

# Comprehensive County Expressway Planning Study

## *Implementation Plan*

### Lawrence Expressway



**Roads and Airports Department**

**August 19, 2003**

**Comprehensive County Expressway Planning Study**  
***Implementation Plan***

**Lawrence Expressway**

**County of Santa Clara**

Roads and Airports Department

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## **Introduction**

On August 19, 2003, the County of Santa Clara Board of Supervisors adopted a long-range plan for the improvement and maintenance of the expressway system. This plan is called the Comprehensive County Expressway Planning Study Implementation Plan. The Plan was developed using a collaborative process involving the local cities and key transportation agencies as well as input from the community. The foundation for the collaborative process was a solid technical analysis process.

The county expressway system is designed to relieve local streets and supplement the freeway system. There are eight expressways in the system, including Lawrence Expressway. The *Implementation Plan* identifies a total capital program approaching \$2 billion as well as needs of \$18 million annually for maintenance and operations for the entire expressway system.

Implementation of the plan's recommendations is dependent on obtaining the necessary capital and maintenance/operations funding. The expressways' needs will compete with all other transportation improvement needs for Santa Clara County. Countywide transportation priority and funding decisions will be made by the Santa Clara Valley Transportation Authority (VTA) in the Valley Transportation Plan (VTP) 2030 scheduled to be completed in mid-2004.

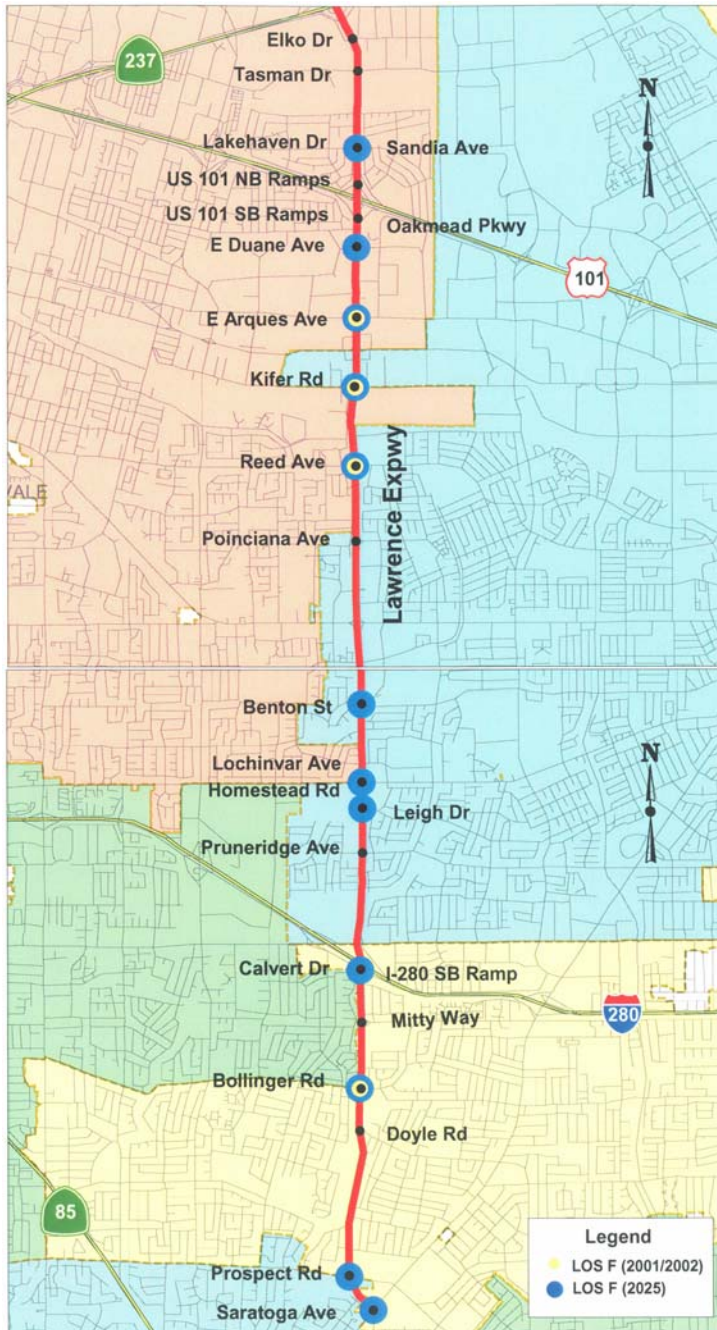
The County will update the Expressway Study's *Implementation Plan* every three years in conjunction with the triennial updates of VTA's VTP to reflect changing traffic and financial conditions.

This document provides a summary of the capital improvement recommendations for Lawrence Expressway. The capital improvement elements include roadway capacity and operational, bicycle, pedestrian, sound wall, and landscaping.

The *Implementation Plan* also includes recommendations for systemwide expressway improvements in maintenance and operations (such as signal operations, sweeping, pavement maintenance, graffiti removal, replacing aging sidewalks and sound walls). These recommendations apply to all expressways and are not documented here. Please see the full *Implementation Plan* or the Summary Brochure for more information about the systemwide maintenance and operations recommendations.

## Vision

Southern end more arterial-like; mid-section more high-end expressway with freeway-like segments; and northern end more high-end express arterial.



**Exhibit A Intersection Level of Service**

## Why a Vision

Each expressway has its own unique character, function, and community relationship. The vision, developed through a collaborative process, shaped the expressway's improvement strategies.

## Expressway Characteristics

- 8.7 miles long
- 6-8 lanes wide, including HOV lanes
- 23 signalized intersections
- 3 freeway connections (I-280, US 101, SR 87)
- 5 cities served (Saratoga, San Jose, Cupertino, Santa Clara, Sunnyvale)
- 280,000 vehicles use Lawrence daily
- 4 LOS F intersections in 2001/2002
- 12 LOS F intersections projected in 2025

## What is LOS?

Level of service (LOS) is a measure of traffic flow and congestion levels. LOS A is the best condition representing freely flowing traffic. LOS F is the worst condition representing excessive delays and jammed conditions.

## Roadway Capacity and Operational Improvements

The roadway improvement projects recommended for Lawrence Expressway are listed below:

### Roadway Project Tiers

*Tier 1A* –Improves LOS F intersections or other operational improvements

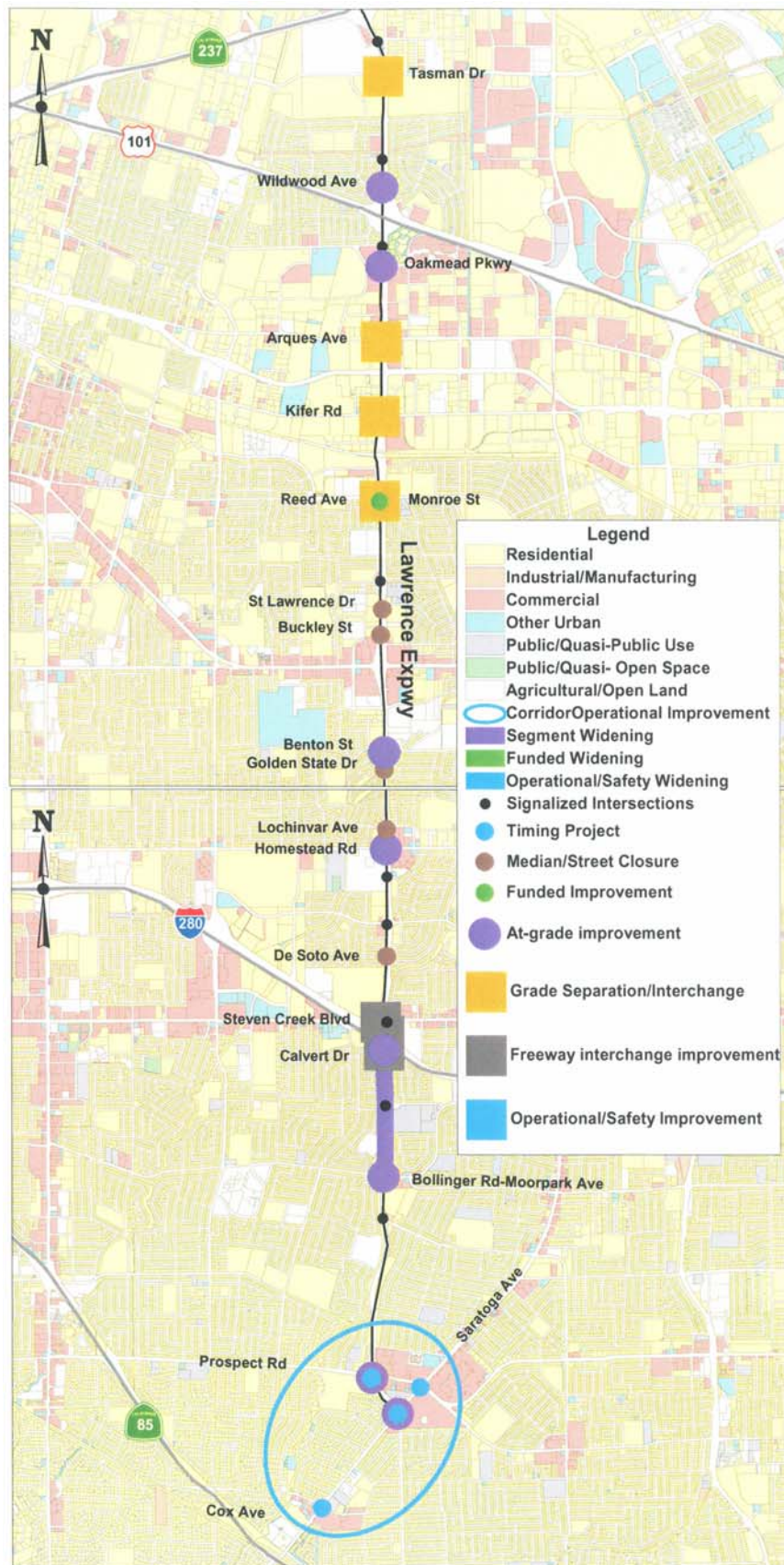
*Tier 1B* –Constructs interchange at LOS F intersection

*Tier 1C* –Improves 2025 projected LOS F intersections

*Tier 2* – Other capacity improvements

*Tier 3* – Major facility reconstruction/new facilities

Tier Priority	Project Description <sup>(1)</sup>	Cost (millions)	
1A	Optimize signal coordination along Lawrence-Saratoga Avenue corridor including Lawrence/Prospect, Lawrence/Saratoga, Saratoga/Prospect, and Saratoga/Cox intersections	\$0.1	
1A	Widen to 8 lanes between Moorpark/Bollinger and south of Calvert with additional WB through lane at Moorpark	\$4	
1A	Coordinate and optimize signal phasing and timing plans at I-280/Lawrence interchange area including City of Santa Clara signals along Stevens Creek and County's signal at Lawrence/Calvert/I-280 SB ramp	\$0.1	
1A	Prepare Caltrans PSR for Tier 1C project at the Lawrence/Calvert/I-280 interchange area	\$0.5	
1A	Close median at Lochinvar and right-in-and-out access at DeSoto, Golden State, Granada, Buckley, and St. Lawrence/Lawrence Station on-ramp	\$0.5	
1A	Convert high-occupancy vehicle (HOV) to mixed-flow lanes between US 101 and Elko due to high violation rates & operational problems	\$0.1	
1B	Interchange at Monroe	\$45	
1B	Interchange at Kifer	\$45	
1B	Interchange at Arques with square loops along Kern and Titan	\$35	
1C	Provide additional left-turn lane from EB Saratoga to NB Lawrence	\$2	
1C	Provide additional left-turn lane from EB Prospect to NB Lawrence	\$2	
1C	Interim improvements at Lawrence/Calvert/I-280: provide additional SB through lane at Calvert; widen I-280 SB on-ramp to provide additional mixed-flow lane; and construct I-280 SB slip on-ramp from Calvert west of Lawrence and prohibit EB through movement at Calvert/Lawrence intersection	\$8	
1C	Provide additional EB through lane on Homestead <sup>(2)</sup>	\$2	
1C	Provide additional left-turn lane from WB Benton to SB Lawrence	\$2	
1C	Provide a 3rd left-turn lane from EB Oakmead/Duane to NB Lawrence	\$2	
2	Signalize the Wildwood Ave. intersection including opening the median, realigning Wildwood Ave., and re-timing signals between Elko and US 101	\$4	
2	Interchange at Tasman <sup>(3)</sup>	\$45	
3	Initiate a feasibility study to provide direct access between Lawrence, I-280, and Stevens Creek, and HOV direct connectors at this interchange area	\$1	
3	Reconstruct the interchange to provide direct access ramps between Lawrence, I-280, and Stevens Creek, and HOV direct connectors	\$250-300	
3	Freeway/expressway direct connector HOV ramps at US 101	\$20-30	
(1) When funding is obtained, each project will undergo design, environmental review, and community outreach as appropriate. Project descriptions will be changed as needed based on the results of these activities.		Total Tier 1A	\$5.3
		Total Tier 1B	\$125
		Total Tier 1C	\$18
(2) Additional EB through at the Homestead intersection would not improve the projected 2025 LOS from F to E or better. However, it would reduce average intersection delay significantly.		Total Tier 2	\$49
		Total Tier 3	\$271-331
(3) Local and regional LOS standards are not projected to be violated at the Lawrence/Tasman intersection within the timeframe of the plan.		Total	\$468.3-528.3



**Exhibit B Capacity and Operational Improvements**

***Effectiveness  
of Roadway  
Improvements***

- ◆ Expressway south of I-280 would improve from LOS E to LOS D and north of I-280 from LOS E and D to LOS C or better.
- ◆ All but one of the existing and projected LOS F intersections would be improved to LOS E or better. The remaining intersection at Homestead would remain a projected LOS F location but the recommended Tier 1C roadway improvement would reduce average intersection delay significantly.

***Bicycle  
Improvements***

Bicycles are accommodated on all expressways. Bicycle improvement recommendations were identified based on bringing all expressways into full compliance with the Bicycle Accommodation Guidelines (BAG). The BAG includes guidelines on bicycle travel area widths, striping, signage, trail connections, maintenance, and several other design treatments. Specific capital projects identified include striping improvements and shoulder widening.

- ◆ All necessary re-striping to bring the expressway into compliance with the Bicycle Accommodation Guidelines (BAG) will be completed as part of a system-wide re-striping project.
- ◆ Shoulder widening is needed near Pruneridge and from El Camino Real to Kifer and will be implemented as part of the County's 2003 Pavement Maintenance Project.



**Exhibit C Bicycle Improvements**

## ***Pedestrian Improvements***

A pedestrian facilities plan was developed covering the entire length of each expressway. Recommended pedestrian improvements for traveling along the expressways vary along sections of the expressways based on physical conditions, pedestrian needs, fronting land use, and community development plans. New sidewalks are recommended to close gaps in otherwise continuous sidewalks, to access transit stops, and to provide access to land uses fronting on the expressways. Recommendations also include improved connections and directional signage to parallel pedestrian facilities, such as trails and frontage roads.

For expressway crossing needs, high-demand crossing locations were identified for potential crossing enhancements ranging from reconfiguring intersections to make them more pedestrian-friendly to installing pedestrian countdown timers and pedestrian ramps.

Lawrence has a generally continuous pedestrian system using sidewalks and parallel facilities.

- ◆ Ten pedestrian crossing enhancement locations were identified for school, trail, bus stop, and commercial access: Prospect, Moorpark, Mitty, Pruneridge, Homestead, Benton, Cabrillo, Reed/Monroe, Sandia/Lakehaven, and Tasman. Total potential cost is \$2.0 million.
- ◆ New sidewalks are recommended at the following locations:

<b>New Sidewalk Locations</b>	<b>Project Need</b>	<b>Cost (millions)</b>
Saratoga to Prospect, east side	Gap closure	\$0.18
SE of Pruneridge	Connection to parallel path	\$0.03
North of Pruneridge, east side	Gap closure	\$0.18
SW of Benton	Gap closure	\$0.03
NW of Lakehaven	Connection between parallel paths	\$0.14
North of Palamos to Tasman, east side	Connection between parallel paths, bus stop connection	\$0.25
North of Elko to Caribbean, east side	Neighborhood circulation	NA <sup>(1)</sup>
<b>Total</b>		<b>\$0.81</b>
(1) This sidewalk will require widening of the overpass at SR 237. An estimated cost is not available but could be \$5 to \$10 million. It should be noted that sidewalks are provided north of Elko along the west side over the overpass through to Caribbean Drive.		



Exhibit D Pedestrian Improvements

## **Sound Wall Improvements**

An assessment of sound wall needs was conducted according to the guidelines of Caltrans and the Federal Highway Administration (FHWA). The plan includes recommendations for both new sound walls where none now exists and replacing existing walls with higher walls if needed to meet noise standards. The noise standard used was a maximum of 65.5 decibels. Sound wall heights would range from 10 feet minimum to 16 feet maximum.

The plan also acknowledges that sound walls are not always the preferred method of noise abatement for the local community and recommends that the preferred level and type of noise abatement (including sound wall height) be based on noise analysis, community outreach, and city coordination when funding is available.

The table below lists the sound wall recommendations for Lawrence Expressway:

Sound Wall Project Description	Cost (millions)	
	New Wall	Higher Replacement Wall
Between I-280 and Central <ul style="list-style-type: none"><li>Higher replacement walls on west side near Dahlia, SW of Poinciana, east side near St. Lawrence, NW of Granada, both sides between Granada and Benton, NW of Homestead and SW of Pruneridge</li></ul>	--	\$2.63
Higher replacement wall NW of Prospect	--	\$0.96
<b>Totals</b>		<b>\$3.59</b>



**Exhibit E Sound Wall Improvements**

## **Landscaping Improvements**

The *Implementation Plan* did not break down landscaping needs for each individual expressway. It did, however, recommend that the following level of landscaping be provided for the entire expressway system:

- ◆ Trees and limited shrubs
- ◆ Median finishes, such as decomposed granite
- ◆ Sound walls covered with vines
- ◆ Automated irrigation system.

The systemwide cost to install this landscaping is estimated to be \$19-23 million. The estimated cost to maintain this level of landscaping for the entire expressway system is \$4 million annually, which is beyond the operating revenue currently available to the County. Therefore, the plan recommends continuing with the County's current landscaping policy to not install new landscaping unless funds are available for maintaining it.

## **Total Capital Improvement Program**

The total costs of the recommendations for Lawrence Expressway are as follows:

Description	Cost (millions)
Roadway Capacity and Operational Improvements	\$468.3-528.3
Bicycle Improvements	N.A.
Pedestrian Improvements	\$2.81
Sound Wall Improvements	\$3.59
Part of Roadway Projects <sup>(1)</sup>	(\$1.6)
<b>TOTAL</b>	<b>\$476.3-536.3 <sup>(2)</sup></b>

(1) Roadway capacity/operational projects include bicycle, pedestrian, and sound wall improvements within project limits.

(2) Plus a portion of the systemwide landscaping and maintenance/operations improvements.

N.A. = Not Applicable