut-off	Two lane roadway	Roadway improvements and signalization at some intersections
	LP #6	**Lakeport Blvd.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway and intersection improvements
	LP #10	**Soda Bay Rd.** - SR 175/S.Main St. to Lakeport Planning Area boundary	Two lane roadway	Roadway & intersection improvements
	LP #11	**Scotts Valley Rd.** - Hill Rd./Halberg Rd. to SR 29 SB ramps	Two lane roadway	Widen to two-lane undivided arterial
City of Clear Lake/Lower Lake Planning Area	**CL #1**	**Lakeshore Dr.** - SR 53/W 40th Ave. to Park St./Manakee St.	Two lane roadway	Roadway widening and intersection improvements incl. parking lot construction
	CL #2	**Old Hwy. 53** - Olympic Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements
	CL #3	**Olympic Dr.** - Lakeshore Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements
	CL #4	**40th Ave.** - SR 53 to Phillips Ave.	Two lane roadway	Widen to two-lane undivided arterial
	CL #5	**18th Ave.** - SR 53 to Boyles Ave.	Two lane roadway	Widen to two lane undivided arterial
	CL #6	**Dam Rd.** - Lake St. to SR 53	Two lane roadway	Roadway and intersection improvements
	CL #7	**Boyles Ave.** - 18th Ave. to 33rd Ave.	Two lane roadway	Improve to 2-lane collector
	CL #8	**Burns Valley Rd** - Old Hwy. 53 to Arrowhead Rd.	Two lane roadway	Roadway and intersection improvements
	CL #9	**Arrowhead Rd.** - Burns Valley Rd. to Pomo Rd.	Two lane roadway	Improve to 2-lane collector
	CL #10	**Pomo Rd.** - Arrowhead Rd. to Lakeshore Dr.	Two lane roadway	Improve to 2-lane collector

Table 10
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements
Middletown	MID#2	**Hartmann Rd.** - SR 29 to Stinson Ranch Rd.	Two lane rural roadway	Safety and operational improvements
	MID#7	**Butts Canyon Rd.** - SR 29 to Loconomi Ln.	Two lane rural roadway	Widen to two-lane undivided arterial
Countywide Regional Facilities	LAK#1	**SR 29** - Nice Lucerne Cut-off to Lakeport Blvd.	Four-lane freeway	Intersection improvements at ramp intersections
	LAK#2	**SR 29** - SR 175 (Lakeport) to SR 175 (Cobb)	Two lane arterial with some sections having a passing lane	Widen to four-lane expressway and improvements at major intersections including signalization
	LAK#3	**SR 29** (SR 175 to Diener Dr.)	Two lane arterial with some sections having a passing lane	Widen to a four-lane expressway
	LAK#4	**SR 29** - Diener Dr. to SR 53	Two lane arterial	Widen to four-lane expressway
	LAK#6	**SR 29** - SR 29/SR 53 to Lake/Napa County line	Two lane arterial	Widen to four-lane expressway
	LAK#8	**SR 53** - SR 29 (Lowerlake) to SR 20/SR 53	Two lane arterial wth some sections being four-lane	Widen to four-lane expressway
	LAK#10	**SR 20** - SR 53 to Lake/Yolo County line	Two lane arterial with some sections having a passing lane	Widen to four-lane Expressway
	LAK#13	**SR 175** - Lake/Mendocino County line to SR 29	Two lane roadway	Widen to two-lane Undivided arterial and signalization at some intersections
	LAK#15	**SR 175** - Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Widen to two-lane Undivided arterial and signalization at some intersections
	LAK#16	**SR 175** -Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Safety and operational improvements
	LAK#17	**Nice Lucerne Cut-off** -SR 29 ramps to SR 20	Two lane roadway	Widen to two lane/four lane undivided arterial
	LAK#18	**Bottle Rock Rd.** - SR 29 to SR 175	Two lane roadway	Safety and operational improvements
	LAK#19	**SR 20/SR 53 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements
	LAK#20	**SR 20/SR 29 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements

YEAR 2030 ESTIMATED IMPROVEMENT COSTS

PLANNING LEVEL COST ESTIMATES

Planning level cost estimates have been prepared for all transportation improvements required by Year 2030. These estimates represent very rough planning level costs based primarily upon additional roadway widening widths and overall roadway segment lengths to be improved. Based upon this data approximate square footage of additional surface improvements were calculated. Surface improvement areas were then multiplied by a square footage unit cost.

Square footage unit costs were divided into two categories as follows; level, sloping and steep. Unit cost estimates were determined for each of these segment types by development of typical cross section costs for a typical roadway construction project. Unit cost data has been updated to current unit cost information. Steep slope improvement costs were derived from representative project bid data.

The detailed cost estimate worksheets associated with each preliminary planning level cost estimate are presented in the appendix. Table 11 provides a summary of the planning level cost estimates associated with each improvement including safety and operational improvement needs.

Table 11
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)
Kelseyville/Rivieras/Cobb	**KRC#1**	**Pt. Lakeview Rd.** - SR 281 to SR 29	Two lane rural roadway	Safety and operational improvements	$4,164
	KRC#2	**Big Valley Rd.** - Highland Springs Rd. to Merritt Rd./Gaddy Ln.	Two lane rural raodway	Safety and operational improvements	$1,439
	KRC#3	**Bell Hill Rd.** - Highland Springs Rd.to SR 29	Two lane rural raodway	Safety and operational improvements	$2,307
	KRC#4	**Gaddy Ln.** - Loasa Rd. to Soda Bay Rd.	Two lane rural raodway	Roadway Improvements	$6,383
	KRC#5	**Harrington Flat Rd.** - Bottle Rock Rd. to SR 175	Two lane rural raodway	Safety and operational improvements	$3,223
	KRC#6	**Sulphur Creek Rd.** - Bottle Rock Rd. to Harrington Flat Rd.	Two lane rural raodway	Safety and operational improvements	$718
	KRC#7	**Loch Lomond Rd.** - Big Canyon Rd. to SR 175	Two lane rural raodway	Safety and operational improvements	$2,433
	KRC#8	**Siegler Canyon Rd.** - Big Canyon Rd. to SR 29	Two lane rural raodway	Safety and operational improvements	$2,469
	KRC#9	**Big Canyon Rd**. - Siegler Canyon Rd. to USS Liberty Ln.	Two lane rural raodway	Safety and operational improvements	$3,854
	KRC#10	**Merritt Rd.** - SR 29 to Big Valley Rd.	Two lane rural raodway	Safety and operational improvements	$3,119
	KRC#11	**Highland Springs Rd**. - SR 29 to Bell Hill Rd.	Two lane rural raodway	Improve to two-lane collector	$2,652
	KRC#12	**Main St**. (Kelseyville) - Bell Hill Rd. to State St.	Two lane rural roadway	Widen to two-lane undivided arterial	$2,679
				Total Cost	**$35,440**
Lakeport Planning Area incl. City of Lakeport	**LP #1**	**Park Way.** - SR 29 SB ramps to Lakeshore Blvd.	Two lane roadway	Improve to two-lane collector	$5,270
	LP #2	**S.Main St**. - Lakeport Blvd. to SR 175	Two lane roadway	Improve to four-lane undivided arterial	$5,511
	LP #3	**11th St.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway improvements & signalization at some intersections	$7,353
	LP #4	**High St**. - 16th St. to 20th St.	Two lane roadway	Traffic signals at 16th St. and 20th St.	$560
	LP #5	**Lakeshore Blvd.** - city limits to Nice Lucerne Cut-off	Two lane roadway	Roadway improvements and signalization at some intersections	$20,588
	LP #6	**Lakeport Blvd.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway and intersection improvements	$6,238
	LP #7	**Keeling Ave.** - Crystal Lake Way to Park Way	Two lane roadway	Safety and operational improvements	$455
	LP #8	**Howard Ave.** - Crystal Lake Way to south of Rainbow Rd.	Two lane roadway	Safety and operational improvements	$308
	LP #9	**Rainbow Rd.** - Howard Ave. to Lakeshore Blvd.	Two lane roadway	Safety and operational improvements	$149
	LP #10	**Soda Bay Rd.** - SR 175/S.Main St. to Lakeport Planning Area boundary	Two lane roadway	Roadway & intersection improvements	$10,285
	LP #11	**Scotts Valley Rd.** - Hill Rd./Halberg Rd. to SR 29 SB ramps	Two lane roadway	Widen to two-lane undivided arterial	$6,304
				Total Cost	**$63,021**

Table 11
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)
City of Clear Lake/Lower Lake Planning Area	**CL #1**	**Lakeshore Dr.** - SR 53/W 40th Ave. to Park St./Manakee St.	Two lane roadway	Roadway widening and intersection improvements incl. parking lot construction	$9,097
	CL #2	**Old Hwy. 53** - Olympic Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements	$8,465
	CL #3	**Olympic Dr.** - Lakeshore Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements	$4,189
	CL #4	**40th Ave.** - SR 53 to Phillips Ave.	Two lane roadway	Widen to two-lane undivided arterial	$1,300
	CL #5	**18th Ave.** - SR 53 to Boyles Ave.	Two lane roadway	Widen to two lane undivided arterial	$2,658
	CL #6	**Dam Rd.** - Lake St. to SR 53	Two lane roadway	Roadway and intersection improvements	$1,275
	CL #7	**Boyles Ave.** - 18th Ave. to 33rd Ave.	Two lane roadway	Improve to 2-lane collector	$2,047
	CL #8	**Burns Valley Rd** - Old Hwy. 53 to Arrowhead Rd.	Two lane roadway	Roadway and intersection improvements	$3,721
	CL #9	**Arrowhead Rd.** - Burns Valley Rd. to Pomo Rd.	Two lane roadway	Improve to 2-lane collector	$828
	CL #10	**Pomo Rd.** - Arrowhead Rd. to Lakeshore Dr.	Two lane roadway	Improve to 2-lane collector	$768
				Total Cost	**$34,348**
Middletown	**MID#1**	**Spruce Grove Rd.** - SR 29 to Jerusalem Grade	Two lane rural roadway	Safety and operational improvements	$230
	MID#2	**Hartmann Rd.** - SR 29 to Stinson Ranch Rd.	Two lane rural roadway	Safety and operational improvements	$1,343
	MID#3	**Stewart St.** - SR 175 to Callayomi St.	Two lane rural roadway	Safety and operational improvements	$101
	MID#4	**Santa Clara Rd.** - SR 175 to Central Park Rd.	Two lane rural roadway	Safety and operational improvements	$326
	MID#5	**Barnes St.** - SR 175 to Big Canyon Rd./Wardlaw St.	Two lane rural roadway	Safety and operational improvements	$102
	MID#6	**Wardlaw St.** - Barnes St./Big Canyon Rd. to St. Helena Creek Rd.	Two lane rural roadway	Safety and operational improvements	$205
	MID#7	**Butts Canyon Rd.** - SR 29 to Loconomi Ln.	Two lane rural roadway	Widen to two-lane undivided arterial	$9,118
				Total Cost	**$11,425**
Upper Lake/Nice	**ULS #1**	**SR 20** - Nice Lucerne Cut-off to Sulphur Banks Drive	Two lane roadway	Safety and operational improvements	$19,648
				Total Cost	**$19,648**
Countywide Regional Facilities	**LAK#1**	**SR 29** - Nice Lucerne Cut-off to Lakeport Blvd.	Four-lane freeway	Intersection improvements at ramp intersections	$2,518
	LAK#2	**SR 29** - SR 175 (Lakeport) to SR 175 (Cobb)	Two lane arterial with some sections having a passing lane	Widen to four-lane expressway and improvements at major intersections including signalization	$180,765

Table 11
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)
Countywide Regional Facilities	**LAK#3**	**SR 29** (SR 175 to Diener Dr.)	Two lane arterial with some sections having a passing lane	Widen to a four-lane expressway	$200,000
	LAK#4	**SR 29** - Diener Dr. to SR 53	Two lane arterial	Widen to four-lane expressway	$81,883
	LAK#5	**SR 29** - Diener Dr. to SR 53	Two lane arterial	Safety and operational improvements	$2,032
	LAK#6	**SR 29** - SR 29/SR 53 to Lake/Napa County line	Two lane arterial	Widen to four-lane expressway	$793,899
	LAK#7	**SR 29** - SR 29/SR 53 to Lake/Napa County line	Two lane arterial	Safety and operational improvements	$12,477
	LAK#8	**SR 53** - SR 29 (Lowerlake) to SR 20/SR 53	Two lane arterial wth some sections being four-lane	Widen to four-lane expressway	$270,545
	LAK#9	**SR 53** - SR 29 (Lowerlake) to SR 20/SR 53	Two lane arterial wth some sections being four-lane	Safety and operational improvements	$5,240
	LAK#10	**SR 20** - SR 53 to Lake/Yolo County line	Two lane arterial with some sections having a passing lane	Widen to four-lane Expressway	$37,345
	LAK#11	**SR 20** - SR 53 to Lake/Yolo County line	Two lane arterial with some sections having a passing lane	Safety and operational improvements	$8,855
	LAK#12	**SR 20** - SR 29 jct to Lake/Mendocino County line	Two lane arterial with some sections having a passing lane	Safety and operational improvements	$7,299
	LAK#13	**SR 175** - Lake/Mendocino County line to SR 29	Two lane roadway	Widen to two-lane Undivided arterial and signalization at some intersections	$67,413
	LAK#14	**SR 175** - Lake/Mendocino County line to SR 29	Two lane roadway	Safety and operational improvements	$4,745
	LAK#15	**SR 175** - Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Widen to two-lane Undivided arterial and signalization at some intersections	$48,992
	LAK#16	**SR 175** -Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Safety and operational improvements	$3,462
	LAK#17	**Nice Lucerne Cut-off** -SR 29 ramps to SR 20	Two lane roadway	Widen to two lane/four lane undivided arterial	$13,830
	LAK#18	**Bottle Rock Rd.** - SR 29 to SR 175	Two lane roadway	Safety and operational improvements	$6,494
	LAK#19	**SR 20/SR 53 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements	$3,000
	LAK#20	**SR 20/SR 29 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements	$3,000
				Total Cost	**$1,753,794**
				TOTALS	**$1,917,676**

TRANSPORTATION IMPACT FEE PROGRAM IMPROVEMENTS

Year 2030 transportation improvement needs identified in the previous section are required to provide adequate roadway capacity to meet the County and Cities LOS C threshold for acceptable congestion conditions. As identified in Table 10 many of the improvements to regional state (Caltrans) facilities are very costly. As a result, many any of these improvements are beyond the Caltrans District 1 planning horizon and are not considered feasible for construction by Year 2030.

During the preparation of the fee program study, discussions with each of the affected agencies including Caltrans and the Lake County/City APC have provided direction regarding specifically which transportation capacity improvements should be considered as candidates for Capital Improvement Programs, and therefore inclusion into this fee program.

Table 12 provides a summary of Year 2030 improvement needs along with their potential funding sources and potential funding deficits (if any). Figures 8A through 8H show the roadway improvements for different planning areas within Lake County.

LEGEND

- IMPROVE TO FOUR LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED COLLECTOR STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED COLLECTOR STANDARDS
- SAFETY AND OPERATIONAL IMPROVEMENTS
- BEAUTIFICATION AND TRAFFIC CALMING IMPROVEMENTS
- FACILITY IMPROVEMENT TO INCLUDE BIKE LANES
- INTERSECTION IMPROVEMENTS

SHORELINE COMMUNITIES

Foothill Dr.
County Club Dr.
SR20
High Valley Rd.
New Long Valley Rd.
Lake Veiw Dr.
Plaza St.
Keys Blvd
Sulphur Bank Rd.
SR20
SR53
Park Dr.
Soda Bay Rd.
Gaddy Ln.
Clark Dr.
State Park Entrance
Soda Bay Rd.
Crestview Dr.
North Lakeshore Dr.
Sulph

Countywide Regional Transportation Impact Fee Program

Figure 8A

Year 2030 Feasible Roadway Improvements
Shoreline Communities Planning Area

T990TG033.DWG(28MAY08)25-4306-01

Hill Rd.
SR29
Hill Road East
Lakeshore Blvd
Park Way
Eva Way
Compton Ave.
Keeling Ave.
Crystal
Lake
Way
Howard Ave.
Hartley Rd.
Scotts Valley Rd.
Rainbow Rd.
Forest Dr.
CLEAR LAKE
Boggs Ln.
20th St.
Page Dr.
16th St
High St.
Forbes St.
Scott Creek Rd.
11th St.
Central Park Ave.
2nd St.
Martin St./ Riggs Rd.
Berry St.
Compton St.
Rusell St.
Armstrong St.
N.Main St.
Martin St.
Martin St.
Bevns St.
Parallel Dr.
Lakeport Blvd.
City Limits
S.Main St.
Todd Road
Sandy Lane
SR29
SR29

LEGEND

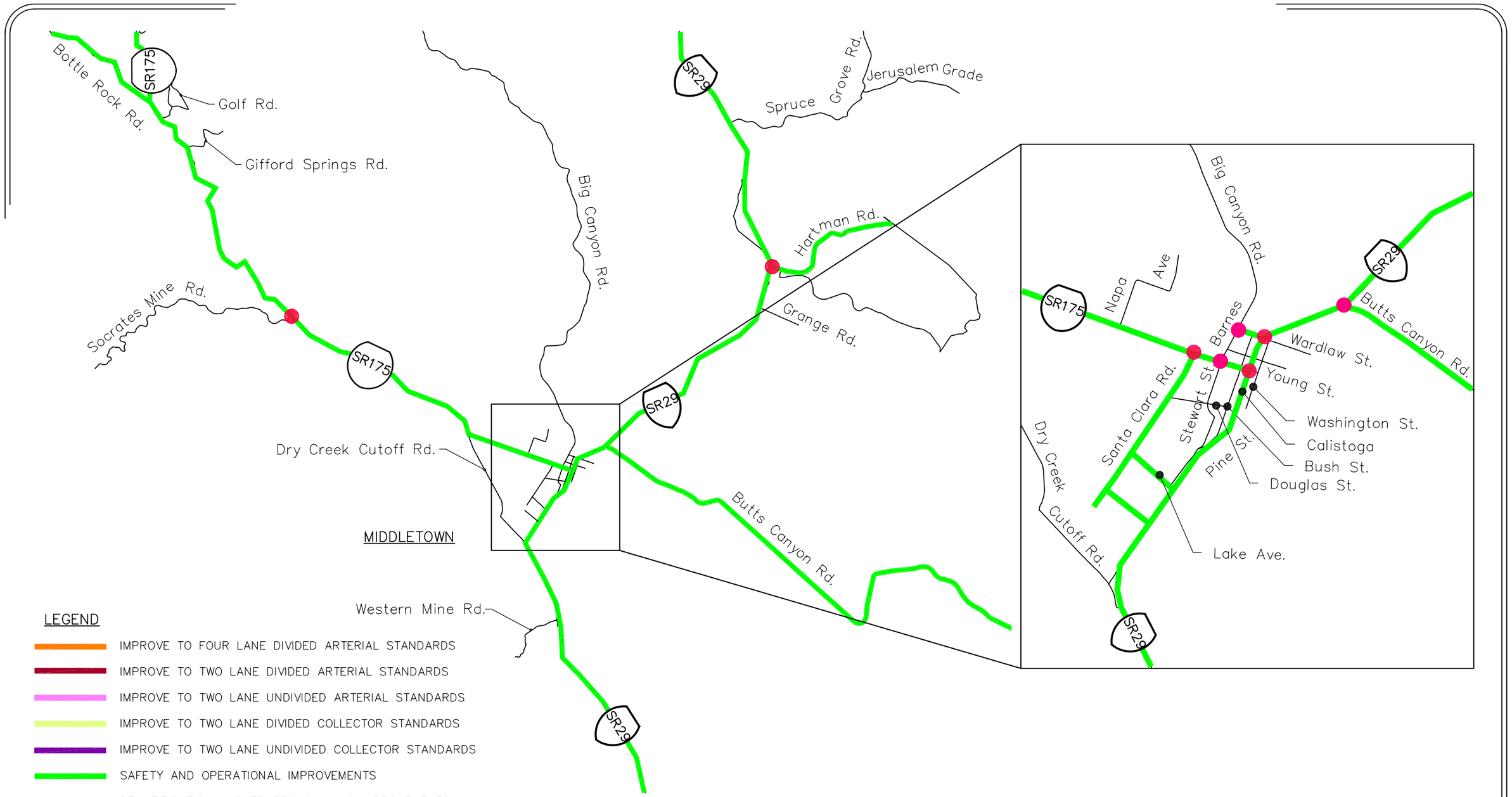
- IMPROVE TO FOUR LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED COLLECTOR STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED COLLECTOR STANDARDS
- SAFETY AND OPERATIONAL IMPROVEMENTS
- BEAUTIFICATION AND TRAFFIC CALMING IMPROVEMENTS
- FACILITY IMPROVEMENT TO INCLUDE BIKE LANES
- INTERSECTION IMPROVEMENTS

Countywide Regional Transportation Impact Fee Program

Figure 8B

Year 2030 Feasible Roadway Improvements
City of Lakeport

T990TG034.DWG(28MAY08)25-4306-01

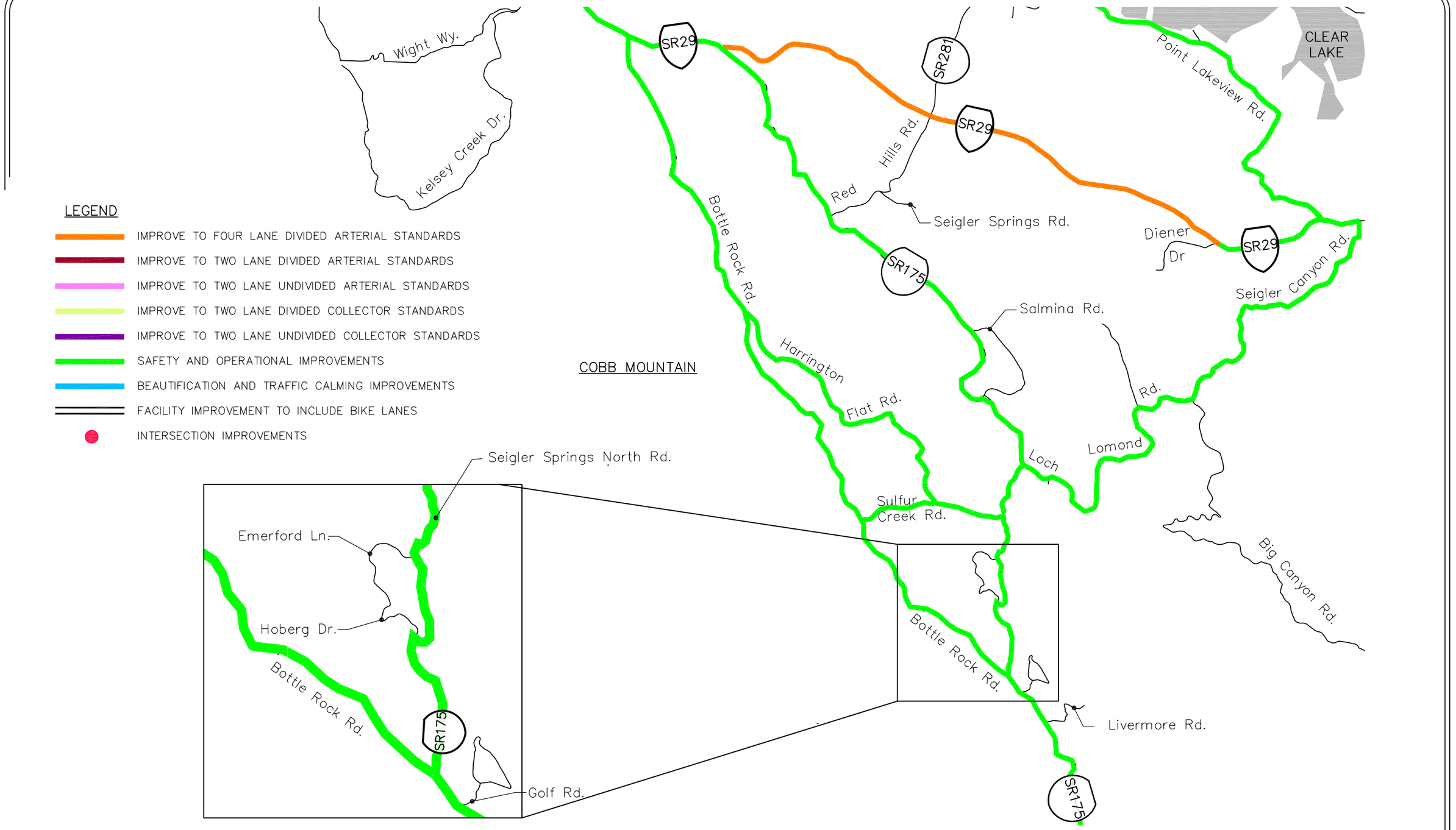


Countywide Regional Transportation Impact Fee Program

Figure 8C

Year 2030 Feasible Roadway Improvements
Middletown

T990TG036.DWG(28MAY08)25-4306-01



Countywide Regional Transportation Impact Fee Program

Figure 8D

Year 2030 Feasible Roadway Improvements
Cobb Mountain Planning Area

T990TG038.DWG(28MAY08)25-4306-01

LEGEND

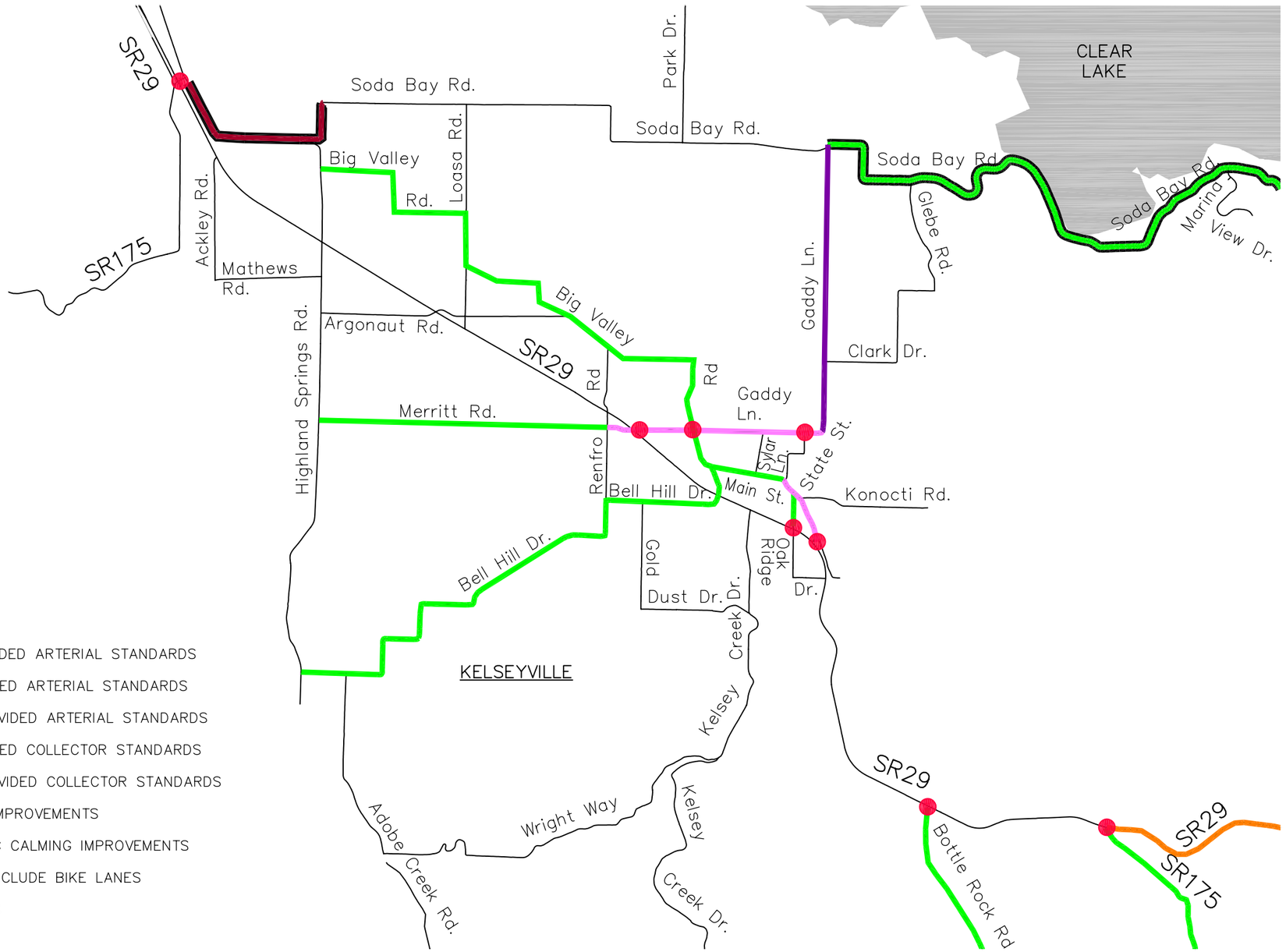
- IMPROVE TO FOUR LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED COLLECTOR STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED COLLECTOR STANDARDS
- SAFETY AND OPERATIONAL IMPROVEMENTS
- BEAUTIFICATION AND TRAFFIC CALMING IMPROVEMENTS
- FACILITY IMPROVEMENT TO INCLUDE BIKE LANES
- INTERSECTION IMPROVEMENTS

SR20
New Long Valley Rd.
High Valley Rd.
SR20
SR20
Sulfur Bank Dr.
Clark Dr.
State Park Entrance
GaddY Ln.
Soda Bay Dr.
Sulfur Bank Dr.
Lakeshore Dr.
RIVIERAS
CLEAR LAKE
Point Lake View Rd.
SR29
SR281
Bottle Rock Rd.
Red Hills Rd.
SR29
Diener Dr
SR175
Canyon Rd.
Seigler
Harrington Flat Rd.

Countywide Regional Transportation Impact Fee Program Figure 8E

Year 2030 Feasible Roadway Improvements
Rivieras Planning Area

T990TG039.DWG(28MAY08)25-4306-01



LEGEND

- IMPROVE TO FOUR LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED COLLECTOR STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED COLLECTOR STANDARDS
- SAFETY AND OPERATIONAL IMPROVEMENTS
- BEAUTIFICATION AND TRAFFIC CALMING IMPROVEMENTS
- FACILITY IMPROVEMENT TO INCLUDE BIKE LANES
- INTERSECTION IMPROVEMENTS

Countywide Regional Transportation Impact Fee Program

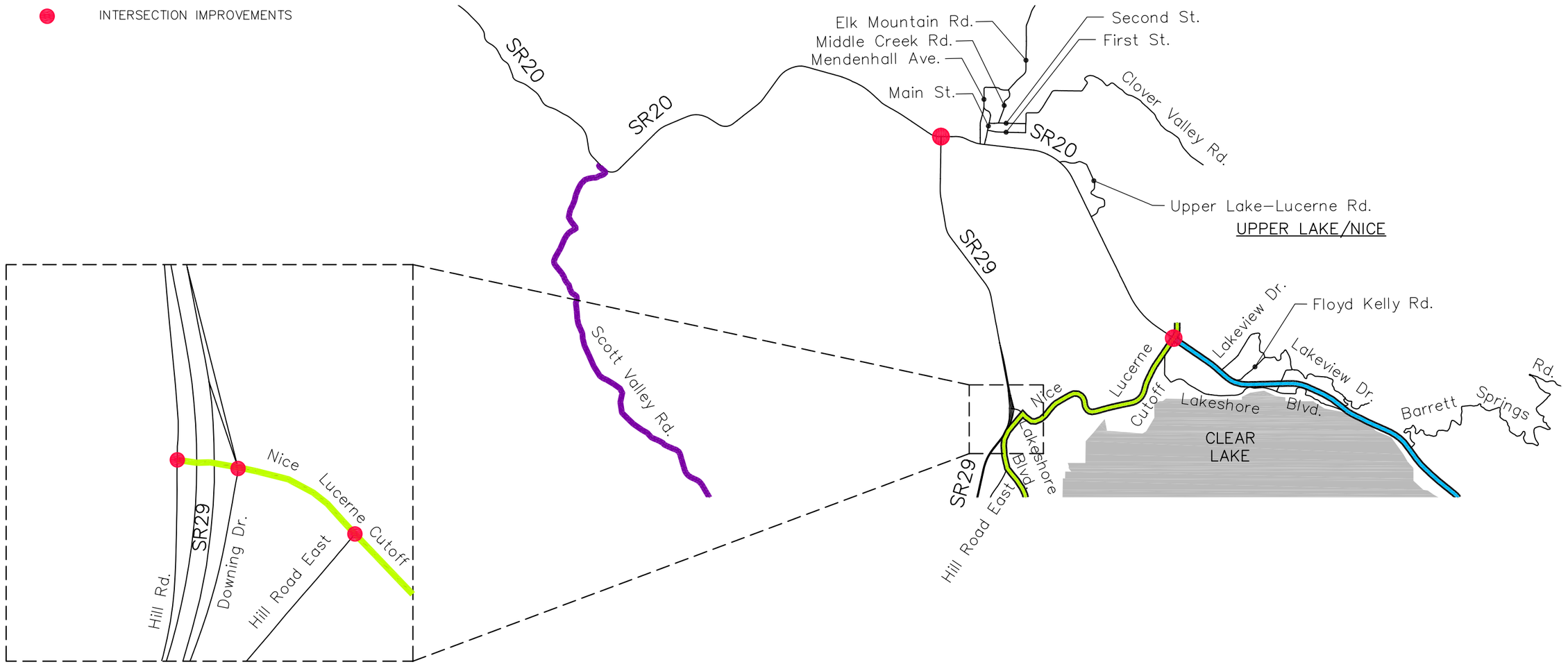
Figure 8F

Year 2030 Feasible Roadway Improvements
Kelseyville Planning Area

T990TG040.DWG(28MAY08)25-4306-01

LEGEND

- IMPROVE TO FOUR LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED COLLECTOR STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED COLLECTOR STANDARDS
- SAFETY AND OPERATIONAL IMPROVEMENTS
- BEAUTIFICATION AND TRAFFIC CALMING IMPROVEMENTS
- FACILITY IMPROVEMENT TO INCLUDE BIKE LANES
- INTERSECTION IMPROVEMENTS

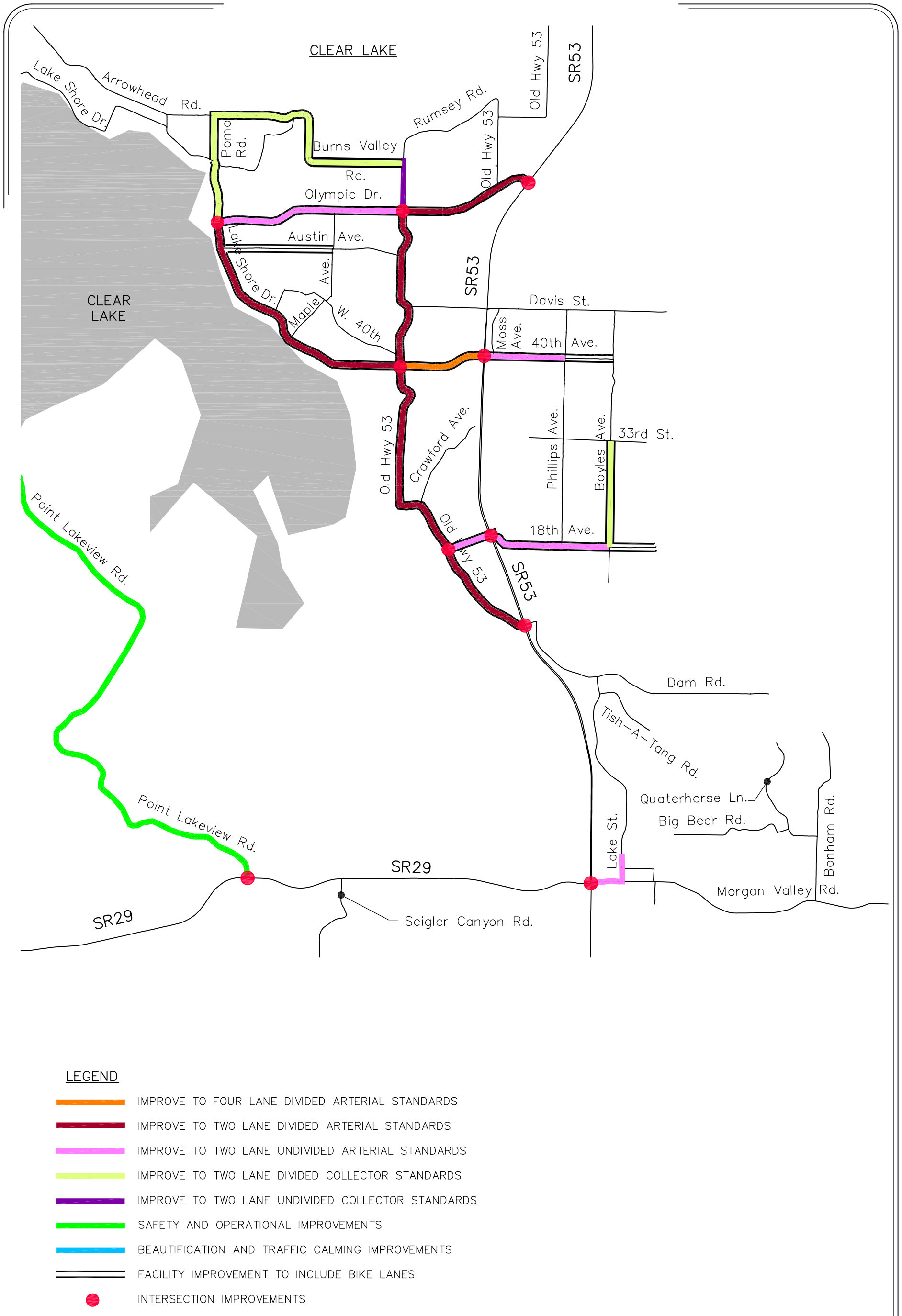


Countywide Regional Transportation Impact Fee Program

Figure 8G

Year 2030 Feasible Roadway Improvements
Upperlake/Nice Planning Area

T990TG041.DWG(28MAY08)25-4306-01



LEGEND

- IMPROVE TO FOUR LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED ARTERIAL STANDARDS
- IMPROVE TO TWO LANE DIVIDED COLLECTOR STANDARDS
- IMPROVE TO TWO LANE UNDIVIDED COLLECTOR STANDARDS
- SAFETY AND OPERATIONAL IMPROVEMENTS
- BEAUTIFICATION AND TRAFFIC CALMING IMPROVEMENTS
- FACILITY IMPROVEMENT TO INCLUDE BIKE LANES
- INTERSECTION IMPROVEMENTS

Countywide Regional Transportation Impact Fee Program

Figure 8H

Year 2030 Feasible Roadway Improvements
City of Clearlake

T990TG042.DWG(28MAY08)25-4306-01

Table 12
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)	Potential Funding Sources			
						State and Federal Funding Programs	Developer Funding	Impact Fee Program	Funding Deficit (1000$)
Kelseyville/Rivieras/Cobb	KRC#1	**Pt. Lakeview Rd.** - SR 281 to SR 29	Two lane rural roadway	Safety and operational improvements	$4,164	$0	$0	$0	$4,164
	KRC#2	**Big Valley Rd.** - Highland Springs Rd. to Merritt Rd./Gaddy Ln.	Two lane rural raodway	Safety and operational improvements	$1,439	$0	$0	$0	$1,439
	KRC#3	**Bell Hill Rd.** - Highland Springs Rd.to SR 29	Two lane rural raodway	Safety and operational improvements	$2,307	$0	$0	$0	$2,307
	KRC#4	**Gaddy Ln.** - Loasa Rd. to Soda Bay Rd.	Two lane rural raodway	Roadway Improvements	$6,383	$0	$0	$6,383	$0
	KRC#5	**Harrington Flat Rd.** - Bottle Rock Rd. to SR 175	Two lane rural raodway	Safety and operational improvements	$3,223	$0	$0	$0	$3,223
	KRC#6	**Sulphur Creek Rd.** - Bottle Rock Rd. to Harrington Flat Rd.	Two lane rural raodway	Safety and operational improvements	$718	$0	$0	$0	$718
	KRC#7	**Loch Lomond Rd.** - Big Canyon Rd. to SR 175	Two lane rural raodway	Safety and operational improvements	$2,433	$0	$0	$0	$2,433
	KRC#8	**Siegler Canyon Rd.** - Big Canyon Rd. to SR 29	Two lane rural raodway	Safety and operational improvements	$2,469	$0	$0	$0	$2,469
	KRC#9	**Big Canyon Rd**. - Siegler Canyon Rd. to USS Liberty Ln.	Two lane rural raodway	Safety and operational improvements	$3,854	$0	$0	$0	$3,854
	KRC#10	**Merritt Rd.** - SR 29 to Big Valley Rd.	Two lane rural raodway	Safety and operational improvements	$3,119	$0	$0	$3,119	$0
	KRC#11	**Highland Springs Rd**. - SR 29 to Bell Hill Rd.	Two lane rural raodway	Improve to two-lane collector	$2,652	$0	$0	$2,652	$0
	KRC#12	**Main St**. (Kelseyville) - Bell Hill Rd. to State St.	Two lane rural roadway	Widen to two-lane undivided arterial	$2,679	$0	$0	$2,679	$0
				Total Cost	**$35,440**	**$0**	**$0**	**$14,833**	**$20,607**
Lakeport Planning Area incl. City of Lakeport	LP #1	**Park Way.** - SR 29 SB ramps to Lakeshore Blvd.	Two lane roadway	Improve to two-lane collector	$5,270	$0	$0	$5,270	$0
	LP #2	**S.Main St**. - Lakeport Blvd. to SR 175	Two lane roadway	Improve to four-lane undivided arterial	$5,511	$0	$0	$5,511	$0
	LP #3	**11th St.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway improvements and signalization at some intersections	$7,353	$0	$0	$7,353	$0
	LP #4	**High St**. - 16th St. to 20th St.	Two lane roadway	Traffic signals at 16th St. and 20th St.	$560	$0	$0	$560	$0

Table 12
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)	Potential Funding Sources			
						State and Federal Funding Programs	Developer Funding	Impact Fee Program	Funding Deficit (1000$)
Lakeport Planning Area incl. City of Lakeport	**LP #5**	**Lakeshore Blvd.** - city limits to Nice Lucerne Cut-off	Two lane roadway	Roadway improvements and signalization at some intersections	$20,588	$0	$0	$20,588	$0
	LP #6	**Lakeport Blvd.** - SR 29 SB ramps to Main St.	Two lane roadway	Roadway and intersection improvements	$6,238	$0	$0	$6,238	$0
	LP #7	**Keeling Ave.** - Crystal Lake Way to Park Way	Two lane roadway	Safety and operational improvements	$455	$0	$0	$0	$455
	LP #8	**Howard Ave.** - Crystal Lake Way to south of Rainbow Rd.	Two lane roadway	Safety and operational improvements	$308	$0	$0	$0	$308
	LP #9	**Rainbow Rd.** - Howard Ave. to Lakeshore Blvd.	Two lane roadway	Safety and operational improvements	$149	$0	$0	$0	$149
	LP #10	**Soda Bay Rd.** - SR 175/S.Main St. to Lakeport Planning Area boundary	Two lane roadway	Roadway & intersection improvements	$10,285	$0	$0	$10,285	$0
	LP #11	**Scotts Valley Rd.** - Hill Rd./Halberg Rd. to SR 29 SB ramps	Two lane roadway	Widen to two-lane undivided arterial	$6,304	$0	$0	$6,304	$0
				Total Cost	**$63,021**	**$0**	**$0**	**$62,109**	**$912**
City of Clear Lake/Lower Lake Planning Area	**CL #1**	**Lakeshore Dr.** - SR 53/W 40th Ave. to Park St./Manakee St.	Two lane roadway	Roadway improvements incl. parking lot construction	$9,097	$0	$0	$9,097	$0
	CL #2	**Old Hwy. 53** - Olympic Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements	$8,465	$0	$0	$8,465	$0
	CL #3	**Olympic Dr.** - Lakeshore Dr. to SR 53	Two lane roadway	Roadway widening and intersection improvements	$4,189	$0	$0	$4,189	$0
	CL #4	**40th Ave.** - SR 53 to Phillips Ave.	Two lane roadway	Widen to two-lane undivided arterial	$1,300	$0	$0	$1,300	$0
	CL #5	**18th Ave.** - SR 53 to Boyles Ave.	Two lane roadway	Widen to two lane undivided arterial	$2,658	$0	$0	$2,658	$0
	CL #6	**Dam Rd.** - Lake St. to SR 53	Two lane roadway	Roadway and intersection improvements	$1,275	$0	$0	$1,275	$0
	CL #7	**Boyles Ave.** - 18th Ave. to 33rd Ave.	Two lane roadway	Improve to 2-lane collector	$2,047	$0	$0	$2,047	$0
	CL #8	**Burns Valley Rd** - Old Hwy. 53 to Arrowhead Rd.	Two lane roadway	Roadway and intersection improvements	$3,721	$0	$0	$3,721	$0
	CL #9	**Arrowhead Rd.** - Burns Valley Rd. - Pomo Rd.	Two lane roadway	Improve to 2-lane collector	$828	$0	$0	$828	$0
	CL #10	**Pomo Rd.** - Arrowhead Rd. - Lakeshore Dr.	Two lane roadway	Improve to 2-lane collector	$768	$0	$0	$768	$0
				Total Cost	**$34,348**	**$0**	**$0**	**$34,348**	**$0**

Table 12
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)	Potential Funding Sources			
						State and Federal Funding Programs	Developer Funding	Impact Fee Program	Funding Deficit (1000$)
Middletown	MID#1	**Spruce Grove Rd.** - SR 29 to Jerusalem Grade	Two lane rural roadway	Safety and operational improvements	$230	$0	$0	$0	$230
	MID#2	**Hartmann Rd.** - SR 29 to Stinson Ranch Rd.	Two lane rural roadway	Safety and operational improvements	$1,343	$0	$0	$1,343	$0
	MID#3	**Stewart St.** - SR 175 to Callayomi St.	Two lane rural roadway	Safety and operational improvements	$101	$0	$0	$0	$101
	MID#4	**Santa Clara Rd.** - SR 175 to Central Park Rd.	Two lane rural roadway	Safety and operational improvements	$326	$0	$0	$0	$326
	MID#5	**Barnes St.** - SR 175 to Big Canyon Rd./Wardlaw St.	Two lane rural roadway	Safety and operational improvements	$102	$0	$0	$0	$102
	MID#6	**Wardlaw St.** - Barnes St./Big Canyon Rd. to St. Helena Creek Rd.	Two lane rural roadway	Safety and operational improvements	$205	$0	$0	$0	$205
	MID#7	**Butts Canyon Rd.** - SR 29 to Loconomi Ln.	Two lane rural roadway	Widen to two-lane undivided arterial	$9,118	$0	$0	$9,118	$0
				Total Cost	**$11,425**	**$0**	**$0**	**$10,461**	**$964**
Upper Lake/Nice	ULS #1	**SR 20** - Nice Lucerne Cut-off to Sulphur Banks Drive	Two lane roadway	Safety and operational improvements	$19,648	$0	$0	$19,648	$0
				Total Cost	**$19,648**	**$0**	**$0**	**$19,648**	**$0**
Countywide Regional Facilities	LAK#1	**SR 29** - Nice Lucerne Cut-off to Lakeport Blvd.	Four-lane freeway	Intersection improvements at ramp intersections	$2,518	$0	$0	$630	$1,888
	LAK#2	**SR 29** - SR 175 (Lakeport) to SR 175 (Cobb)	Two lane arterial with some sections having a passing lane	Widen to four-lane expressway and improvements at major intersections including signalization	$180,765	$0	$0	$0	$180,765
	LAK#3	**SR 29** (SR 175 to Diener Dr.)	Two lane arterial with some sections having a passing lane	Widen to a four-lane expressway	$200,000	$150,000	$0	$50,000	$0
	LAK#4	**SR 29** - Diener Dr. to SR 53	Two lane arterial	Widen to four-lane expressway	$81,883	$0	$0	$0	$81,883
	LAK#5	**SR 29** - Diener Dr. to SR 53	Two lane arterial	Safety and operational improvements	$2,032	$0	$0	$2,032	$0

Table 12
Year 2030 Transportation Improvements Needs

Zone of Benefit	Improvement Number	Facility Description	Existing Conditions	Recommended Improvements	Construction Cost Estimate (1000 $)	Potential Funding Sources			
						State and Federal Funding Programs	Developer Funding	Impact Fee Program	Funding Deficit (1000$)
Countywide Regional Facilities	**LAK#6**	**SR 29** - SR 29/SR 53 to Lake/Napa County line	Two lane arterial	Widen to four-lane expressway	$793,899	$0	$0	$0	$793,899
	LAK#7	**SR 29** - SR 29/SR 53 to Lake/Napa County line	Two lane arterial	Safety and operational improvements	$12,477	$0	$0	$12,477	$0
	LAK#8	**SR 53** - SR 29 (Lowerlake) to SR 20/SR 53	Two lane arterial wth some sections being	Widen to four-lane expressway	$270,545	$0	$0	$0	$270,545
	LAK#9	**SR 53** - SR 29 (Lowerlake) to SR 20/SR 53	Two lane arterial wth some sections being	Safety and operational improvements	$5,240	$0	$0	$5,240	$0
	LAK#10	**SR 20** - SR 53 to Lake/Yolo County line	Two lane arterial with some sections having a	Widen to four-lane Expressway	$37,345	$0	$0	$0	$37,345
	LAK#11	**SR 20** - SR 53 to Lake/Yolo County line	Two lane arterial with some sections having a	Safety and operational improvements	$8,855	$0	$0	$8,855	$0
	LAK#12	**SR 20** - SR 29 jct to Lake/Mendocino County line	Two lane arterial with some sections having a	Safety and operational improvements	$7,299	$0	$0	$7,299	$0
	LAK#13	**SR 175** - Lake/Mendocino County line to SR 29	Two lane roadway	Widen to two-lane Undivided arterial and signalization at some intersections	$67,413	$0	$0	$0	$67,413
	LAK#14	**SR 175** - Lake/Mendocino County line to SR 29	Two lane roadway	Safety and operational improvements	$4,745	$0	$0	$4,745	$0
	LAK#15	**SR 175** - Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Widen to two-lane Undivided arterial and signalization at some intersections	$48,992	$0	$0	$0	$48,992
	LAK#16	**SR 175** -Bottle Rock Rd. to SR 29 (Middletown)	Two lane roadway	Safety and operational improvements	$3,462	$0	$0	$3,462	$0
	LAK#17	**Nice Lucerne Cut-off** -SR 29 ramps to SR 20	Two lane roadway	Widen to two lane/four lane undivided arterial	$13,830	$0	$0	$13,830	$0
	LAK#18	**Bottle Rock Rd.** - SR 29 to SR 175	Two lane roadway	Safety and operational improvements	$6,494	$0	$0	$6,494	$0
	LAK#19	**SR 20/SR 53 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements	$3,000	$2,250	$0	$750	$0
	LAK#20	**SR 20/SR 29 intersection**	Two-Way Stop Controlled	Signalization + intersection improvements	$3,000	$2,250	$0	$750	$0
				Total Cost	**$1,753,794**	**$154,500**	**$0**	**$116,564**	**$1,482,730**
				TOTALS	**$1,917,676**	**$154,500**	**$0**	**$257,963**	**$1,505,213**

TRANSPORTATION IMPACT FEE COST METHODOLOGIES

The Countywide Regional Transportation Impact Fee Program study was conducted by the Lake County/City Area Planning Council to facilitate adoption of an AB 1600 fee program. This program will provide partial funding for future transportation improvement needs. These needs are specifically required to support future development anticipated by Year 2030.

IMPACT FEE METHODOLOGY

Impact fee programs are specifically designed to develop funding sources to ensure adequate infrastructure is constructed concurrent with new development. A development impact fee is a monetary exaction other than a tax or special assessment that is charged by a local governmental agency to an applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project. Adopting this program will help to ensure that necessary multi-modal transportation improvements are constructed as new development projects are approved.

This fee program is not intended (and restricted by AB 1600 fee program requirements) to fund improvements required to mitigate (fix) existing problems. All existing transportation system deficiencies were first identified and the costs required to mitigate these conditions removed from the fee program improvement list.

AB 1600 requires that all public agencies satisfy the following requirements when establishing, increasing, or imposing a fee as a condition of approval for a development project:

1. Identify the purpose of the fee.
2. Identify the specific use of the fee.
3. Determine that there is a reasonable relationship between the fees and the type of development on which the fee is being imposed.
4. Determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is imposed.
5. Determine how there is a reasonable relationship between the amount of the fee and the cost of the public facility or portion of the public facility attributable to the development on which the fee is imposed.

A number of findings must be made to ensure that there is a reasonable relationship or a rough proportionality between the fee imposed and the development on which that fee is imposed. Although the U.S. Supreme Court specifically stated that “no precise mathematical calculation is required...,” an analysis should be presented in enough detail to demonstrate that logical, thorough consideration was applied in the process of defining the fee levied on new development. There are several generally accepted methodologies to determine fees for new development. The choice of methodology used depends on the type of facility for which a fee is being calculated. Following is a brief discussion of the methodology used to calculate the new TIMF for Lake County and the Cities of Clear Lake and Lakeport.

Plan Based Methodology

The plan-based methodology is used for facilities that must be designed based on future demand projections and the geographic location of anticipated growth. The need for road improvements depends specifically on the projected number of trips that must be accommodated from development occurring in a growth area, in this case anywhere within Lake County. The need for roadways and other transportation facilities does not increase proportionately for each residential unit or nonresidential acre developed in an area. Existing facilities, geographic constraints, and current levels of service must be considered to

identify future facility needs. Therefore, to develop a facilities plan for road improvements, a projection for the amount and location of future development is required. The steps to calculate the fee under the plan-based methodology are as follows:

Step 1 Identify the time horizon and the development growth projections within the time horizon.

Step 2 Determine the transportation facilities needed to serve the projected growth.

Step 3 Estimate the gross cost of facilities needed to serve projected growth; the costs of facilities needed to correct existing deficiencies in the transportation system should be excluded from the total cost.

Step 4 Subtract revenues available from alternative funding sources to identify a total net facilities cost.

Step 5 Assign PM peak hour trip rates generated by each land use category; these will be used to determine the benefit received by each development type and also to allocate facilities costs to each development type/land use.

Step 6 Determine the total projected trips that will be generated by future development by multiplying the expected future development by it's respective PM peak hour trip rate.

Step 7 Divide the total net facilities cost by the total projected trips from Step 6 to calculate a cost per trip.

Step 8 Finally, multiply the cost per trip by the trip rate assigned to each land use category in Step 5 to determine the fee for each land use category

INITIAL ZONE OF BENEFIT BOUNDARY DETERMINATION

As noted in the previous chapter, per AB 1600 requirements, a reasonable relationship or a rough proportionality between the fee imposed and the development on which that fee is imposed is required. A Zone of Benefit (ZOB) can be broadly categorized as a geographic area/boundary that would "largely" benefit from the proposed improvements, and therefore would be either entirely or partially responsible for the cost of the improvements.

Impact fee zones of benefit were established based upon the nexus (direct relationship) between anticipated areas of future development and transportation facility needs required to support these development areas. Existing County Planning Area boundaries were used to standardize these development areas. A total of five (5) local zones have been recommended as illustrated in Figure ES-4 (in the Executive Summary). These are outlined below:

- Lakeport Planning Area including City of Lakeport
- Lowerlake Planning Area and the City of Clear Lake
- Middletown Planning Area
- Kelseyville, Rivieras & Cobb Planning Areas
- Upper Lake/Nice & Shoreline Communities

In addition to the five localized zones, a sixth regional countywide zone has been recommended. This zone would include a majority of State (Caltrans) facility improvements. Each of the five local zones would also pay a second regional facility fee, represented by this sixth countywide zone. Fees obtained from each zone would be spent on those facility improvements identified within that zone. The separate regional facility fee would be combined from all five local zones and spent on State (Caltrans) facility improvements throughout the County (as identified in the fee program).

Facility improvements within the Upper Lake/Nice/Shoreline Communities fee zone would include the beautification and traffic calming improvements along SR 20. These improvements are considered as local improvements with a direct benefit to future development within this zone. Traffic calming along

this section of roadway will result in lower daily capacities. These reductions would be offset by payment of the regional facility fee that provides additional capacity along the SR 53/SR 29 preferred Principle Arterial Corridor, consistent with the Regional Transportation Plan.

Fee Calculations

Transportation fee calculations for Lake County and the two Cities were based upon anticipated peak hour traffic generation for future development, as identified in Table 6. This analysis uses the PM peak hour trip generation to calculate the impacts of new development. PM peak hour periods are generally observed to be the busiest period of the day. Therefore, the usage of the PM peak hour trip rates accounts for the heightened level of usage of the transportation facilities.

Transportation impact fees for each Zone of Benefit were calculated by dividing the estimated facility improvement costs by the anticipated traffic volumes associated with new development. Specifically, the fee is based upon total PM peak hour trip generation. Development projects would pay a fee directly related to the anticipated volume of PM peak hour traffic. The higher the traffic, the higher the fee.

The amount of fee that can be justified for each development type is calculated by dividing the total cost of transportation improvements by the equivalent number of dwelling units. The equivalent number of dwelling units is calculated based on the PM peak hour trip generation for the single family-dwelling units. One PM peak hour trip is equivalent to one dwelling unit. The number of equivalent dwelling units for the commercial and industrial land use types is calculated by dividing the PM peak hour trips of each land use type by the single-family dwelling unit PM peak hour trip generation rate (1 trip/DU).

The PM peak hour trip generation rates for the various land uses were calculated based on the PM peak hour trips shown in the trip generation tables for each scenario (provided within the Appendix) and the land use quantities. It is noted that the commercial category trip generation rate was reduced to account for "pass-by" trips. Pass-by trips are those trips that are already assigned to another land-use category and are already present on the current roadway facilities. An example of a pass-by trip would be a stop at a pharmacy on the way to home from work.

The following two tables, Table 13 and Table 14, provide a summary of the local and regional impact fees by zone of benefit. Table 13 contains fee costs separated into the local facility cost and regional facility cost components. Table 14 contains fee costs associated with payment of both the local and regional facility fee.

TABLE 13
TRANSPORTATION IMPACT FEE COSTS - LOCAL AND REGIONAL ZONE OF BENEFIT TOTALS

Zone of Benefit	Transportation Improvement Cost Estimates (Exclding State Facilities Improvements)	State Facility Cost Estimates Included In Fee Program	Total Transportation Improvement Cost Estimates	Equivalent Dwelling Units (EDU's)	Transportation Impact Fee Program Cost Per EDU
Lakeport Planning Area	$62,102,127	$0	$62,102,127	3,088	$20,111
City of Clear Lake/Lower Lake Planning Area	$34,329,075	$0	$34,329,075	6,560	$5,233
Middletown Planning Area	$10,460,640	$0	$10,460,640	1,966	$5,321
Kelseyville/Rivieras/Cobb Planning Areas	$14,831,159	$0	$14,831,159	3,396	$4,367
Upper Lake/Nice/Shoreline Communities Planning Areas	$19,647,775	$0	$19,647,775	2,929	$6,708
Countywide Regional Transportation Facilities	$0	$116,712,485	$116,712,485	17,939	$6,506
Totals	**$141,370,776**	**$116,712,485**	**$258,083,261**		

TABLE 14
TRANSPORTATION IMPACT FEE COSTS - COMBINED LOCAL/REGIONAL TOTALS

Zone of Benefit	Equivalent Dwelling Units (EDU's)	Percent of total	Local Zone of Benefit Cost Per EDU	Regional Zone of Benefit Cost per EDU	Combined Local/Regional Cost Per EDU
Lakeport Planning Area	3,088	17.2%	$20,111	$6,506	$26,617
City of Clear Lake/Lower Lake Planning Area	6,560	36.6%	$5,233	$6,506	$11,739
Middletown Planning Area	1,966	11.0%	$5,321	$6,506	$11,827
Kelseyville/Rivieras/Cobb Planning Areas	3,396	18.9%	$4,367	$6,506	$10,873
Upper Lake/Nice/Shoreline Communities Planning Are	2,929	16.3%	$6,708	$6,506	$13,214

A table has been included in the Appendix, which details the EDU equivalents for different types of land uses. Calculation of EDU's per project within this study should be consistent with this table.

ADJACENT AGENCY COMPARATIVE FEE ANALYSIS

TYPICAL FEES LEVIED BY LAKE COUNTY AND CITIES

The transportation impact fees computed in Table 14 would be additive to the existing building permit fees. Table 15 provides a summary of typical residential development fees for Lake County and the two cities of Clear Lake and Lakeport.

TABLE 15
LAKE COUNTY/CITY FEE SUMMARY
(BASED ON TYPICAL SINGLE FAMILY RESIDENCE)

Fee Type	Lake County	City of Lakeport	City of Clearlake
Building Permit	$2,200	$3,200	$1,500
Plan Check Fee	$60	-	$1,000
Water	$4,500	$4,600	$4,000
Sewer	$5,500	$7,500	$4,300
Fire	$2,000	$2,500	$1,100
School	$5,260	$4,500	$5,260
Construction Traffic Road Fee	$1,000	-	-
Total Existing Fees	**$20,520**	**$22,300**	**$17,160**
Note: These fees are estimated fees ONLY, and are based upon a typical 2,000 square foot dwelling unit. Actual fees will differ.			

TABLE 16
LAKE COUNTY/CITY FEE SUMMARY - INCLUDING NEW TRANSPORTATION IMPACT FEE (TIF)
(BASED ON TYPICAL SINGLE FAMILY RESIDENCE)

Locations within Lake County	Existing Fees	Proposed New TIF	Total Fees Including New TIF
Lakeport Planning Area	$20,520	$24,119	$44,639
City of Lakeport	$22,300	$24,119	$46,419
City of Clear Lake	$17,160	$11,739	$28,899
Lower Lake Planning Area	$20,520	$11,739	$32,259
Middletown Planning Area	$20,520	$11,827	$32,347
Kelseyville Planning Area	$20,520	$10,873	$31,393
Riveras Planning Area	$20,520	$10,873	$31,393
Cobb Planning Area	$20,520	$10,873	$31,393
Upper Lake/Nice Planning Area	$20,520	$13,214	$33,734
Shoreline Communities Planning Area	$20,520	$13,214	$33,734
Note: These fees are estimated fees ONLY, and are based upon a typical 2,000 square foot dwelling unit. Actual fees will differ.			

COMPARISON WITH SURROUNDING AGENCY FEES

Other agencies throughout California have adopted transportation impact fees to fund future facility needs. Table 17 provides a summary of fees from agencies in the vicinity of Lake County that currently have adopted this type of fee program.

TABLE 17
ADJACENT AGENCY FEES – TYPICAL SINGLE-FAMILY RESIDENCE
(BASED ON TYPICAL SINGLE FAMILY RESIDENCE)

Fee Type	**Sonoma County** (Private Well/Spectic)	**Sonoma County** (Public Sewer/Water)	**City of Sebastopol**
Transportation Impact Fee (TIF)	**$8,915**	**$8,915**	**$4,040**
Building Permit	$4,107	$4,107	$4,500
Plan Check Fee	$2,528	$2,528	$1,430
Park Fee	$2,830	$2,830	$6,500
Water/Well	$600	$7,000	$3,970
Sewer/Septic	$2,756	$6,060	$6,360
Fire	$800	$800	$1,070
School	$4,770	$4,770	$3,860
Total	**$27,305**	**$37,009**	**$31,730**

Note: These fees are estimated fees ONLY, and are based upon a typical 2,000 square foot dwelling unit. Actual fees will differ.

APPENDIX

EDU Equivalents
Intersection LOS Worksheets
Planning Level Cost Estimates

APPENDIX TABLE 1
EDU EQUIVALENTS

Land Use[1]	ITE Code #	Descriptor	PM Peak Hour Trip Rate	Pass-by Reduction[2]	EDUs (per descriptor unit)
AIRPORT					
Commercial	21	Flight	5.75	0%	5.69
COMMERCIAL-RETAIL					
Automobile Services:					
Car Dealer	841	1,000 Sq. Ft.	2.64	10% [3]	2.35
Car Wash (Self Service)	947	Wash Stall	5.54	50% [3]	2.74
Gasoline Station (with food mart)	945	Fueling Station	13.38	56%	5.83
Gasoline Station (with food mart & fully automated car wash)	946	Fueling Station	13.33	80% [3]	2.64
Parts Sale	843	1,000 Sq. Ft.	5.98	43%	3.37
Repair Shop	943	1,000 Sq. Ft.	3.38	10% [3]	3.01
Tire Store	848	1,000 Sq. Ft.	4.15	28%	2.96
Convenience Market Chain:					
Open up to 16 Hours per day	852	1,000 Sq. Ft.	34.57	50% [3]	17.11
Open 24 hours	851	1,000 Sq. Ft.	52.41	61%	20.24
Discount Store/Discount Club	861	1,000 Sq. Ft.	4.24	17%	3.48
Drugstore:					
With drive-through window	881	1,000 Sq. Ft.	8.62	53%	4.01
Without drive-through window	880	1,000 Sq. Ft.	8.42	49%	4.25
Furniture Store	890	1,000 Sq. Ft.	0.46	53%	0.21
Lomber/Home Improvement Store	812	1,000 Sq. Ft.	4.49	10% [3]	4.00
Nursery	817	1,000 Sq. Ft.	3.80	10% [3]	3.39
Restaurant:					
Quality	931	1,000 Sq. Ft.	7.49	44%	4.15
High Turnover (sit-down)	932	1,000 Sq. Ft.	10.92	43%	6.16
Fast Food:					
With drive-through window	934	1,000 Sq. Ft.	34.64	50%	17.15
Without drive-through window	933	1,000 Sq. Ft.	26.15	40% [3]	15.53
Shopping Center:					0.00
Shopping Center (0-30,000 Sq. Ft.)	820	1,000 Sq. Ft.	13.70	66%	4.61
Shopping Center (30,001-60,000 Sq. Ft.)	820	1,000 Sq. Ft.	7.97	51%	3.87
Shopping Center (60,001-100,000 Sq. Ft.)	820	1,000 Sq. Ft.	6.77	45%	3.69
Shopping Center (100,001-200,000 Sq. Ft)	820	1,000 Sq. Ft.	5.51	41%	3.22
Shopping Center (200,001-300,000 Sq. Ft)	820	1,000 Sq. Ft.	4.57	33%	3.03
Shopping Center (300,001-500,000 Sq. Ft)	820	1,000 Sq. Ft.	3.91	27%	2.83
Specialty Retail Center/Strip Commercial	814	1,000 Sq. Ft.	2.71	10%	2.41
Supermarket	850	1,000 Sq. Ft.	10.45	36%	6.62
EDUCATION					
University (4 years or higher)	550	Students	0.21	0%	0.21
Community College (2 years)	540	Students	0.12	0%	0.12
Hight School	530	Students	0.14	0%	0.14
Junior High/Middle School	522	Students	0.15	0%	0.15
Elementary School	520	Students	0.42	0%	0.42
Day Care Center	565	Students	0.82	0%	0.81
FINANCIAL INSTITUTION (Bank or Credit Union)					
Excluding Drive-through	911	1,000 Sq. Ft.	33.15	25% [3]	24.62
With drive-through	912	1,000 Sq. Ft.	45.74	47%	24.00
HOSPITAL					
Convalescent/nursing	620	Bed	0.22	0%	0.22
General	610	1,000 Sq. Ft.	1.18	0%	1.17
HOUSE OF WORSHIP					
Church	560	1,000 Sq. Ft.	0.66	0%	0.65
Synaggogue	561	1,000 Sq. Ft.	1.69	0%	1.67
INDUSTRIAL					
Light Industrial (Industrial Park w/o Commercial)	110	1,000 Sq. Ft.	0.98	0%	0.97
General Heavy Industrial	120	1,000 Sq. Ft.	0.68	0%	0.67
Industrial/Business Park	130	1,000 Sq. Ft.	0.86	0%	0.85
Manufacturing/Assembly	140	1,000 Sq. Ft.	0.74	0%	0.73
Rental Storage	151	1,000 Sq. Ft.	0.26	0%	0.26
Scientific Research Development	760	1,000 Sq. Ft.	1.08	0%	1.07
Truck Terminal	30	1,000 Sq. Ft.	0.82	0%	0.81
Warehousing	150	1,000 Sq. Ft.	0.47	0%	0.47
LIBRARY	590	1,000 Sq. Ft.	7.09	0%	7.02
LODGING					
Hotel (w/convention facilities/restaurant)	310	Room	0.59	0%	0.58
Motel	320	Room	0.47	0%	0.47
Resort Hotel	330	Room	0.42	0%	0.42
OFFICE					
General Office (0-30,000 Sq.Ft.)	710	1,000 Sq. Ft.	4.36	0%	4.32
General Office (30,000-55,000 Sq.Ft.)	710	1,000 Sq. Ft.	2.92	0%	2.89
General Office (55,000-100,000 Sq.Ft.)	710	1,000 Sq. Ft.	2.13	0%	2.11
General Office (100,000-300,000 Sq.Ft.)	710	1,000 Sq. Ft.	1.54	0%	1.52
General Office (>300,000 Sq.Ft.)	710	1,000 Sq. Ft.	1.27	0%	1.26
Corporate Headquarters/Single Tenant Office	714	1,000 Sq. Ft.	1.40	0%	1.39
Department of Motor Vehicles	731	1,000 Sq. Ft.	17.09	0%	16.92
Government Offcie	730	1,000 Sq. Ft.	1.21	0%	1.20
Medical Office	720	1,000 Sq. Ft.	3.72	0%	3.68
Post Office	732	1,000 Sq. Ft.	10.89	16% [3]	9.06
RECREATION					
Bowling Center	437	Lane	3.54	0%	3.50
Golf Course	430	Hole	2.74	0%	2.71
Marina	420	Berth	0.19	0%	0.19
Movie Theater					
With Matinee on a Friday	444	Movie Screen	45.91	0%	45.46
With Matinee on a Weekday	444	Movie Screen	20.22	0%	20.02
Park:					
City	411	Acre	1.59	0%	1.57
County	412	Acre	0.06	0%	0.06
State	413	Acre	0.65	0%	0.64
Developed [3]	N/A	Acre	4.00 [3]	0%	4.00 [3]
Undeveloped [3]	N/A	Acre	0.40 [3]	0%	0.40 [3]
Racquetball/Tennis/Health Club	491	1,000 Sq. Ft.	1.06	0%	1.06
RESIDENTIAL					
Single Family Detached	210	Dwelling Units	1.01	0%	1.00
Congragate Care Facility	253	Dwelling Units	0.17	0%	0.17
Apartments	220	Dwelling Units	0.62	0%	0.61
ResidentialCondominium/Townhouse	230	Dwelling Units	0.52	0%	0.51
Rental Townhouse	224	Dwelling Units	0.72	0%	0.71
Mobile Home	240	Occupied Dwelling	0.59	0%	0.58

Notes:

(1) Trip rate derived from the Institute of Transportation Engineers (ITE), Trip Generation, 7th Edition, Washington, District of Columbia, 2003, *unless otherwise noted* .

(2) Pass-by reduction derived from the Institute of Transportation Engineers (ITE), "Trip Generation Handbook," Washington, District of Columbia, 2001, *unless otherwise noted* .

(3) Land use, trip rate or pass-by reduction referenced from (SANDAG) - San Diego Municipal Code. 2003. Land Development Code, Trip Generation Manual. May.

Intersection LOS Worksheets

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	690	83	10	259	36	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	750	90	11	282	39	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			840		1098	795
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			840		1098	795
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		83	97
cM capacity (veh/h)			795		232	387

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	840	292	52
Volume Left	0	11	39
Volume Right	90	0	13
cSH	1700	795	258
Volume to Capacity	0.49	0.01	0.20
Queue Length 95th (ft)	0	1	18
Control Delay (s)	0.0	0.5	22.5
Lane LOS		A	C
Approach Delay (s)	0.0	0.5	22.5
Approach LOS			C

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		51.4%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	492	182	128	169	207	175
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	535	198	139	184	225	190
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			733		997	535
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			733		997	535
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			84		1	65
cM capacity (veh/h)			872		228	545

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	535	198	139	184	225	190
Volume Left	0	0	139	0	225	0
Volume Right	0	198	0	0	0	190
cSH	1700	1700	872	1700	228	545
Volume to Capacity	0.31	0.12	0.16	0.11	0.99	0.35
Queue Length 95th (ft)	0	0	14	0	226	39
Control Delay (s)	0.0	0.0	9.9	0.0	102.3	15.1
Lane LOS			A		F	C
Approach Delay (s)	0.0		4.3		62.3	
Approach LOS					F	

Intersection Summary			
Average Delay		18.5	
Intersection Capacity Utilization		54.5%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	372	64	187	417	4	88	1	326	2	5	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	404	70	203	453	4	96	1	354	2	5	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	458			474			1279	1277	404	1630	1345	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	458			474			1279	1277	404	1630	1345	455
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			81			19	99	45	93	96	99
cM capacity (veh/h)	1103			1088			117	135	646	31	123	605

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	4	404	70	203	458	97	354	11
Volume Left	4	0	0	203	0	96	0	2
Volume Right	0	0	70	0	4	0	354	3
cSH	1103	1700	1700	1088	1700	118	646	91
Volume to Capacity	0.00	0.24	0.04	0.19	0.27	0.82	0.55	0.12
Queue Length 95th (ft)	0	0	0	17	0	122	83	10
Control Delay (s)	8.3	0.0	0.0	9.1	0.0	109.4	17.1	49.8
Lane LOS	A			A		F	C	E
Approach Delay (s)	0.1			2.8		36.9		49.8
Approach LOS						E		E

Intersection Summary				
Average Delay	11.9			
Intersection Capacity Utilization	53.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	687	1	9	606	0	1	0	7	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	747	1	10	659	0	1	0	8	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	659			748			1096	1426	747	1433	1426	329
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	659			748			1096	1426	747	1433	1426	329
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	98	100	100	100
cM capacity (veh/h)	925			857			166	133	355	92	133	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	748	10	439	220	9	0
Volume Left	0	0	10	0	0	1	0
Volume Right	0	1	0	0	0	8	0
cSH	1700	1700	857	1700	1700	311	1700
Volume to Capacity	0.00	0.44	0.01	0.26	0.13	0.03	0.00
Queue Length 95th (ft)	0	0	1	0	0	2	0
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	16.9	0.0
Lane LOS			A			C	A
Approach Delay (s)	0.0		0.1			16.9	0.0
Approach LOS						C	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	46.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	12	34	391	24	19	360
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	37	425	26	21	391
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	871	438			451	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	438			451	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	94			98	
cM capacity (veh/h)	316	619			1109	

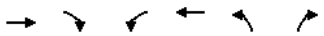
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	451	412
Volume Left	13	0	21
Volume Right	37	26	0
cSH	495	1700	1109
Volume to Capacity	0.10	0.27	0.02
Queue Length 95th (ft)	8	0	1
Control Delay (s)	13.1	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	13.1	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		44.4%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	19	23	429	9	30	536
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	25	466	10	33	583
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1119	471			476	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1119	471			476	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	96			97	
cM capacity (veh/h)	222	593			1086	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	46	476	33	583
Volume Left	21	0	33	0
Volume Right	25	10	0	0
cSH	338	1700	1086	1700
Volume to Capacity	0.14	0.28	0.03	0.34
Queue Length 95th (ft)	12	0	2	0
Control Delay (s)	17.3	0.0	8.4	0.0
Lane LOS	C		A	
Approach Delay (s)	17.3	0.0	0.4	
Approach LOS	C			

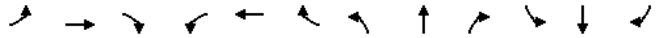
Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		38.2%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	60	128	80	117	342	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	139	87	127	372	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			204		366	33
vC1, stage 1 conf vol					65	
vC2, stage 2 conf vol					301	
vCu, unblocked vol			204		366	33
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			94		38	92
cM capacity (veh/h)			1364		597	1034

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	33	33	139	87	127	451
Volume Left	0	0	0	87	0	372
Volume Right	0	0	139	0	0	79
cSH	1700	1700	1700	1364	1700	644
Volume to Capacity	0.02	0.02	0.08	0.06	0.07	0.70
Queue Length 95th (ft)	0	0	0	5	0	142
Control Delay (s)	0.0	0.0	0.0	7.8	0.0	22.6
Lane LOS				A		C
Approach Delay (s)	0.0			3.2		22.6
Approach LOS						C

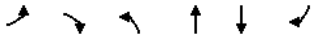
Intersection Summary				
Average Delay	12.5			
Intersection Capacity Utilization	41.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	0	2	84	0	179	1	205	98	116	216	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	2	91	0	195	1	223	107	126	235	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	961	820	236	768	767	276	237			329		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	961	820	236	768	767	276	237			329		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	69	100	74	100			90		
cM capacity (veh/h)	162	278	803	292	298	763	1330			1230		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	286	330	363
Volume Left	1	91	1	126
Volume Right	2	195	107	2
cSH	346	504	1330	1230
Volume to Capacity	0.01	0.57	0.00	0.10
Queue Length 95th (ft)	1	87	0	9
Control Delay (s)	15.5	21.1	0.0	3.5
Lane LOS	C	C	A	A
Approach Delay (s)	15.5	21.1	0.0	3.5
Approach LOS	C	C		

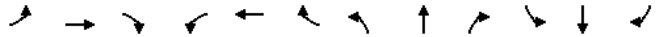
Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	65.0%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	80	130	260	288	377	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	141	283	313	410	118
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1288	410	528			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1288	410	528			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	34	78	73			
cM capacity (veh/h)	132	642	1039			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	87	141	283	313	410	118
Volume Left	87	0	283	0	0	0
Volume Right	0	141	0	0	0	118
cSH	132	642	1039	1700	1700	1700
Volume to Capacity	0.66	0.22	0.27	0.18	0.24	0.07
Queue Length 95th (ft)	89	21	28	0	0	0
Control Delay (s)	74.1	12.2	9.8	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	35.8		4.6		0.0	
Approach LOS	E					

Intersection Summary				
Average Delay		8.1		
Intersection Capacity Utilization	48.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1660		1770	1863	1583	1770	3468		1770	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1660		1770	1863	1583	1770	3468		1770	3539	1583
Volume (vph)	481	44	118	32	43	96	96	383	59	107	400	414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	523	48	128	35	47	104	104	416	64	116	435	450
RTOR Reduction (vph)	0	84	0	0	0	85	0	12	0	0	0	324
Lane Group Flow (vph)	523	92	0	35	47	19	104	468	0	116	435	126
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	24.0	34.0		8.0	18.0	18.0	14.0	27.0		15.0	28.0	28.0
Effective Green, g (s)	24.0	34.0		8.0	18.0	18.0	14.0	27.0		15.0	28.0	28.0
Actuated g/C Ratio	0.24	0.34		0.08	0.18	0.18	0.14	0.27		0.15	0.28	0.28
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	824	564		142	335	285	248	936		266	991	443
v/s Ratio Prot	c0.15	0.11		0.02	0.03		0.06	0.14		c0.07	0.12	
v/s Ratio Perm						0.07						0.28
v/c Ratio	0.63	0.16		0.25	0.14	0.07	0.42	0.50		0.44	0.44	0.28
Uniform Delay, d1	34.1	23.1		43.2	34.5	34.0	39.3	30.8		38.7	29.6	28.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.7	0.6		4.1	0.9	0.4	5.1	1.9		5.1	1.4	1.6
Delay (s)	37.8	23.7		47.3	35.4	34.5	44.4	32.7		43.8	31.0	29.8
Level of Service	D	C		D	D	C	D	C		D	C	C
Approach Delay (s)		34.2			37.1			34.8			31.9	
Approach LOS		C			D			C			C	

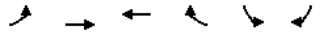
Intersection Summary						
HCM Average Control Delay	33.6	HCM Level of Service		C		
HCM Volume to Capacity ratio	0.65					
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		12.0		
Intersection Capacity Utilization	48.8%	ICU Level of Service		A		
Analysis Period (min)	15					

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	443	2	59	430	5	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	482	2	64	467	5	80
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			484		845	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			484		845	483
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		98	85
cM capacity (veh/h)			1075		284	530

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	484	64	234	234	86
Volume Left	0	64	0	0	5
Volume Right	2	0	0	0	80
cSH	1700	1075	1700	1700	502
Volume to Capacity	0.28	0.06	0.14	0.14	0.17
Queue Length 95th (ft)	0	5	0	0	15
Control Delay (s)	0.0	8.6	0.0	0.0	13.6
Lane LOS		A			B
Approach Delay (s)	0.0	1.0			13.6
Approach LOS					B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	1	400	380	37	36	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	435	413	40	39	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	453				870	227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	453				870	227
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				87	99
cM capacity (veh/h)	1104				290	776

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	1	435	275	178	48
Volume Left	1	0	0	0	39
Volume Right	0	0	0	40	9
cSH	1104	1700	1700	1700	328
Volume to Capacity	0.00	0.26	0.16	0.10	0.15
Queue Length 95th (ft)	0	0	0	0	13
Control Delay (s)	8.3	0.0	0.0	0.0	17.9
Lane LOS	A				C
Approach Delay (s)	0.0		0.0		17.9
Approach LOS					C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	50	54	669	32	20	410
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	59	727	35	22	446
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1234	745			762	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1234	745			762	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	71	86			97	
cM capacity (veh/h)	190	414			850	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	54	59	762	22	446
Volume Left	54	0	0	22	0
Volume Right	0	59	35	0	0
cSH	190	414	1700	850	1700
Volume to Capacity	0.29	0.14	0.45	0.03	0.26
Queue Length 95th (ft)	28	12	0	2	0
Control Delay (s)	31.3	15.1	0.0	9.3	0.0
Lane LOS	D	C		A	
Approach Delay (s)	22.9		0.0	0.4	
Approach LOS	C				

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

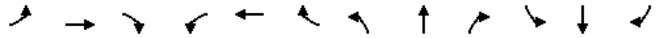
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.95			1.00			1.00			0.97	
Flt Protected		0.97			0.98			0.99			1.00	
Satd. Flow (prot)		1726			1811			1845			1803	
Flt Permitted		0.81			0.80			0.85			1.00	
Satd. Flow (perm)		1441			1492			1589			1795	
Volume (vph)	149	25	95	37	35	2	130	590	3	4	285	88
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	27	103	40	38	2	141	641	3	4	310	96
RTOR Reduction (vph)	0	20	0	0	1	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	272	0	0	79	0	0	785	0	0	398	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		16.9			16.9			39.9			39.9	
Effective Green, g (s)		16.9			16.9			39.9			39.9	
Actuated g/C Ratio		0.26			0.26			0.62			0.62	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		376			389			978			1105	
v/s Ratio Prot												
v/s Ratio Perm		c0.20			0.05			c0.49			0.23	
v/c Ratio		0.72			0.20			0.80			0.36	
Uniform Delay, d1		21.8			18.7			9.5			6.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.7			0.3			4.8			0.2	
Delay (s)		28.6			19.0			14.3			6.3	
Level of Service		C			B			B			A	
Approach Delay (s)		28.6			19.0			14.3			6.3	
Approach LOS		C			B			B			A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	27	6	17	602	390	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	7	18	654	424	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1132	441	458			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1132	441	458			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	99	98			
cM capacity (veh/h)	221	616	1103			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	36	673	458
Volume Left	29	18	0
Volume Right	7	0	34
cSH	250	1103	1700
Volume to Capacity	0.14	0.02	0.27
Queue Length 95th (ft)	12	1	0
Control Delay (s)	21.8	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	21.8	0.4	0.0
Approach LOS	C		

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		55.4%	ICU Level of Service B
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	204	265	15	3	202	128	3	25	25	68	22	102
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	222	288	16	3	220	139	3	27	27	74	24	111
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	359			304			1089	1105	296	998	974	220
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	359			304			1089	1105	296	998	974	220
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			100			98	84	96	54	88	86
cM capacity (veh/h)	1200			1256			131	171	743	162	205	820

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	222	304	3	220	139	58	98	111
Volume Left	222	0	3	0	0	3	74	0
Volume Right	0	16	0	0	139	27	0	111
cSH	1200	1700	1256	1700	1700	262	171	820
Volume to Capacity	0.18	0.18	0.00	0.13	0.08	0.22	0.57	0.14
Queue Length 95th (ft)	17	0	0	0	0	21	76	12
Control Delay (s)	8.7	0.0	7.9	0.0	0.0	22.6	51.2	10.1
Lane LOS	A		A			C	F	B
Approach Delay (s)	3.7		0.1			22.6	29.3	
Approach LOS						C	D	

Intersection Summary			
Average Delay		8.1	
Intersection Capacity Utilization		43.5%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	65	17	95	113	7	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	18	103	123	8	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	268	165			226	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	268	165			226	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			99	
cM capacity (veh/h)	717	880			1342	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	89	226	96
Volume Left	71	0	8
Volume Right	18	123	0
cSH	746	1700	1342
Volume to Capacity	0.12	0.13	0.01
Queue Length 95th (ft)	10	0	0
Control Delay (s)	10.5	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	117	38	275	137	74	577
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	41	299	149	80	627
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1087	299			448	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1087	299			448	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	43	94			93	
cM capacity (veh/h)	222	741			1112	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	168	299	149	80	627
Volume Left	127	0	0	80	0
Volume Right	41	0	149	0	0
cSH	268	1700	1700	1112	1700
Volume to Capacity	0.63	0.18	0.09	0.07	0.37
Queue Length 95th (ft)	97	0	0	6	0
Control Delay (s)	38.8	0.0	0.0	8.5	0.0
Lane LOS	E			A	
Approach Delay (s)	38.8	0.0		1.0	
Approach LOS	E				

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	9	8	18	10	113	4	288	6	119	722	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	10	9	20	11	123	4	313	7	129	785	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1339	1374	395	990	1373	160	789			320		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1339	1374	395	990	1373	160	789			320		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	92	99	89	92	86	99			90		
cM capacity (veh/h)	82	129	605	171	129	857	826			1237		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	22	30	123	4	209	111	129	523	266
Volume Left	3	20	0	4	0	0	129	0	0
Volume Right	9	0	123	0	0	7	0	0	4
cSH	167	153	857	826	1700	1700	1237	1700	1700
Volume to Capacity	0.13	0.20	0.14	0.01	0.12	0.07	0.10	0.31	0.16
Queue Length 95th (ft)	11	18	12	0	0	0	9	0	0
Control Delay (s)	29.8	34.3	9.9	9.4	0.0	0.0	8.2	0.0	0.0
Lane LOS	D	D	A	A			A		
Approach Delay (s)	29.8	14.7		0.1			1.2		
Approach LOS	D	B							

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	38.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1760			1778		1770	1859		1770	1861	
Flt Permitted		0.95			0.92		0.31	1.00		0.45	1.00	
Satd. Flow (perm)		1678			1657		582	1859		845	1861	
Volume (vph)	4	13	9	3	7	4	22	495	7	14	795	4
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	14	10	3	8	4	24	538	8	15	864	4
RTOR Reduction (vph)	0	10	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	11	0	24	546	0	15	868	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.9			3.9		84.6	84.6		84.6	84.6	
Effective Green, g (s)		3.9			3.9		84.6	84.6		84.6	84.6	
Actuated g/C Ratio		0.04			0.04		0.88	0.88		0.88	0.88	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		68			67		510	1630		741	1632	
v/s Ratio Prot								0.29			c0.47	
v/s Ratio Perm		c0.02			0.01		0.04			0.02		
v/c Ratio		0.27			0.17		0.05	0.33		0.02	0.53	
Uniform Delay, d1		44.9			44.7		0.8	1.0		0.7	1.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1			1.2		0.0	0.1		0.0	0.3	
Delay (s)		47.1			45.9		0.8	1.2		0.8	1.7	
Level of Service		D			D		A	A		A	A	
Approach Delay (s)		47.1			45.9			1.1			1.7	
Approach LOS		D			D			A			A	

Intersection Summary					
HCM Average Control Delay	2.8	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.53				
Actuated Cycle Length (s)	96.5	Sum of lost time (s)		8.0	
Intersection Capacity Utilization	52.1%	ICU Level of Service		A	
Analysis Period (min)	15				
c Critical Lane Group					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1823	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted		0.88	1.00	0.71	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1635	1583	1317	1863	1583	1770	1863	1583	1770	1863	1583
Volume (vph)	31	40	31	212	41	109	41	560	91	126	654	19
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	43	34	230	45	118	45	609	99	137	711	21
RTOR Reduction (vph)	0	0	27	0	0	93	0	0	44	0	0	8
Lane Group Flow (vph)	0	77	7	230	45	25	45	609	55	137	711	13
Turn Type	Perm		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)		20.0	20.0	20.0	20.0	20.0	3.4	51.8	51.8	9.8	58.2	58.2
Effective Green, g (s)		20.0	20.0	20.0	20.0	20.0	3.4	51.8	51.8	9.8	58.2	58.2
Actuated g/C Ratio		0.21	0.21	0.21	0.21	0.21	0.04	0.55	0.55	0.10	0.62	0.62
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		349	338	281	398	338	64	1031	876	185	1158	984
v/s Ratio Prot					0.02		0.03	0.33		c0.08	c0.38	
v/s Ratio Perm		0.05	0.02	c0.17		0.07			0.06			0.01
v/c Ratio		0.22	0.02	0.82	0.11	0.07	0.70	0.59	0.06	0.74	0.61	0.01
Uniform Delay, d1		30.4	29.1	35.1	29.7	29.4	44.6	13.9	9.7	40.7	10.8	6.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.0	16.7	0.1	0.1	29.5	2.5	0.1	14.7	2.4	0.0
Delay (s)		30.7	29.1	51.8	29.8	29.5	74.1	16.4	9.8	55.4	13.3	6.8
Level of Service		C	C	D	C	C	E	B	A	E	B	A
Approach Delay (s)		30.2			42.6			18.9			19.7	
Approach LOS		C			D			B			B	

Intersection Summary				
HCM Average Control Delay	24.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	66.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	127	291	0	0	415	170	30	1	155	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	138	316	0	0	451	185	33	1	168	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	636			316			1136	1228	316	1305	1136	543
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	636			316			1136	1228	316	1305	1136	543
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			100			80	99	77	100	100	100
cM capacity (veh/h)	948			1244			159	152	724	93	173	539

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	138	316	636	202
Volume Left	138	0	0	33
Volume Right	0	0	185	168
cSH	948	1700	1700	455
Volume to Capacity	0.15	0.19	0.37	0.44
Queue Length 95th (ft)	13	0	0	56
Control Delay (s)	9.4	0.0	0.0	19.1
Lane LOS	A			C
Approach Delay (s)	2.9		0.0	19.1
Approach LOS				C

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	60.5%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	302	79	165	278	0	0	0	0	123	1	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	328	86	179	302	0	0	0	0	134	1	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	302			414			1126	1032	371	1032	1075	302
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	302			414			1126	1032	371	1032	1075	302
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			84			100	100	100	28	99	87
cM capacity (veh/h)	1259			1145			139	196	675	186	185	737

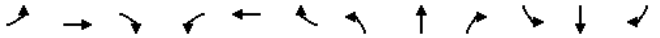
Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	414	179	302	228
Volume Left	0	179	0	134
Volume Right	86	0	0	93
cSH	1700	1145	1700	268
Volume to Capacity	0.24	0.16	0.18	0.85
Queue Length 95th (ft)	0	14	0	178
Control Delay (s)	0.0	8.7	0.0	64.5
Lane LOS		A		F
Approach Delay (s)	0.0	3.3		64.5
Approach LOS				F

Intersection Summary				
Average Delay	14.5			
Intersection Capacity Utilization	60.5%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	195	0	0	299	275	57	2	233	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	212	0	0	325	299	62	2	253	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	624			212			708	858	212	962	708	474
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	624			212			708	858	212	962	708	474
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			82	99	69	100	100	100
cM capacity (veh/h)	957			1358			346	291	828	161	355	590

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	223	624	317
Volume Left	11	0	62
Volume Right	0	299	253
cSH	957	1700	645
Volume to Capacity	0.01	0.37	0.49
Queue Length 95th (ft)	1	0	68
Control Delay (s)	0.5	0.0	15.9
Lane LOS	A		C
Approach Delay (s)	0.5	0.0	15.9
Approach LOS			C

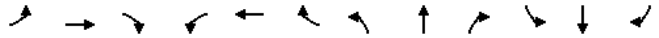
Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	56.8%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	63	50	295	56	0	0	0	0	146	1	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	68	54	321	61	0	0	0	0	159	1	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	61			123			809	798	96	798	825	61
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	61			123			809	798	96	798	825	61
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			78			100	100	100	37	100	99
cM capacity (veh/h)	1542			1464			245	249	961	253	240	1004

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	123	382	171
Volume Left	0	321	159
Volume Right	54	0	11
cSH	1700	1464	265
Volume to Capacity	0.07	0.22	0.64
Queue Length 95th (ft)	0	21	101
Control Delay (s)	0.0	7.1	40.1
Lane LOS		A	E
Approach Delay (s)	0.0	7.1	40.1
Approach LOS			E

Intersection Summary				
Average Delay	14.2			
Intersection Capacity Utilization	41.4%	ICU Level of Service	A	
Analysis Period (min)	15			



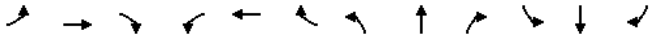
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	95	0	0	155	15	1	3	198	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	103	0	0	168	16	1	3	215	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	185			103			282	290	103	499	282	177
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185			103			282	290	103	499	282	177
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	77	100	100	100
cM capacity (veh/h)	1390			1489			670	620	952	371	626	866

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	104	185	220
Volume Left	1	0	1
Volume Right	0	16	215
cSH	1390	1700	942
Volume to Capacity	0.00	0.11	0.23
Queue Length 95th (ft)	0	0	23
Control Delay (s)	0.1	0.0	10.0
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	10.0
Approach LOS			A

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Lake County
27: Lyons Rd./Nice Lucerne Cutoff & SR 29 SB ramp

Ex PM Peak
PM Peak Hour



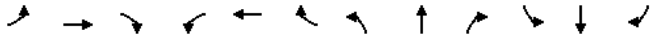
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1	1	172	2	0	0	0	0	87	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	187	2	0	0	0	0	95	1	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2			2			379	378	2	378	378	2
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2			2			379	378	2	378	378	2
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			100	100	100	82	100	100
cM capacity (veh/h)	1620			1620			526	490	1083	529	490	1082

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	2	189	97
Volume Left	0	187	95
Volume Right	1	0	1
cSH	1700	1620	531
Volume to Capacity	0.00	0.12	0.18
Queue Length 95th (ft)	0	10	17
Control Delay (s)	0.0	7.4	13.3
Lane LOS		A	B
Approach Delay (s)	0.0	7.4	13.3
Approach LOS			B

Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	27.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lake County
28: Nice Lucerne Cutoff & West Lake Road

Ex PM Peak
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	260	31	14	159	3	9	3	76	5	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	283	34	15	173	3	10	3	83	5	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	176			316			491	493	283	576	526	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176			316			491	493	283	576	526	174
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			98	99	89	99	100	100
cM capacity (veh/h)	1400			1244			482	470	756	375	451	869

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	2	283	34	15	176	13	83	7
Volume Left	2	0	0	15	0	10	0	5
Volume Right	0	0	34	0	3	0	83	0
cSH	1400	1700	1700	1244	1700	479	756	386
Volume to Capacity	0.00	0.17	0.02	0.01	0.10	0.03	0.11	0.02
Queue Length 95th (ft)	0	0	0	1	0	2	9	1
Control Delay (s)	7.6	0.0	0.0	7.9	0.0	12.7	10.3	14.5
Lane LOS	A			A		B	B	B
Approach Delay (s)	0.1			0.6		10.7		14.5
Approach LOS						B		B

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

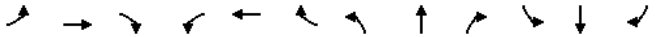
Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

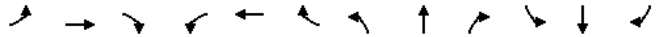
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

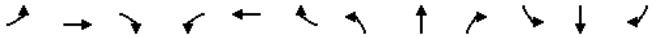
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

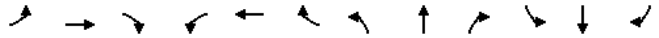
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

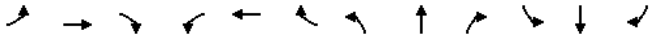
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

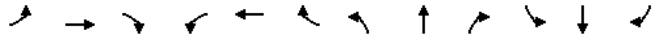
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

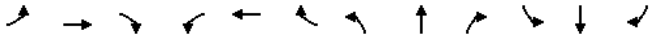
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

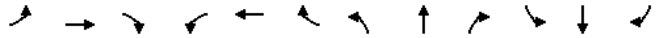
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM Average Control Delay	0.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	0.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	768	92	12	299	72	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	835	100	13	325	78	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			935		1236	885
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			935		1236	885
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		59	92
cM capacity (veh/h)			732		191	344

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	935	338	104
Volume Left	0	13	78
Volume Right	100	0	26
cSH	1700	732	215
Volume to Capacity	0.55	0.02	0.49
Queue Length 95th (ft)	0	1	60
Control Delay (s)	0.0	0.6	36.6
Lane LOS		A	E
Approach Delay (s)	0.0	0.6	36.6
Approach LOS			E

Intersection Summary			
Average Delay		2.9	
Intersection Capacity Utilization		58.1%	ICU Level of Service B
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	615	228	86	114	449	380
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	668	248	93	124	488	413
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			916		979	668
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			916		979	668
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		0	10
cM capacity (veh/h)			744		242	458

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	668	248	93	124	488	413
Volume Left	0	0	93	0	488	0
Volume Right	0	248	0	0	0	413
cSH	1700	1700	744	1700	242	458
Volume to Capacity	0.39	0.15	0.13	0.07	2.01	0.90
Queue Length 95th (ft)	0	0	11	0	895	249
Control Delay (s)	0.0	0.0	10.5	0.0	503.6	51.5
Lane LOS			B		F	F
Approach Delay (s)	0.0		4.5		296.3	
Approach LOS					F	

Intersection Summary			
Average Delay		131.7	
Intersection Capacity Utilization		72.0%	ICU Level of Service C
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	611	106	295	658	7	285	3	1056	2	6	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	664	115	321	715	8	310	3	1148	2	7	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	723			779			2042	2043	664	3189	2155	719
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	723			779			2042	2043	664	3189	2155	719
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			62			0	91	0	0	78	99
cM capacity (veh/h)	879			838			24	34	461	0	29	428

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	8	664	115	321	723	313	1148	12
Volume Left	8	0	0	321	0	310	0	2
Volume Right	0	0	115	0	8	0	1148	3
cSH	879	1700	1700	838	1700	24	461	0
Volume to Capacity	0.01	0.39	0.07	0.38	0.43	12.89	2.49	Err
Queue Length 95th (ft)	1	0	0	45	0	Err	2267	Err
Control Delay (s)	9.1	0.0	0.0	11.9	0.0	Err	697.2	Err
Lane LOS	A			B		F	F	F
Approach Delay (s)	0.1			3.7		2690.5		Err
Approach LOS						F		F

Intersection Summary				
Average Delay		Err		
Intersection Capacity Utilization	110.9%	ICU Level of Service		H
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	915	1	12	807	0	4	0	29	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	995	1	13	877	0	4	0	32	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	877			996			1460	1898	995	1929	1899	439
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	877			996			1460	1898	995	1929	1899	439
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			95	100	87	100	100	100
cM capacity (veh/h)	766			691			89	67	243	34	67	566

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	996	13	585	292	36	0
Volume Left	0	0	13	0	0	4	0
Volume Right	0	1	0	0	0	32	0
cSH	1700	1700	691	1700	1700	201	1700
Volume to Capacity	0.00	0.59	0.02	0.34	0.17	0.18	0.00
Queue Length 95th (ft)	0	0	1	0	0	16	0
Control Delay (s)	0.0	0.0	10.3	0.0	0.0	26.8	0.0
Lane LOS			B			D	A
Approach Delay (s)	0.0		0.2			26.8	0.0
Approach LOS						D	A

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization	58.2%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	91	260	877	54	34	646
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	99	283	953	59	37	702
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1759	983			1012	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1759	983			1012	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	6			95	
cM capacity (veh/h)	88	302			685	

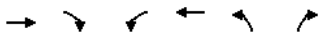
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	382	1012	739
Volume Left	99	0	37
Volume Right	283	59	0
cSH	185	1700	685
Volume to Capacity	2.06	0.60	0.05
Queue Length 95th (ft)	735	0	4
Control Delay (s)	536.1	0.0	1.4
Lane LOS	F		A
Approach Delay (s)	536.1	0.0	1.4
Approach LOS	F		

Intersection Summary			
Average Delay		96.4	
Intersection Capacity Utilization		89.4%	ICU Level of Service E
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	112	135	760	15	66	1178
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	122	147	826	16	72	1280
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2258	834			842	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2258	834			842	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	60			91	
cM capacity (veh/h)	41	368			793	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	268	842	72	1280
Volume Left	122	0	72	0
Volume Right	147	16	0	0
cSH	80	1700	793	1700
Volume to Capacity	3.36	0.50	0.09	0.75
Queue Length 95th (ft)	Err	0	7	0
Control Delay (s)	Err	0.0	10.0	0.0
Lane LOS	F		A	
Approach Delay (s)	Err	0.0	0.5	
Approach LOS	F			

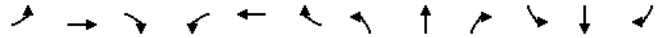
Intersection Summary			
Average Delay		1090.2	
Intersection Capacity Utilization		83.2%	ICU Level of Service E
Analysis Period (min)		15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	125	268	100	146	773	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	136	291	109	159	840	179
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh)					1	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			427		512	68
vC1, stage 1 conf vol					136	
vC2, stage 2 conf vol					376	
vCu, unblocked vol			427		512	68
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			90		0	82
cM capacity (veh/h)			1129		510	981

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	68	68	291	109	159	1020
Volume Left	0	0	0	109	0	840
Volume Right	0	0	291	0	0	179
cSH	1700	1700	1700	1129	1700	557
Volume to Capacity	0.04	0.04	0.17	0.10	0.09	1.83
Queue Length 95th (ft)	0	0	0	8	0	1595
Control Delay (s)	0.0	0.0	0.0	8.5	0.0	398.8
Lane LOS				A		F
Approach Delay (s)	0.0			3.5		398.8
Approach LOS						F

Intersection Summary				
Average Delay	237.8			
Intersection Capacity Utilization	71.9%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	0	2	106	0	224	1	320	153	204	378	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	2	115	0	243	1	348	166	222	411	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1533	1372	412	1291	1291	431	414			514		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1533	1372	412	1291	1291	431	414			514		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	1	100	61	100			79		
cM capacity (veh/h)	49	115	640	117	129	624	1145			1051		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	359	515	636
Volume Left	1	115	1	222
Volume Right	2	243	166	3
cSH	127	261	1145	1051
Volume to Capacity	0.03	1.38	0.00	0.21
Queue Length 95th (ft)	2	481	0	20
Control Delay (s)	34.2	228.7	0.0	5.0
Lane LOS	D	F	A	A
Approach Delay (s)	34.2	228.7	0.0	5.0
Approach LOS	D	F		

Intersection Summary				
Average Delay	56.4			
Intersection Capacity Utilization	93.1%	ICU Level of Service		F
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	156	254	497	551	672	195
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	170	276	540	599	730	212
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2410	730	942			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2410	730	942			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	35	26			
cM capacity (veh/h)	9	422	728			

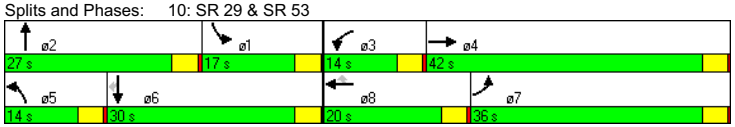
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	170	276	540	599	730	212
Volume Left	170	0	540	0	0	0
Volume Right	0	276	0	0	0	212
cSH	9	422	728	1700	1700	1700
Volume to Capacity	18.17	0.65	0.74	0.35	0.43	0.12
Queue Length 95th (ft)	Err	114	168	0	0	0
Control Delay (s)	Err	28.3	22.8	0.0	0.0	0.0
Lane LOS	F	D	C			
Approach Delay (s)	3822.0		10.8		0.0	
Approach LOS	F					

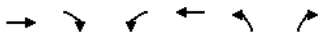
Intersection Summary				
Average Delay	678.9			
Intersection Capacity Utilization	81.5%	ICU Level of Service	D	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	3433	1660	0	1770	1863	1583	1770	3468	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1660	0	1770	1863	1583	1770	3468	0	1770	3539	1583
Satd. Flow (RTOR)		156				229		16				759
Volume (vph)	1099	100	270	79	107	239	172	684	106	223	836	866
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	1195	402	0	86	116	260	187	858	0	242	909	941
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Total Split (s)	36.0	42.0	0.0	14.0	20.0	20.0	14.0	27.0	0.0	17.0	30.0	30.0
Act Effct Green (s)	32.0	36.5		8.9	11.2	11.2	10.0	23.0		13.0	26.0	26.0
Actuated g/C Ratio	0.34	0.38		0.09	0.12	0.12	0.10	0.24		0.14	0.27	0.27
v/c Ratio	1.04	0.55		0.53	0.53	0.67	1.01	1.01		1.00	0.94	0.96
Control Delay	68.6	17.3		51.1	43.3	13.6	112.7	69.9		102.0	52.9	28.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	68.6	17.3		51.1	43.3	13.6	112.7	69.9		102.0	52.9	28.3
LOS	E	B		D	D	B	F	E		F	D	C
Approach Delay		55.6			28.1			77.6			47.5	
Approach LOS		E			C			E			D	

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 95.3			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 54.3		Intersection LOS: D	
Intersection Capacity Utilization 85.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 10: SR 29 & SR 53

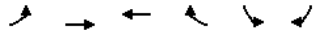




Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1170	6	135	982	18	259
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1272	7	147	1067	20	282
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1278		2102	1275
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1278		2102	1275
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			73		39	0
cM capacity (veh/h)			539		32	158

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1
Volume Total	1278	147	534	534	301
Volume Left	0	147	0	0	20
Volume Right	7	0	0	0	282
cSH	1700	539	1700	1700	126
Volume to Capacity	0.75	0.27	0.31	0.31	2.39
Queue Length 95th (ft)	0	27	0	0	655
Control Delay (s)	0.0	14.2	0.0	0.0	704.2
Lane LOS		B			F
Approach Delay (s)	0.0	1.7			704.2
Approach LOS					F

Intersection Summary			
Average Delay	76.6		
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	870	1004	98	147	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	946	1091	107	160	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1198				2095	599
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1198				2095	599
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				0	92
cM capacity (veh/h)	578				45	445

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	2	946	728	470	196
Volume Left	2	0	0	0	160
Volume Right	0	0	0	107	36
cSH	578	1700	1700	1700	54
Volume to Capacity	0.00	0.56	0.43	0.28	3.65
Queue Length 95th (ft)	0	0	0	0	Err
Control Delay (s)	11.2	0.0	0.0	0.0	Err
Lane LOS	B				F
Approach Delay (s)	0.0		0.0		Err
Approach LOS					F

Intersection Summary			
Average Delay	835.6		
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	74	79	1053	51	30	605
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	86	1145	55	33	658
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1895	1172			1200	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1895	1172			1200	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	63			94	
cM capacity (veh/h)	72	234			582	

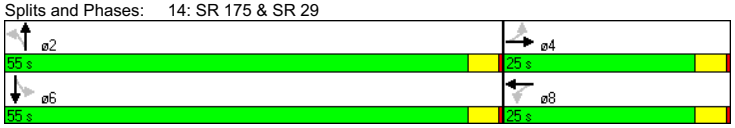
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	80	86	1200	33	658
Volume Left	80	0	0	33	0
Volume Right	0	86	55	0	0
cSH	72	234	1700	582	1700
Volume to Capacity	1.11	0.37	0.71	0.06	0.39
Queue Length 95th (ft)	151	40	0	4	0
Control Delay (s)	240.2	29.0	0.0	11.6	0.0
Lane LOS	F	D		B	
Approach Delay (s)	131.2		0.0	0.5	
Approach LOS	F				

Intersection Summary			
Average Delay	10.8		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1725	0	0	1811	0	0	1844	0	0	1801	0
Flt Permitted		0.752			0.729			0.789			0.989	
Satd. Flow (perm)	0	1334	0	0	1354	0	0	1468	0	0	1783	0
Satd. Flow (RTOR)		33			1						38	
Volume (vph)	222	37	142	66	62	3	177	803	4	6	410	127
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	435	0	0	142	0	0	1069	0	0	591	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	55.0	55.0	0.0	55.0	55.0	0.0
Act Effct Green (s)		21.0			21.0			51.0			51.0	
Actuated g/C Ratio		0.26			0.26			0.64			0.64	
v/c Ratio		1.16			0.40			1.14			0.51	
Control Delay		126.0			28.2			95.2			9.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		126.0			28.2			95.2			9.2	
LOS		F			C			F			A	
Approach Delay		126.0			28.2			95.2			9.2	
Approach LOS		F			C			F			A	

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 74.2		Intersection LOS: E	
Intersection Capacity Utilization 121.5%		ICU Level of Service H	
Analysis Period (min) 15			

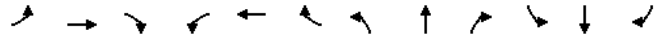
Splits and Phases: 14: SR 175 & SR 29



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	100	22	20	706	455	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	109	24	22	767	495	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1325	514	534			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1325	514	534			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	35	96	98			
cM capacity (veh/h)	168	560	1034			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	133	789	534
Volume Left	109	22	0
Volume Right	24	0	39
cSH	192	1034	1700
Volume to Capacity	0.69	0.02	0.31
Queue Length 95th (ft)	106	2	0
Control Delay (s)	57.1	0.6	0.0
Lane LOS	F	A	
Approach Delay (s)	57.1	0.6	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	392	508	29	7	477	303	7	58	58	189	62	284
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	426	552	32	8	518	329	8	63	63	205	67	309
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	848			584			2296	2283	568	2033	1970	518
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	848			584			2296	2283	568	2033	1970	518
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	46			99			0	0	88	0	0	45
cM capacity (veh/h)	790			991			0	18	522	0	29	557

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	426	584	8	518	329	134	273	309
Volume Left	426	0	8	0	0	8	205	0
Volume Right	0	32	0	0	329	63	0	309
cSH	790	1700	991	1700	1700	0	0	557
Volume to Capacity	0.54	0.34	0.01	0.30	0.19	Err	Err	0.55
Queue Length 95th (ft)	82	0	1	0	0	Err	Err	84
Control Delay (s)	14.8	0.0	8.7	0.0	0.0	Err	Err	19.2
Lane LOS	B		A			F	F	C
Approach Delay (s)	6.2		0.1			Err	Err	
Approach LOS						F	F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	109	29	157	187	12	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	32	171	203	13	146
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	444	272			374	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	444	272			374	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	96			99	
cM capacity (veh/h)	565	766			1185	

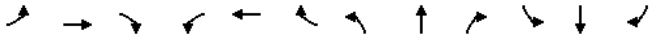
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	150	374	159
Volume Left	118	0	13
Volume Right	32	203	0
cSH	598	1700	1185
Volume to Capacity	0.25	0.22	0.01
Queue Length 95th (ft)	25	0	1
Control Delay (s)	13.0	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	13.0	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay		3.0	
Intersection Capacity Utilization		34.2%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	561	183	541	270	112	872
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	610	199	588	293	122	948
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1779	588			882	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1779	588			882	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	61			84	
cM capacity (veh/h)	76	509			767	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	809	588	293	122	948
Volume Left	610	0	0	122	0
Volume Right	199	0	293	0	0
cSH	96	1700	1700	767	1700
Volume to Capacity	8.41	0.35	0.17	0.16	0.56
Queue Length 95th (ft)	Err	0	0	14	0
Control Delay (s)	Err	0.0	0.0	10.6	0.0
Lane LOS	F			B	
Approach Delay (s)	Err	0.0		1.2	
Approach LOS	F				

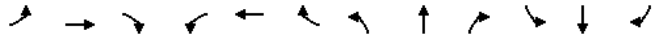
Intersection Summary			
Average Delay		2930.5	
Intersection Capacity Utilization		94.8%	ICU Level of Service F
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	9	25	22	51	28	316	6	436	9	172	1042	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	27	24	55	30	343	7	474	10	187	1133	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2118	2007	570	1470	2005	242	1139			484		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2118	2007	570	1470	2005	242	1139			484		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	43	95	0	37	55	99			83		
cM capacity (veh/h)	7	48	465	41	48	759	609			1075		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	61	86	343	7	316	168	187	755	384
Volume Left	10	55	0	7	0	0	187	0	0
Volume Right	24	0	343	0	0	10	0	0	7
cSH	30	43	759	609	1700	1700	1075	1700	1700
Volume to Capacity	2.06	2.00	0.45	0.01	0.19	0.10	0.17	0.44	0.23
Queue Length 95th (ft)	178	224	59	1	0	0	16	0	0
Control Delay (s)	777.4	669.3	13.6	11.0	0.0	0.0	9.1	0.0	0.0
Lane LOS	F	F	B	B			A		
Approach Delay (s)	777.4	144.7		0.1			1.3		
Approach LOS	F	F							

Intersection Summary				
Average Delay	48.2			
Intersection Capacity Utilization	53.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	51	163	112	37	88	51	30	678	10	19	1089	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	177	122	40	96	55	33	737	11	21	1184	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2134	2041	1187	2243	2039	742	1190			748		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2134	2041	1187	2243	2039	742	1190			748		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	47	0	0	87	94			98		
cM capacity (veh/h)	0	52	230	0	52	415	587			861		

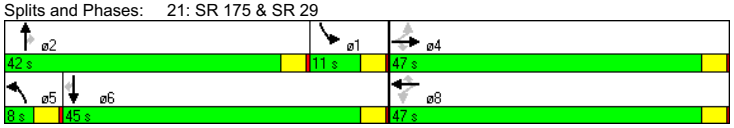
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	354	191	33	748	21	1190
Volume Left	55	40	33	0	21	0
Volume Right	122	55	0	11	0	7
cSH	0	0	587	1700	861	1700
Volume to Capacity	Err	Err	0.06	0.44	0.02	0.70
Queue Length 95th (ft)	Err	Err	4	0	2	0
Control Delay (s)	Err	Err	11.5	0.0	9.3	0.0
Lane LOS	F	F	B		A	
Approach Delay (s)	Err	Err	0.5		0.2	
Approach LOS	F	F				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	86.8%	ICU Level of Service	E	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1824	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted		0.635		0.313			0.950			0.950		
Satd. Flow (perm)	0	1183	1583	583	1863	1583	1770	1863	1583	1770	1863	1583
Satd. Flow (RTOR)			113			189			104			19
Volume (vph)	187	241	187	1277	246	657	105	1427	232	264	1370	40
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	465	203	1388	267	714	114	1551	252	287	1489	43
Turn Type	Perm		Perm	Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Total Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	8.0	42.0	42.0	11.0	45.0	45.0
Act Effct Green (s)		43.0	43.0	43.0	43.0	43.0	4.0	38.0	38.0	7.0	41.0	41.0
Actuated g/C Ratio		0.43	0.43	0.43	0.43	0.43	0.04	0.38	0.38	0.07	0.41	0.41
v/c Ratio		0.91	0.27	5.53	0.33	0.91	1.61	2.19	0.38	2.31	1.95	0.07
Control Delay		51.9	9.3	2057.0	20.5	36.6	361.5	561.8	14.7	639.5	454.6	12.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		51.9	9.3	2057.0	20.5	36.6	361.5	561.8	14.7	639.5	454.6	12.0
LOS		D	A	F	C	D	F	F	B	F	F	B
Approach Delay		39.0			1218.5			478.0			473.3	
Approach LOS		D			F			F			F	

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 5.53			
Intersection Signal Delay: 692.4		Intersection LOS: F	
Intersection Capacity Utilization 196.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 21: SR 175 & SR 29



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	296	679	0	0	627	256	67	2	349	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	322	738	0	0	682	278	73	2	379	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	960			738			2202	2341	738	2583	2202	821
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	960			738			2202	2341	738	2583	2202	821
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	55			100			0	89	9	100	100	100
cM capacity (veh/h)	717			868			21	20	418	1	25	375

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	322	738	960	454
Volume Left	322	0	0	73
Volume Right	0	0	278	379
cSH	717	1700	1700	100
Volume to Capacity	0.45	0.43	0.56	4.53
Queue Length 95th (ft)	58	0	0	Err
Control Delay (s)	14.0	0.0	0.0	Err
Lane LOS	B			F
Approach Delay (s)	4.3		0.0	9999.0
Approach LOS				F

Intersection Summary				
Average Delay	1838.2			
Intersection Capacity Utilization	100.3%	ICU Level of Service		G
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	705	185	250	420	0	0	0	0	277	2	194
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	766	201	272	457	0	0	0	0	301	2	211
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	457			967			2079	1867	867	1867	1967	457
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	457			967			2079	1867	867	1867	1967	457
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			62			100	100	100	0	94	65
cM capacity (veh/h)	1104			712			17	45	352	39	39	604

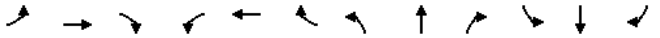
Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	967	272	457	514
Volume Left	0	272	0	301
Volume Right	201	0	0	211
cSH	1700	712	1700	63
Volume to Capacity	0.57	0.38	0.27	8.13
Queue Length 95th (ft)	0	45	0	Err
Control Delay (s)	0.0	13.1	0.0	Err
Lane LOS		B		F
Approach Delay (s)	0.0	4.9		Err
Approach LOS				F

Intersection Summary				
Average Delay	2328.0			
Intersection Capacity Utilization	100.3%	ICU Level of Service	G	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	23	448	0	0	485	447	129	4	525	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	487	0	0	527	486	140	4	571	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1013			487			1307	1550	487	1880	1307	770
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1013			487			1307	1550	487	1880	1307	770
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			0	96	2	100	100	100
cM capacity (veh/h)	684			1076			133	110	581	1	154	401

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	512	1013	715
Volume Left	25	0	140
Volume Right	0	486	571
cSH	684	1700	344
Volume to Capacity	0.04	0.60	2.08
Queue Length 95th (ft)	3	0	1290
Control Delay (s)	1.0	0.0	520.1
Lane LOS	A		F
Approach Delay (s)	1.0	0.0	520.1
Approach LOS			F

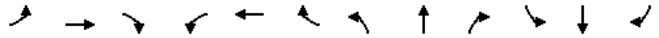
Intersection Summary				
Average Delay	166.3			
Intersection Capacity Utilization	99.3%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	144	114	479	91	0	0	0	0	321	2	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	157	124	521	99	0	0	0	0	349	2	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	99			280			1384	1359	218	1359	1421	99
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	99			280			1384	1359	218	1359	1421	99
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			59			100	100	100	0	97	98
cM capacity (veh/h)	1494			1282			79	88	821	86	81	957

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	280	620	375
Volume Left	0	521	349
Volume Right	124	0	24
cSH	1700	1282	91
Volume to Capacity	0.16	0.41	4.11
Queue Length 95th (ft)	0	50	Err
Control Delay (s)	0.0	8.8	Err
Lane LOS		A	F
Approach Delay (s)	0.0	8.8	Err
Approach LOS			F

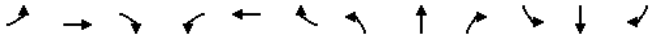
Intersection Summary			
Average Delay	2945.2		
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	177	0	0	327	32	2	7	437	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	192	0	0	355	35	2	8	475	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	390			192			570	587	192	1048	570	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390			192			570	587	192	1048	570	373
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	98	44	100	100	100
cM capacity (veh/h)	1168			1381			432	421	849	89	431	673

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	195	390	485
Volume Left	2	0	2
Volume Right	0	35	475
cSH	1168	1700	832
Volume to Capacity	0.00	0.23	0.58
Queue Length 95th (ft)	0	0	96
Control Delay (s)	0.1	0.0	15.2
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	15.2
Approach LOS			C

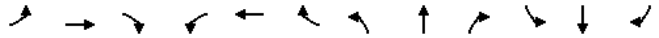
Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	2	2	363	4	0	0	0	0	114	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	2	395	4	0	0	0	0	124	1	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	4			4			798	797	3	797	798	4
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	4			4			798	797	3	797	798	4
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			76			100	100	100	50	100	100
cM capacity (veh/h)	1617			1617			246	242	1081	247	241	1079

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	4	399	126
Volume Left	0	395	124
Volume Right	2	0	1
cSH	1700	1617	249
Volume to Capacity	0.00	0.24	0.51
Queue Length 95th (ft)	0	24	66
Control Delay (s)	0.0	7.9	33.4
Lane LOS		A	D
Approach Delay (s)	0.0	7.9	33.4
Approach LOS			D

Intersection Summary				
Average Delay	13.9			
Intersection Capacity Utilization	40.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	485	58	30	336	7	31	10	263	18	3	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	527	63	33	365	8	34	11	286	20	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	373			590			966	972	527	1259	1031	369
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373			590			966	972	527	1259	1031	369
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			85	96	48	71	99	100
cM capacity (veh/h)	1186			985			225	244	551	67	225	677

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	3	527	63	33	373	45	286	23
Volume Left	3	0	0	33	0	34	0	20
Volume Right	0	0	63	0	8	0	286	0
cSH	1186	1700	1700	985	1700	229	551	74
Volume to Capacity	0.00	0.31	0.04	0.03	0.22	0.19	0.52	0.31
Queue Length 95th (ft)	0	0	0	3	0	18	74	28
Control Delay (s)	8.0	0.0	0.0	8.8	0.0	24.4	18.4	73.9
Lane LOS	A			A		C	C	F
Approach Delay (s)	0.0			0.7		19.2		73.9
Approach LOS						C		F

Intersection Summary				
Average Delay	6.2			
Intersection Capacity Utilization	55.1%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

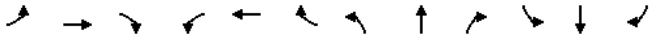
Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 59: Lakeport Blvd/SR 29 NB Entry Ramp & SR 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

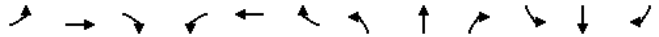
Splits and Phases: 61: SR 29 SB ramps & SR 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

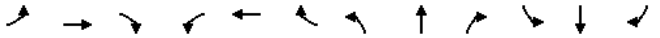
Splits and Phases: 65: SR 29 SB Ramp & SR 29 NB ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

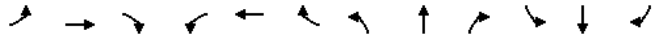
Splits and Phases: 67: SR 29 & SR 29 SB ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 68: SR 29 SB ramps & SR 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 71: SR 29 SB ramps & SR 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 74: SR 29 & Park Way/SR 29 Entry Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 75: Park Way/SR 29 NB Exit Ramp & Park Way/SR 29 NB Entry Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 76: Park Way/SR 29 SB Exit Ramp & SR 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green			
Control Type: Pretimed			
Maximum v/c Ratio: 0.00			
Intersection Signal Delay: 0.0		Intersection LOS: A	
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 77: Park Way & Park Way/SR 29 SB Exit Ramp

Existing Conditions

Improvement #	Facility Name	Roadway Segments	Length of Roadway Segment (Feet)	Intersection Number	Intersections & Interchanges	N/S Travel Lanes	N/S Left-turn Lanes	E/W Travel Lanes	E/W Left-turn Lanes	Intersection Control	Improvement	Cost² ($1,000)
LP #1	**Park Way**											
		SR 29 SB ramps to SR 29 NB ramps	676			-	-	2	-		Improve to a 2 lane collector acc. to County Standards	$603
		SR 29 NB ramps to Oak Park Way.	1,407			-	-	2	-		Improve to a 2 lane collector acc. to County Standards	$1,301
		Oak Park Way to Keeling Ave.	1,449			-	-	2	-		Improve to a 2 lane collector acc. to County Standards	$1,292
		Keeling Ave. to Lakeview Rd.	1,258			-	-	2	-		Improve to a 2 lane collector acc. to County Standards	$1,163
		Lakview Rd. to Lakeshore Blvd.	985			-	-	2	-		Improve to a 2 lane collector acc. to County Standards	$911
LP #2	**Main St.**	Lakeport Blvd. to SR 175	3,340			1	1	-	-		Widen to 4 lane Undivided arterial acc. to County Standards	$5,511
LP #3	**11th Street**											
		SR 29 SB ramps to Main St.	4,880			-	-	2	-		Improve to a 2 lane Divided Arterial acc. to County Standards	$6,603
					Mellor Dr.	2	-	2	1	TWSC	Install Traffic Signal	$250
					Main St.	2	1	2	-	TWSC	Install Traffic Signal	$250
					High St.	2	-	2	1	TWSC	Install Traffic Signal	$250
LP #4	**High Street**	16th St. to 20t St.	1,121									
					16th St.	2	1	2	-	TWSC	Install Traffic Signal	$260
					20th St.	2	-	2	-		Install Traffic Signal	$300
LP #5	**Lakeshore Blvd.**	Lakeport City limit to Nice Lucerne Cut-off	22,000			2	-	-	-		Improve to a 2 lane collector acc. to County Standards	$20,328
					Hill Rd. East	2	-	2	-	TWSC	Install Traffic Signal	$260
LP #6	**Lakeport Blvd.**											
		SR 29 SB ramps to Larrecou Ln.	1,450			-	-	2	-		Improve to 4 lane divided arterial acc. to City stds.	$4,037
					Bevins Rd.	2	-	2	1	TWSC	Install Traffic Signal	$250
											coord with SR 29NB ramps	$10
		Larrecou Ln. to Main St.	1,340			-	-	2	-		Improve to 2 lane divided arterial acc. to City stds.	$1,681
					Main St.	3	-	2	1	TWSC	Install Traffic Signal	$260
LP #7	**Keeling Ave.**	Crystal Lake Way to Park Way.	3,950			-	-	2	-		Safety & Operational Impv's	$455
LP #8	**Howard Ave.**	Crystal Lake Way to south of Rainbow Rd.	2,670			-	-	2	-		Safety & Operational Impv's	$308
LP #9	**Rainbow Rd.**	Howard Ave. to Lakeshore Blvd.	1,290			-	-	2	-		Safety & Operational Impv's	$149
LP #10	**Soda Bay Rd.**	SR 175/Main St. to Lakeport Planning Area boundary	6,911			-	-	2	-		Widen to 2 lane divided arterial acc. to Caltrans Stds.	$10,035
					S.Main St./SR 175/Soda Rd.	2	1	2	-	TWSC	Install Traffic Signal	$250
LP #11	**Scotts Valley Rd.**											
		Hill Rd./Halber Rd. to Riggs Rd.	4,000			-	-	2	-		Widen to 2 lane Undivided collector. according to County	$3,960
		Riggs Rd. to SR 29 SB ramps	2,367			-	-	2	-		Widen to 2 lane Undivided collector according to County	$2,344
					TOTAL COST							**$63,021**

Row	Roadway Construction/Reconstruction: Length of Roadway Section (Linear Feet)	Average Construction Area Width (Ft.)	Total Roadway Construction Area (Sq. Ft.)	Planning Level Roadway Construction Unit Cost (per sq.ft.)	Roadway Construction Cost Sub-Total	Developed R/W Acquisition: Length of New Developed Right-of-Way Section (Linear Feet)	Average Ex ROW Width	Proposed ROW Width	Average Developed Right-of-Way Area Width (Ft.)	Total Developed Right-of-Way Area (Sq. Ft.)	Planning Level Developed Right-of-Way Unit Cost (sq.ft.)	Roadway Developed Right-of-Way Aquisition Cost Sub-Total	New Bridge/Culvert Structure ($1,000,000): Length of Section (Linear Feet)	Demolition of Existing Structure	Average Construction Area Width (Ft.)	Total Structure Construction Area (Sq. Ft.)	Planning Level Stucture Construction Unit Cost (sq.ft.)	Structure Construction Cost Sub-Total
LP #1 SR 29 SB ramps to SR 29 NB ramps	676	27	18,252	$23	419,796	676	31	58	27	18,252	$10	$182,520						
LP #1 SR 29 NB ramps to Oak Park Way.	1,407	28	39,396	$23	906,108	1,407	30	58	28	39,396	$10	$393,960						
LP #1 Oak Park Way to Keeling Ave.	1,449	27	39,123	$23	899,829	1,449	31	58	27	39,123	$10	$391,230						
LP #1 Keeling Ave. to Lakeview Rd.	1,258	28	35,224	$23	810,152	1,258	30	58	28	35,224	$10	$352,240						
LP #1 Lakview Rd. to Lakeshore Blvd.	985	28	27,580	$23	634,340	985	30	58	28	27,580	$10	$275,800						
LP #2 Lakeport Blvd. to SR 175	3,340	50	167,000	$23	3,841,000	3,340	32	82	50	167,000	$10	$1,670,000						
LP #3 SR 29 SB ramps to Main St.	4,880	41	200,080	$23	4,601,840	4,880	31	72	41	200,080	$10	$2,000,800						
LP #5 Lakeport City limit to Nice Lucerne Cut-off	22,000	28	616,000	$23	14,168,000	22,000	30	58	28	616,000	$10	$6,160,000						
LP #6 SR 29 SB ramps to Larrecou Ln.	1,450	53	76,850	$23	1,767,550	1,450	43	96	53	76,850	$10	$768,500	500	-	24	12,000	125	1,500,000
LP #6 Larrecou Ln. to Main St.	1,340	38	50,920	$23	$1,171,160	1,340	34	72	38	50,920	$10	$509,200						
LP #7 Crystal Lake Way to Park Way.	3,950	5	19,750	$23	$454,250	3,950	0	0	0	0	$10	$0						
LP #8 Crystal Lake Way to south of Rainbow Rd.	2,670	5	13,350	$23	$307,050	2,670	0	0	0	0	$10	$0						
LP #9 Howard Ave. to Lakeshore Blvd.	1,290	5	6,450	$23	$148,350	1,290	0	0	0	0	$10	$0						
LP #10 SR 175/Main St. to Lakeport Planning Area boundary	6,911	44	304,084	$23	6,993,932	6,911	28	72	44	304,084	$10	$3,040,840						
LP #11 Hill Rd./Halber Rd. to Riggs Rd.	4,000	30	120,000	$23	2,760,000	4,000	28	58	30	120,000	$10	$1,200,000						
LP #11 Riggs Rd. to SR 29 SB ramps	2,367	30	71,010	$23	1,633,230	2,367	28	58	30	71,010	$10	$710,100						
TOTAL					**$41,516,587**							**$17,655,190**						**1,500,000**

Row	Traffic Signals and Restriping: Install New Traffic Signal ($250,000)	Coordinate Existing Traffic Signal ($10,000)	Minor Modification to Existing Traffic Signal ($50,000)	Major Modification to Existing Traffic Signal ($100,000)	Minor Restriping Project ($10,000)	Major Restriping Project ($50,000)	Interconnect Cable (Linear Feet) ($25)	Coordinated Signal System ($100,000)	FINAL COSTS: Estimated Total Construction Cost	Is Improvement Feasible	is cost incl. in Fee Program	FEE PROG. COSTS
LP #1 SR 29 SB ramps to SR 29 NB ramps									$602,316	Yes	Yes	$602,316
LP #1 SR 29 NB ramps to Oak Park Way.									$1,300,068	Yes	Yes	$1,300,068
LP #1 Oak Park Way to Keeling Ave.									$1,291,059	Yes	Yes	$1,291,059
LP #1 Keeling Ave. to Lakeview Rd.									$1,162,392	Yes	Yes	$1,162,392
LP #1 Lakview Rd. to Lakeshore Blvd.									$910,140	Yes	Yes	$910,140
LP #2 Lakeport Blvd. to SR 175									$5,511,000	Yes	Yes	$5,511,000
LP #3 SR 29 SB ramps to Main St.									$6,602,640	Yes	Yes	$6,602,640
LP #3 Mellor Dr.	1								$250,000	Yes	Yes	$250,000
LP #3 Main St.	1								$250,000	Yes	Yes	$250,000
LP #3 High St.	1								$250,000	Yes	Yes	$250,000
LP #4 16th St.	1				1				$260,000	Yes	Yes	$260,000
LP #4 20th St.	1					1			$300,000	Yes	Yes	$300,000
LP #5 Lakeport City limit to Nice Lucerne Cut-off									$20,328,000	Yes	Yes	$20,328,000
LP #5 Hill Rd. East	1				1				$260,000	Yes	Yes	$260,000
LP #6 SR 29 SB ramps to Larrecou Ln.									$4,036,050	Yes	Yes	$4,036,050
LP #6 Bevins Rd.	1								$250,000	Yes	Yes	$250,000
LP #6 coord with SR 29NB ramps		1							$10,000	Yes	Yes	$10,000
LP #6 Larrecou Ln. to Main St.									$1,680,360	Yes	Yes	$1,680,360
LP #6 Main St.	1				1				$260,000	Yes	Yes	$260,000
LP #7 Crystal Lake Way to Park Way.									$454,250	Yes	No	$0
LP #8 Crystal Lake Way to south of Rainbow Rd.									$307,050	Yes	No	$0
LP #9 Howard Ave. to Lakeshore Blvd.									$148,350	Yes	No	$0
LP #10 SR 175/Main St. to Lakeport Planning Area boundary									10,034,772	Yes	Yes	$10,034,772
LP #10 S.Main St./SR 175/Soda Rd.	1								$250,000	Yes	Yes	$250,000
LP #11 Hill Rd./Halber Rd. to Riggs Rd.									$3,960,000	Yes	Yes	$3,960,000
LP #11 Riggs Rd. to SR 29 SB ramps									$2,343,330	Yes	Yes	$2,343,330
TOTAL									**$63,011,777**			**$62,102,127**

B) Construction and R/W costs are approximate only. Information shown is for cost estimating purposes only and not accurate for determining construction units or R/W acquisitions.

C) Safety and operational Costs are assumed to involve widening by a total of 5ft.

C) Note that the improvements recommended in the subsequent section are adequate for planning purposes only. The constructability of these improvements would need to determined, which could only be established based on additional engineering analysis.

Improvement #	Facility Name	Roadway Segments	Length of Roadway Segment (Feet)	Intersection Number	Intersections & Interchanges	*Existing Conditions* N/S Travel Lanes	N/S Left-turn Lanes	E/W Travel Lanes	E/W Left-turn Lanes	Intersection Control	Improvement	Cost[2] ($1,000)	Roadway Construction/Reconstruction: Length of Roadway Section (Linear Feet)	Average Construction Area Width (Ft.)	Total Roadway Construction Area (Sq. Ft.)	Planning Level Roadway Construction Unit Cost (per sq.ft.)	Roadway Construction Cost Sub-Total	Developed R/W Acquisition: Length of New Developed Right-of-Way Section (Linear Feet)	Average Ex ROW Width	Proposed ROW Width	Average Developed Right-of-Way Area Width (Ft.)	Total Developed Right-of-Way Area (Sq. Ft.)	Planning Level Developed Right-of-Way Unit Cost (sq.ft.)	Roadway Developed Right-of-Way Aquisition Cost Sub-Total	Traffic Signals and Restriping: $250,000 Install New Traffic Signal	$10,000 Coordinate Existing Traffic Signal	$50,000 Minor Modification to Existing Traffic Signal	$100,000 Major Modification to Existing Traffic Signal	$10,000 Minor Restriping Project	$50,000 Major Restriping Project	$25 Interconnect Cable (Linear Feet)	$100,000 Coordinated Signal System	FINAL COSTS: Estimated Total Construction Cost	Is Improvement Feasible	is cost incl. in Fee Program	FEE PROG. COSTS
	Lakeshore Dr.																																		
		SR 53/W 40th Ave. to Old Hwy 53	2,400	-		-	-	2	-	-	Improve to 4 lane arterial acc. to City of Clearlake Standards	$1,656	2,400	30	72,000	$23	1,656,000	2,400	60	60	0	0	$10	$0									$1,656,000	Yes	Yes	$1,656,000
		Old Hwy 53 to Olympic Dr.	7,460	-							Improve to 2 lane arterial acc. to City of Clearlake Standards	$4,290	7,460	25	186,500	$23	4,289,500	7,460	50	50	0	0	$10	$0									$4,289,500	Yes	Yes	$4,289,500
CL #1											add 1 exclusive NBR	$190	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000									$189,600	Yes	Yes	$189,600
					Lakeshore Dr./Old Hwy. 53	2	-	2	1	Signal	add 1 exclusive SBL	$40	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000				1		1			$39,600	Yes	Yes	$39,600
											add 1 exclusive SBR	$40	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000									$39,600	Yes	Yes	$39,600
											add 1 exclusive EBR	$60	150	12	1,800	$23	41,400	150	0	12	12	1,800	$10	$18,000									$59,400	Yes	Yes	$59,400
											Install Traffic Signal	$300													1								$300,000	Yes	Yes	$300,000
				8	Lakeshore Dr./Olympic Dr.	2	-	2	1	TWSC	add 1 exclusive NBR	$40	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000						1			$39,600	Yes	Yes	$39,600
											add 1 exclusive SBL	$60	150	12	1,800	$23	41,400	150	0	12	12	1,800	$10	$18,000									$59,400	Yes	Yes	$59,400
		Olympic Drive to Park Street	3,340	-	-	2	-	-	-	-	Improve to 2 lane arterial acc. to City of Clearlake Standards	$1,921	3,340	25	83,500	$23	1,920,500	3,340	50	50	0	0	$10	$0									$1,920,500	Yes	Yes	$1,920,500
	Public Parking Lot										200 stalls at $2500/stall	$500																					$500,000	Yes	Yes	$500,000
	Old Hwy 53																																		
CL #2		Olympic Dr. to Austin Ave.	1,368			2	-	-	-		Improve to 2 lane collector acc. to City of Clearlake Standards	$787	1,368	25	34,200	$23	786,600	1,368	50	50	0	0	$10	$0									$786,600	Yes	Yes	$786,600
		Austin Ave. to Lakeshore Dr.	3,166	-	-	2	-	-	-	-	Improve to 2 lane collector acc. to City of Clearlake Standards	$1,821	3,166	25	79,150	$23	1,820,450	3166	50	50	0	0	$10	$0									$1,820,450	Yes	Yes	$1,820,450
											Install Traffic Signal	$300													1					1			$300,000	Yes	Yes	$300,000
											add 1 exclusive NBL	$40	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000									$39,600	Yes	Yes	$39,600
					Old Hwy. 53/Austin Ave.	2	-	-	-	TWSC	add 1 exclusive SBL	$40	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000									$39,600	Yes	Yes	$39,600
											add 1 exclusive SBR	$40	100	12	1,200	$23	27,600	100	0	12	12	1,200	$10	$12,000									$39,600	Yes	Yes	$39,600
											add 1 exclusive EBR	$60	150	12	1,800	$23	41,400	150	0	12	12	1,800	$10	$18,000									$59,400	Yes	Yes	$59,400
		Lakeshore Dr. to SR 53	9,351			3	-	-	-	-	Improve to 2 lane collector acc. to City of Clearlake Standards	$5,377	9,351	25	233,775	$23	5,376,825	9351	50	50	0	0	$10	$0									$5,376,825	Yes	Yes	$5,376,825
	Olympic Dr.																																		
		Lakeshore Dr. to Uhl Ave	810		-																														
		Uhl Ave. to Cottage Ave.	1,395		-	-	-	2	-		Widen to 2 lane Undivided arterial acc. to City of Clearlake Stds.	$803	1,395	25	34,875	$23	802,125	1395	60	60	0	0	$10	$0									$802,125	Yes	Yes	$802,125
		Cottage Ave. to Old Hwy. 53/Burns Valley	3,084			-	-	2	1																										
CL #3		Old Hwy. 53/Burns Valley Rd. to Jackson St.	961			-	-	2	-		Widen to 2 lane divided arterial acc. to City of Clearlake Stds	$553	961	25	24,025	$23	552,575	961	60	60	0	0	$10	$0									$552,575	Yes	Yes	$552,575
											Install Traffic Signal	$300													1								$300,000	Yes	Yes	$300,000
											add 1 exclusive NBL	$125	150	15	2250	$23	51,750	150	0	15	15	2250	$10	22500									$124,250	Yes	Yes	$124,250
					Olympic Dr./Old Hwy 53/ Burns Valley Rd.	1	-	1	-	TWSC	add 1 exclusive NBR	$75	150	15	2250	$23	51,750	150	0	15	15	2250	$10	22500									$74,250	Yes	Yes	$74,250
											add 1 exclusive SBL	$75	150	15	2250	$23	51,750	150	0	15	15	2250	$10	22500						1			$74,250	Yes	Yes	$74,250
											add 1 exclusive WBL	$75	150	15	2250	$23	51,750	150	0	15	15	2250	$10	22500									$74,250	Yes	Yes	$74,250
		Jackson St. to SR 53	3,795			-	-	2	-		Widen to 2 lane Undivided arterial acc. to City of Clearlake Stds.	$2,183	3,795	25	94,875	$23	2,182,125	3795	50	50	0	0	$10	$0									$2,182,125	Yes	Yes	$2,182,125
CL #4	**40th Ave.**	SR 53 to Phillips Ave.	2,260			-	-	2	-		Widen to 2 lane Undivided arterial acc. to City of Clearlake Stds.	$1,300	2,260	25	56,500	$23	1,299,500	2,260	50	50	0	0	$10	$0									$1,299,500	Yes	Yes	$1,299,500
CL #5	**18th Ave.**	Boyles Ave. to SR 53	3,450			-	-	2	-		Widen to 2 lane Undivided arterial acc. to City of Clearlake Stds.	$1,984	3,450	25	86,250	$23	1,983,750	3,450	50	50	0	0	$10	$0									$1,983,750	Yes	Yes	$1,983,750
		SR 53 to Old Hwy. 53	910			-	-	2	-		Improve to 2 lane undivided collector type facility	$524	910	25	22,750	$23	523,250	910	50	50	0	0	$10	$0									$523,250	Yes	Yes	$523,250
					Old Hwy. 53/18th Ave. extn	-	-	-	-	-	add 1 exclusive SBL	$75	150	15	2250	$23	51,750	150	0	15	15	2250	$10	22500									$74,250	Yes	Yes	$74,250
											add 1 exclusive WBL	$75	150	15	2250	$23	51,750	150	0	15	15	2250	$10	22500									$74,250	Yes	Yes	$74,250
	Dam Rd.																																		
		section just west of Lake St.	1,000	-	-	-	-	2	-	-	Widen to 2 lane Undivided arterial acc. to City of Clearlake Stds.	$575	1,000	25	25,000	$23	575,000	1000	50	50	0	0	$10	$0									$575,000	Yes	Yes	$575,000
		Dam Rd. Extn to SR 53	350			-	-	2	1																										
CL #6											Install Traffic Signal	$360													1	1		1					$360,000	Yes	Yes	$360,000
											extend existing EBL by 150 ft	$110	150	12	1,800	$23	41,400	150	0	12	12	1,800	$10	$18,000									$109,400	Yes	Yes	$109,400
					Dam Rd./Dam Rd. Extn.	1	1	2	1	TWSC	add 2nd EBL	$92	230	12	2,760	$23	63,480	230	0	12	12	2,760	$10	$27,600									$91,080	Yes	Yes	$91,080
											extend existing WBL by 115 ft	$46	115	12	1,380	$23	31,740	115	0	12	12	1,380	$10	$13,800						1			$45,540	Yes	Yes	$45,540
											add 2nd WBL	$92	230	12	2,760	$23	63,480	230	0	12	12	2,760	$10	$27,600									$91,080	Yes	Yes	$91,080
CL #7	**Boyles Ave.**	18th Ave. to 33rd Ave.	3,560			2	-	-	-		Improve to 2 lane collector acc. to City of Clearlake Standards	$2,047	3,560	25	89,000	$23	2,047,000	3,560	50	50	0	0	$10	$0									$2,047,000	Yes	Yes	$2,047,000
CL #8	**Burns Valley Rd.**	Old Hwy 53 to Arrowhead Rd.	6,470			2	-	-	-		Improve to 2 lane collector acc. to City of Clearlake Standards	$3,721	6,470	25	161,750	$23	3,720,250	6,470	50	50	0	0	$10	$0									$3,720,250	Yes	Yes	$3,720,250
CL #9	**Arrowhead Rd.**	Burns Valley Rd. to Acacia St.	1,440			2	-	-	-		Improve to 2 lane collector acc. to City of Clearlake Standards	$828	1,440	25	36,000	$23	828,000	1,440	50	50	0	0	$10	$0									$828,000	Yes	Yes	$828,000
CL #10	**Pomo Rd.**	Arrowhead Rd. to Lakeshore Dr.	1,335			2	-	-	-		Improve to 2 lane collector acc. to City of Clearlake Standards	$768	1,335	25	33,375	$23	767,625	1,335	50	50	0	0	$10	$0									$767,625	Yes	Yes	$767,625
		TOTAL COST										**$34,348**					**$31,959,075**							**$360,400**									**$34,329,075**			**$34,329,075**

Notes:

A) Cost(s) do not include potential slope and utility easements that may be required on one or both sides of R/W.

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D) Note that the improvements recommended in the subsequent section are adequate for planning purposes only. The constructability of these improvements would need to determined, which could only be established based on additional engineering analysis.

					Existing Conditions						Roadway Construction/Reconstruction					Developed R/W Acquisition							Traffic Signals and Restriping								FINAL COSTS			
Improvement #	Facility Name	Roadway Segments	Length of Roadway Segment (Feet)	Intersection Number	Intersections & Interchanges	N/S Travel Lanes	N/S Left-turn Lanes	E/W Travel Lanes	E/W Left-turn Lanes	Intersection Control	Improvement	Cost[2] ($1,000)	Length of Roadway Section (Linear Feet)	Average Construction Area Width (Ft.)	Total Roadway Construction Area (Sq. Ft.)	Planning Level Roadway Construction Unit Cost (per sq.ft.)	Roadway Construction Cost Sub-Total	Length of New Developed Right-of-Way Section (Linear Feet)	Average Ex ROW Width	Proposed ROW Width	Average Developed Right-of-Way Area Width (Ft.)	Total Developed Right-of-Way Area (Sq. Ft.)	Planning Level Developed Right-of-Way Unit Cost (sq.ft.)	Roadway Developed Right-of-Way Aquisition Cost Sub-Total	$250,000 Install New Traffic Signal	$10,000 Coordinate Existing Traffic Signal	$50,000 Minor Modification to Existing Traffic Signal	$100,000 Major Modification to Existing Traffic Signal	$10,000 Minor Restriping Project	$50,000 Major Restriping Project	$25 Interconnect Cable (Linear Feet)	$100,000 Coordinated Signal System	Estimated Total Construction Cost	Is Improvement Feasible	is cost incl. in Fee Program	FEE PROG. COSTS
MID#1	**Spruce Grove Rd.**	east of SR 29 (both locations)	2,000			-	-	2	-		Safety & Operational Impv's	$230	2,000	5	10,000	$23	230,000	2,000	0	0	0	0	$10	$0									$230,000	Yes	NO	$0
MID#2	**Hartmann Rd.**	SR 29 to Stinson Ranch Rd.	11,676			-	-	2	-		Safety & Operational Impv's	$1,343	11,676	5	58,380	$23	1,342,740	11,676	0	0	0	0	$10	$0									$1,342,740	Yes	Yes	$1,342,740
MID#3	**Stewart St.**	SR 175 (Middletown) to Callayomi St.	875			2	-	-	-		Safety & Operational Impv's	$101	875	5	4,375	$23	100,625	875	0	0	0	0	$10	$0									$100,625	Yes	NO	$0
MID#4	**Santa Clara Rd.**	Central Park Rd. to SR 175	2,830			2	-	-	-		Safety & Operational Impv's	$326	2,830	5	14,150	$23	325,450	2,830	0	0	0	0	$10	$0									$325,450	Yes	NO	$0
MID#5	**Barnes St.**	SR 175 to Wardlaw St./Big Canyon Rd.	880			2	-	-	-		Safety & Operational Impv's	$102	880	5	4,400	$23	101,200	880	0	0	0	0	$10	$0									$101,200	Yes	NO	$0
MID#6	**Wardlaw St.**	Barnes St./Big Canyon Rd. to St. Helena Creek Rd.	1,780			-	-	2	-		Safety & Operational Impv's	$205	1,780	5	8,900	$23	204,700	1,780	0	0	0	0	$10	$0									$204,700	Yes	NO	$0
MID#7	**Butts Canyon Rd.**	SR 29 to Loconomi St.	9,210			-	-	2	-		Widen to 2 lane undivided arterial according to County Stds.	$9,118	9,210	30	276,300	$23	6,354,900	9,210	28	58	30	276,300	$10	$2,763,000									$9,117,900	Yes	Yes	$9,117,900
		TOTAL COST										**$11,425**					**$8,659,615**							**$2,763,000**									**$11,422,615**			**$10,460,640**

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Improvement #	Facility Name	Roadway Segments	Length of Roadway Segment (Feet)	Intersection Number	Intersections & Interchanges	*Existing Conditions* N/S Travel Lanes	N/S Left-turn Lanes	E/W Travel Lanes	E/W Left-turn Lanes	Intersection Control	Improvement	Cost[2] ($1,000)	Roadway Construction/Reconstruction: Length of Roadway Section (Linear Feet)	Average Construction Area Width (Ft.)	Total Roadway Construction Area (Sq. Ft.)	Planning Level Roadway Construction Unit Cost (per sq.ft.)	Roadway Construction Cost Sub-Total	Developed R/W Acquisition: Length of New Developed Right-of-Way Section (Linear Feet)	Average Ex ROW Width	Proposed ROW Width	Average Developed Right-of-Way Area Width (Ft.)	Total Developed Right-of-Way Area (Sq. Ft.)	Planning Level Developed Right-of-Way Unit Cost (sq.ft.)	Roadway Developed Right-of-Way Aquisition Cost Sub-Total	Traffic Signals and Restriping: $250,000 Install New Traffic Signal	$10,000 Coordinate Existing Traffic Signal	$50,000 Minor Modification to Existing Traffic Signal	$100,000 Major Modification to Existing Traffic Signal	$10,000 Minor Restriping Project	$50,000 Major Restriping Project	$25 Interconnect Cable (Linear Feet)	$100,000 Coordinated Signal System	FINAL COSTS: Estimated Total Construction Cost	Is Improvement Feasible	Is cost incl. in Fee Program	FEE PROG. COSTS
KRC#1	**Pt. Lake View Rd.**	SR 281 to SR 29	36,205			-	-	2	-		Safety & Operational Impv's	$4,164	36,205	5	181,025	$23	4,163,575	36,205	0	0	0	0	$10	$0									$4,163,575	Yes	NO	$0
KRC#2	**Big Valley Rd.**	Highland Springs Rd. to Merritt Rd./Gaddy Ln	12,505			-	-	2	-		Safety & Operational Impv's	$1,439	12,505	5	62,525	$23	1,438,075	12,505	0	0	0	0	$10	$0									$1,438,075	Yes	NO	$0
KRC#3	**Bell Hill Rd.**	Highland Springs Rd. to SR 29	20,056			-	-	2	-		Safety & Operational Impv's	$2,307	20,056	5	100,280	$23	2,306,440	20,056	0	0	0	0	$10	$0									$2,306,440	Yes	NO	$0
KRC#4	**Gaddy Ln.**	Lossa Rd. to State St.	3,083			-	-	2	-		Widen to 2 lane undivided art. according to County Stds.	$3,053	3,083	30	92,490	$23	2,127,270	3,083	28	58	30	92,490	$10	$924,900									$3,052,170	Yes	Yes	$3,052,170
		State St. to Soda Bay Rd.	11,095			-	-	2	-		Widen to 2 lane collector according to County Stds.	$3,330	11,095	30	58	$23	1,334	11,095	28	58	30	332,850	$10	$3,328,500									$3,329,834	Yes	Yes	$3,329,834
KRC#5	**Harrington Flat Rd.**	Bottle Rock Rd. to Sulphur Creek Rd.	22,234			2	-	-	-		Safety & Operational Impv's	$2,557	22,234	5	111,170	$23	2,556,910	22,234	0	0	0	0	$10	$0									$2,556,910	Yes	NO	$0
		Sulphur Creek Rd. to SR 175	5,790			2	-	-	-		Safety & Operational Impv's	$666	5,790	5	28,950	$23	665,850	5,790	0	0	0	0	$10	$0									$665,850	Yes	NO	$0
KRC#6	**Sulphur Creek Rd.**	Bottle Rock Rd. to Harrington Flat Rd.	6,236			2	-	-	-		Safety & Operational Impv's	$718	6,236	5	31,180	$23	717,140	6,236	0	0	0	0	$10	$0									$717,140	Yes	NO	$0
KRC#7	**Loch Lomond Rd.**	Big Canyon Rd. to Siegler Springs N. Rd	4,041			-	-	2	-		Safety & Operational Impv's	$465	4,041	5	20,205	$23	464,715	4,041	0	0	0	0	$10	$0									$464,715	Yes	NO	$0
		Siegler Springs N. Rd. to SR 175	17,113			-	-	2	-		Safety & Operational Impv's	$1,968	17,113	5	85,565	$23	1,967,995	17,113	0	0	0	0	$10	$0									$1,967,995	Yes	NO	$0
KRC#8	**Siegler Canyon Rd.**	Big Canyon Rd. to SR 29	21,461			-	-	2	-		Safety & Operational Impv's	$2,469	21,461	5	107,305	$23	2,468,015	21,461	0	0	0	0	$10	$0									$2,468,015	Yes	NO	$0
KRC#9	**Big Canyon Rd.**	Siegler Canyon Rd./Loch Lomond Rd. to Middletown/Lowerlake bdy.	33,509			2	-	-	-		Safety & Operational Impv's	$3,854	33,509	5	167,545	$23	3,853,535	33,509	0	0	0	0	$10	$0									$3,853,535	Yes	NO	$0
KRC#10	**Meritt Rd.**	SR 29 to Lossa Rd.	3,150			-	-	2	-		Widen to 2 lane Undivided art. according to County Standards	$3,119	3,150	30	94,500	$23	2,173,500	3,150	28	58	30	94,500	$10	$945,000									$3,118,500	Yes	Yes	$3,118,500
KRC#11	**Highland Springs Rd.**	SR 29 to Bell Hill Rd.	16,071			2	-	-	-		Safety & Operational Impv's	$2,652	16,071	5	80,355	$23	1,848,165	16,071	0	5	5	80,355	$10	$803,550									$2,651,715	Yes	Yes	$2,651,715
KRC#12	**Main St.**	Bell Hill Rd. to State St.	2,706			-	-	2	-		Widen to 2 lane Undivided art. according to County Standards	$2,679	2,706	30	81,180	$23	1,867,140	2,706	28	58	30	81,180	$10	$811,800									$2,678,940	Yes	Yes	$2,678,940
		TOTAL COST										**$35,440**					**$28,619,659**							**$6,813,750**									**$35,433,409**			**$14,831,159**

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B) Construction and R/W costs are approximate only. Information shown is for cost estimating purposes only and not accurate for determining construction units or R/W acquisitions.

C) Safety and operational Costs are assumed to involve widening by a total of 5ft.

D) Note that the improvements recommended in the subsequent section are adequate for planning purposes only. The constructability of these improvements would need to determined, which could only be established based on additional engineering analysis.

Improvement #	Facility Name	Roadway Segments	Length of Roadway Segment (Feet)	Intersection Number	Intersections & Interchanges	Existing Conditions: N/S Travel Lanes	Existing Conditions: N/S Left-turn Lanes	Existing Conditions: E/W Travel Lanes	Existing Conditions: E/W Left-turn Lanes	Existing Conditions: Intersection Control	Improvement	Cost[2] ($1,000)	Roadway Construction/Reconstruction: Length of Roadway Section (Linear Feet)	Average Construction Area Width (Ft.)	Total Roadway Construction Area (Sq. Ft.)	Planning Level Roadway Construction Unit Cost (per sq.ft.)	Roadway Construction Cost Sub-Total
ULS #1	**SR 20**	Nice Lucerne Cut-off to Sulphur Banks Drive	91,385			-	-	2	-		Safety & Operational Impv's	$19,648	91,385	5	456,925	$23	10,509,275
	TOTAL COST											**$19,648**					**$10,509,275**

Improvement #	Developed R/W Acquisition: Length of New Developed Right-of-Way Section (Linear Feet)	Average Ex ROW Width	Proposed ROW Width	Average Developed Right-of-Way Area Width (Ft.)	Total Developed Right-of-Way Area (Sq. Ft.)	Planning Level Developed Right-of-Way Unit Cost (sq.ft.)	Roadway Developed Right-of-Way Aquisition Cost Sub-Total	Traffic Signals and Restriping: $250,000 Install New Traffic Signal	$10,000 Coordinate Existing Traffic Signal	$50,000 Minor Modification to Existing Traffic Signal	$100,000 Major Modification to Existing Traffic Signal	$10,000 Minor Restriping Project	$50,000 Major Restriping Project	$25 Interconnect Cable (Linear Feet)	$100,000 Coordinated Signal System	FINAL COSTS: Estimated Total Construction Cost	Is Improvement Feasible	is cost incl. in Fee Program	FEE PROG. COSTS
ULS #1	91,385	0	10	10	913,850	$10	$9,138,500									$19,647,775	Yes	Yes	$19,647,775
TOTAL COST							**$13,812,545,200**									**$19,647,775**			**$19,647,775**

Notes:

A) Cost(s) do not include potential slope and utility easements that may be required on one or both sides of R/W.

B) Construction and R/W costs are approximate only. Information shown is for cost estimating purposes only and not accurate for determining construction units or R/W acquisitions.

C) Safety and operational Costs are assumed to involve widening by a total of 5ft.

D) Note that the improvements recommended in the subsequent section are adequate for planning purposes only. The constructability of these improvements would need to determined, which could only be established based on additional engineering analysis.