



SECTION THREE

CAPACITY & OPERATIONAL IMPROVEMENT ELEMENT

The Capacity and Operational Improvement Element focuses on automobile-related capital improvements. It includes projects that will increase roadway capacities; improve operational and safety conditions; facilitate traffic flow using signal coordination and advanced traffic operations systems (TOS); and provide direct high-occupancy vehicle (HOV) connectors between expressways and freeways where HOV facilities exist or have been planned.

RECOMMENDED IMPROVEMENTS

The process to develop the list of improvements began with a comprehensive traffic analysis, including existing and projected 2025 traffic volumes, intersection level of service (LOS), and intersection collision data. Project lists from other studies, such as the Valley Transportation Plan (VTP) 2020 and city capital improvement programs, were consulted. In addition, discussions were held with staff from the participating cities and agencies to help identify problem areas and locally desired improvements.

A preliminary list of improvements was then developed to address both congestion and operational/safety problems areas. Recognizing that signal timing changes and new technologies can alleviate some congestion problems, adjustments to signal operations were considered first. Capacity improvements to alleviate LOS F conditions were then recommended in those areas where signal operational changes were unable to resolve the congestion problem. Considerations of capacity improvements began with at-grade improvement options (e.g., adding a lane). Grade separations/interchanges were recommended when at-grade options became infeasible. Based on the discussions with local cities and other agencies, the improvements list was further expanded to include desired improvements that will help achieve the vision for each expressway.

Figure 3-1 illustrates the capacity and operational improvements recommended for the expressway system. The types of improvements range from operational improvements such as corridor signal projects, median closures, and safety widenings, to capacity projects such as new lanes, intersection improvements, and new interchanges. The map also recognizes the South County Circulation Study, which will develop improvement recommendations for Rural Commute Routes, such as Santa Teresa Boulevard in Gilroy. Although not technically County expressways, these routes will require funding from the same sources as the expressway projects and could serve the same type of intercity travel needs as the expressways.

The capacity/operational improvements will cost from \$1.64 to \$1.94 billion to implement. The total cost includes approximately \$100-150 million for HOV-related projects and \$83-105 million for signals/Traffic Operations System (TOS) improvements. Detailed descriptions of the signals/TOS and HOV projects can be found in their respective elements.

Figure 3-1: Capacity/Operational Improvements

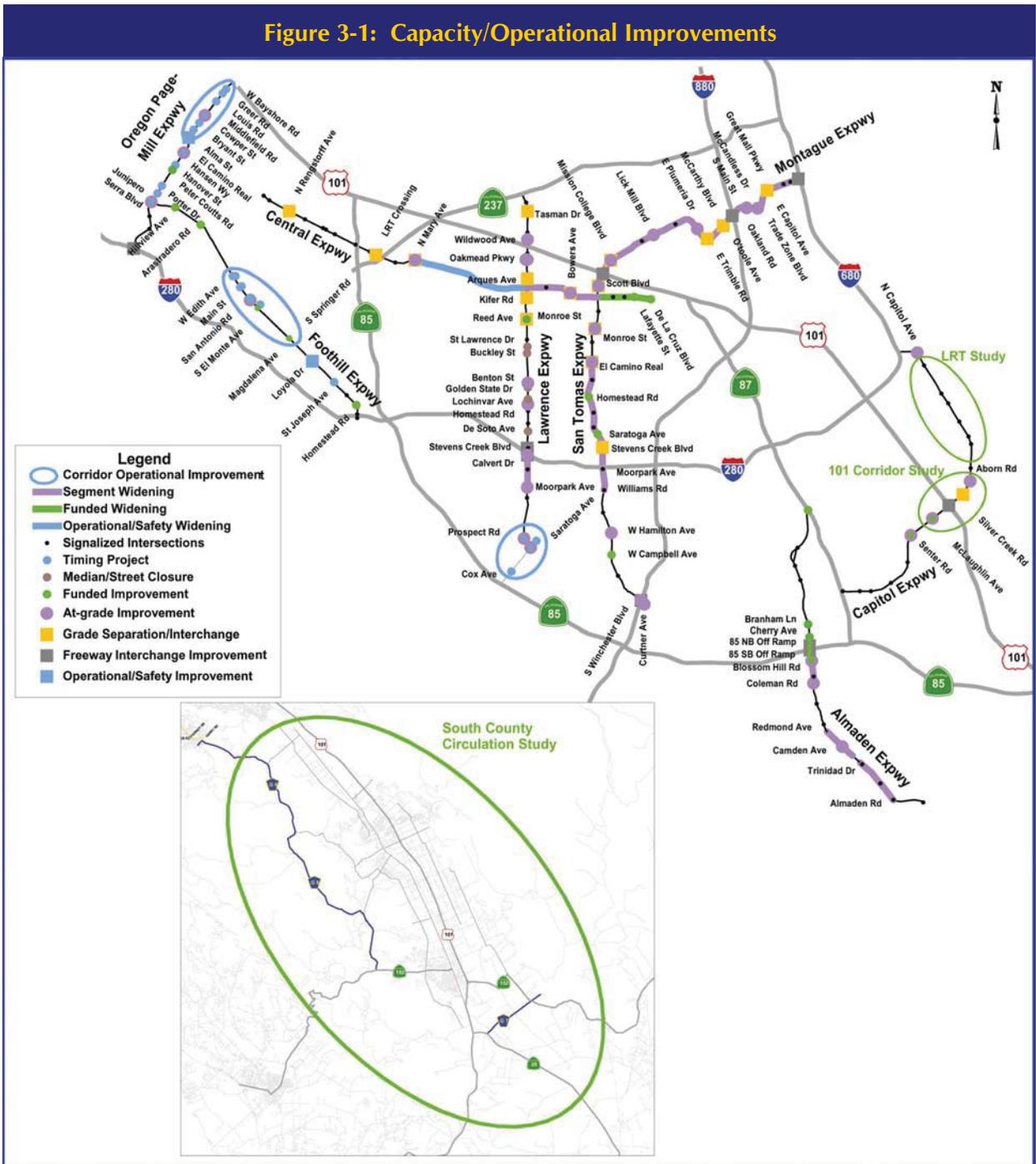
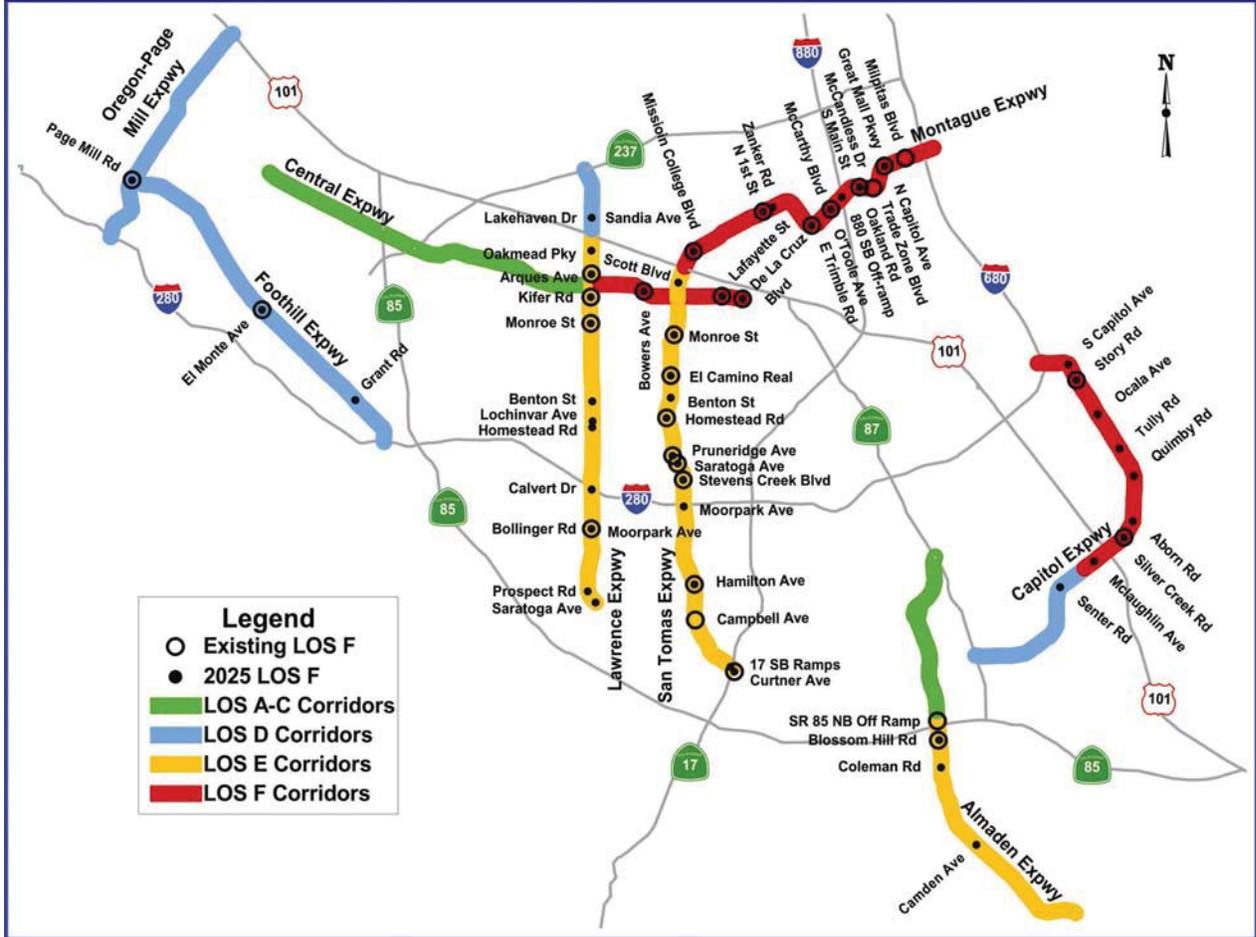


Figure 3-2a: Corridor Level of Service for No Project

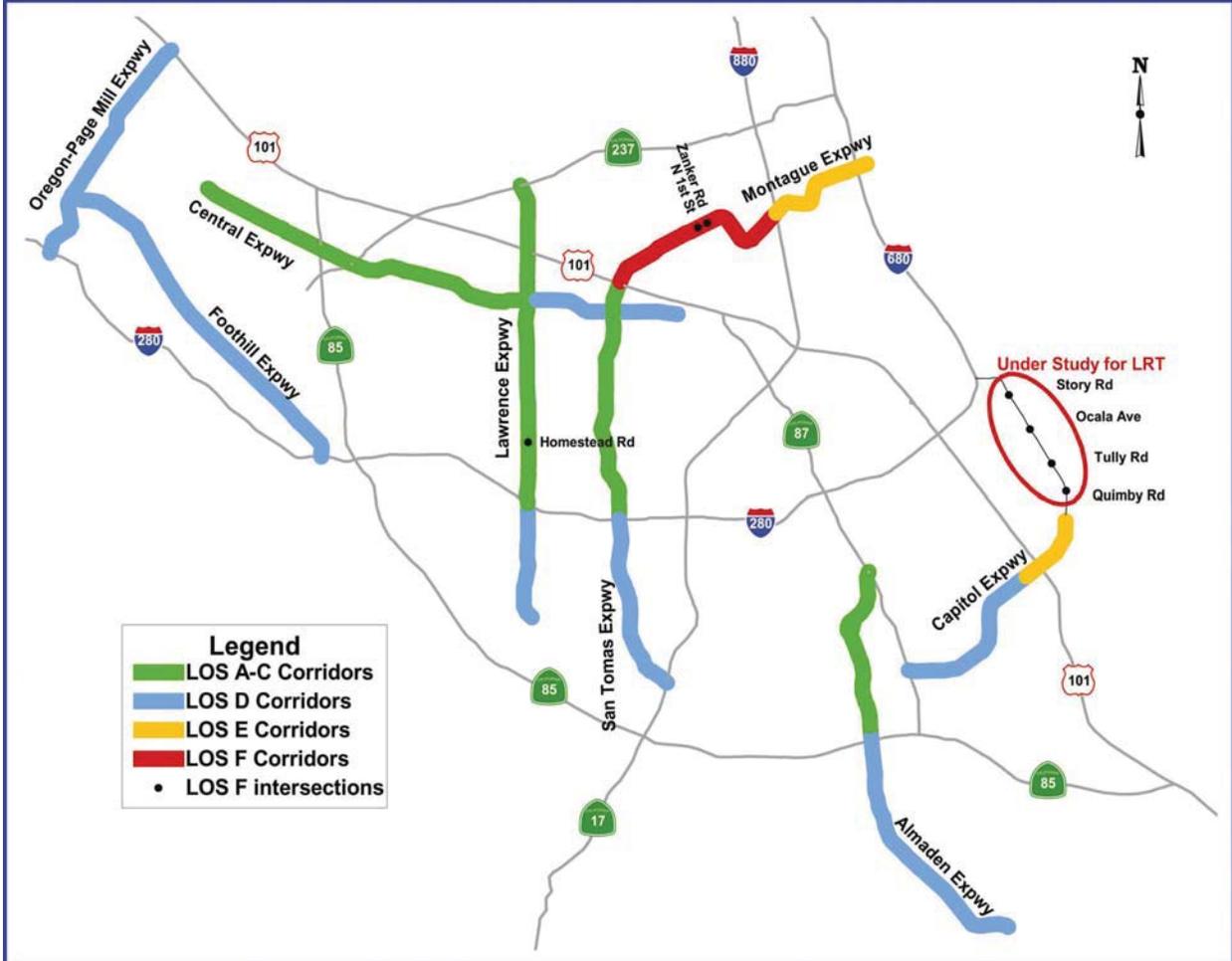


Systemwide Results

Figures 3-2a and 3-2b illustrates the LOS benefits of the recommended capacity and operational improvements for the planning year 2025. Figure 3-2a indicates projected corridor LOS and intersection LOS F locations in 2025 if no improvements are made. Figure 3-2b indicates 2025 LOS conditions with full implementation of all recommendations.

The corridor-wide traffic analysis shows overall corridor LOS to be significantly improved with the implementation of the capacity/operational improvements. Six of the eight

Figure 3-2b: Corridor Level of Service for All Projects



expressways would operate at a minimum of LOS D with some expressway segments achieving LOS C. Montague Expressway, east of I-880, would improve from LOS F to E. West of I-880, Montague would continue to operate at LOS F but the queuing and overall delay would be reduced significantly (25% reduction in delay of all vehicles; 13-minute reduction in travel time). Capitol Expressway from Nieman through the US 101 interchange would improve from LOS F to E and would remain LOS D west of US 101. Projected LOS information for Capitol north of Nieman to I-680 is not available since the future conditions with the planned LRT in place have not yet been fully defined.

Altogether, the capacity and operational projects listed mitigate 28 out of 30 existing LOS F intersections. The remaining 2 existing LOS F intersections are as follows:

- ❖ Capitol/Story – This intersection is part of the initial phase of the Downtown East Valley light rail project. Any potential improvement project for this location will be determined through coordination with the light rail project and San Jose policies.
- ❖ Montague/First – The 1999 Montague Study included a policy decision to accept LOS F conditions at this intersection.

Under 2025 projected conditions, the overall list of projects mitigates 43 out of 50 LOS F intersections, with the following 7 intersections remaining at F:

- ❖ The 2 existing LOS F intersections listed above.
- ❖ Three additional intersections on Capitol Expressway (Ocala, Tully, and Quimby) – Like Capitol/Story, any potential improvement projects for these locations will be determined through coordination with the light rail project and San Jose policies.
- ❖ Montague/Zanker – Like Montague/First, the 1999 Montague Study included a policy decision to also accept LOS F conditions at this intersection.
- ❖ Lawrence/Homestead – An interchange would be required to improve this intersection to LOS E or better, and an interchange at this location is not supported by local cities due to the right-of-way impacts.

In addition to congestion relief, many of the projects provide safety and multimodal benefits. Most of the intersections with the highest collision rates are also those with the worst congestion problems and will be improved through the recommended capacity projects. One of the segment widenings (Central through Sunnyvale) is specifically recommended to improve an area experiencing a high collision rate. Many of the projects include much-needed improvements for bicyclists and pedestrians and a couple of the grade separations have the potential to improve light rail operations.

Systemwide Prioritization

During development of the improvement lists, the top priorities for each expressway were identified based on both technical analysis and city/community preferences. However, with a systemwide capacity/operational improvement list of 72 projects that approach \$2 billion in cost, a systemwide prioritization list was needed.



To start the prioritization process, a technical analysis was conducted ranking intersections by existing and future peak hour delay, highest collision locations, and a cost/benefit ratio for capacity projects. A review of these rankings compared to each expressway's proposed priorities indicated that the top priority projects for each expressway address almost all of the highest ranking locations in terms of delay and accident locations, and are cost-effective. However, it also became apparent that it would be difficult to develop criteria/performance measures to prioritize the operational/safety projects against the LOS projects.

The projects were then grouped into tiers starting with the concept that the top tier should include operational/safety improvements and projects that mitigate LOS F intersections. The remaining projects fell into Tiers 2 and 3 based on the type of project. When Tier 1 projects added up to more than can be expected from existing funding sources, sub-tiers were created dividing up relatively low-cost operational/at-grade improvements, high-cost interchange projects, and projects addressing future LOS F conditions. A key concept in dividing the projects into the Tier 1 sub-tiers was that existing LOS F intersection improvements should receive a higher priority than projected LOS F intersections. Table 3-1 lists the final criteria used for each tier.

Table 3-2 provides a tier summary. Table 3-3 provides a detailed list of the capacity/operational improvement projects divided into the tiers.

Table 3-1: Criteria for Tier Assignment

Tier	Criteria
1A	<ul style="list-style-type: none"> At-grade improvements to mitigate existing LOS F intersections to E or better Operational improvements to eliminate weaving, merging/diverging, and queuing problems, thus improving safety conditions Signal operations improvements that improve traffic flow Low-cost feasibility studies needed to answer critical questions about interchange reconfigurations that have a high level of local support
1B	<ul style="list-style-type: none"> Grade separation/interchange projects to mitigate existing LOS F intersections
1C	<ul style="list-style-type: none"> Improvements (both at-grade and grade separation/interchange projects) needed to mitigate the projected 2025 LOS F intersections Longer term signal operational improvements
2	<ul style="list-style-type: none"> All other expressway capacity improvement projects that can further facilitate traffic flow Enhancements and upgrades to signal systems using new technologies that will become available over the next 30 years
3	<ul style="list-style-type: none"> Major existing facility reconstruction and new facilities such as HOV direct connectors

Table 3-2: Summary of Tier Results

Tier	# of Projects	# of LOS F Intersections Mitigated		Cost (millions)
		2001/2002 Existing	Baseline 2025	
Measure B	N.A.	2	N.A.	N.A.
1A	28	18	24 ⁽¹⁾	\$149-151
1B	7	7	7	\$261-271
1C	13	0	11	\$49-53
2	15	0	0	\$585-671
3	9	1 ⁽²⁾	1	\$593-795
Totals	72	28	43	\$1,637-1,941

Notes:

- (1) Tier 1A also mitigates six projected 2025 LOS F intersections that are not existing LOS F locations. This is attributed to implementation strategies for existing LOS F intersections that benefit adjacent intersections, either with operational or capacity improvements.
- (2) At the local city's request, one existing/future LOS F intersection improvement project has been placed in Tier 3 rather than in Tier 1A.

Table 3-3: Capacity and Operational Improvement Projects

Projects for each tier are listed by expressway and proceed from south to north or west to east for each expressway ⁽¹⁾

Expressway	Project Description ⁽²⁾	Cost (millions)
MEASURE B PROJECTS (FUNDED)		
Almaden	Provide additional NB through lane on Almaden at Blossom Hill and SR 85 NB off-ramp intersections plus additional SB through lane on Almaden at Branham and Cherry intersections with additional left-turn lane at all four approaches at Cherry intersection	N.A.
San Tomas	Provide a 2nd left-turn lane from EB and WB Campbell to San Tomas and a separate right-turn lane from WB Campbell to NB San Tomas	N.A.
Expressway Traffic Operations System (TOS)	Provide TOS improvements including traffic management center upgrades, new loop and video sensors along the expressways, and fiber optic interconnect between traffic signals; and implement Traffic Adaptive System along Lawrence between Oakmead and Kifer	N.A.
TIER 1A PROJECTS		
Almaden	Widen to 8 lanes between Coleman and Blossom Hill including an additional left-turn lane from SB Almaden to Coleman and from EB and WB Coleman to Almaden, and a right-turn lane from WB Coleman to NB Almaden; a 4th SB and NB through lane on Almaden at Via Monte; and an additional left-turn (a total of three) from SB Almaden to EB Blossom Hill and an additional SB through lane at Blossom Hill intersection	\$6-8
	Initiate a Caltrans Project Study Report (PSR)/Project Development Study (PDS) to reconfigure SR 85/Almaden interchange	\$0.25
	Provide interim operational improvements at SR 85/Almaden: widen SB Almaden to provide a 5th lane between the Best Buy driveway and SB loop on-ramp serving as auxiliary lane for weaving vehicles; widen SB SR 85 off-ramp to add a third left-turn; provide an additional EB approach lane resulting in two left-turn, one through/right shared, and two right-turn lanes	\$2
Central	Widen between Mary and Lawrence to provide auxiliary and/or acceleration/deceleration lanes to improve ramp operations and safety ⁽³⁾	\$13
	Widen to 6 lanes between Lawrence and San Tomas Expressways without HOV lane operations ^{(4) (5)}	\$10
	Convert the Measure B HOV lane widening between San Tomas and De La Cruz to mixed flow and remove the HOV queue jump lanes at Scott, if unsuccessful after a 3 to 5-year trial period ^{(4) (5)}	\$0.1

Table 3-3: Capacity and Operational Improvement Projects (continued)

Projects for each tier are listed by expressway and proceed from south to north or west to east for each expressway ⁽¹⁾

Expressway	Project Description ⁽²⁾	Cost (millions)
Foothill	Signal operational improvements between Edith and El Monte including adjacent side street intersections and at Grant/St. Joseph ⁽⁶⁾	\$1.5
	Extend existing WB deceleration lane at San Antonio by 250 feet	\$0.5
	Replace Loyola Bridge (This improvement project will also provide necessary bicycle and pedestrian facilities, and channelization and operational improvements at adjacent intersections.)	\$10
Lawrence	Optimize signal coordination along Lawrence-Saratoga Avenue corridor including Lawrence/Prospect, Lawrence/Saratoga, Saratoga/Prospect, and Saratoga/Cox intersections ⁽⁶⁾	\$0.1
	Widen to 8 lanes between Moorpark/Bollinger and south of Calvert with additional WB through lane at Moorpark	\$4
	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 ⁽⁶⁾	\$0.1
	Prepare Caltrans PSR for Tier 1C project at the Lawrence/Calvert/I-280 interchange area	\$0.5
	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
	Convert HOV to mixed-flow lanes between US 101 and Elko due to high violation rates & operational problems ⁽⁵⁾	\$0.1
Montague	Convert HOV lanes on 6-lane facility to mixed-flow use between I-880 and I-680 due to operational and safety problems ⁽⁵⁾	\$0.1
	Baseline project consisting of 8-lane widening and I-880 par-clo interchange with at-grade improvements at Lick Mill, Plumeria/River Oaks, Main/Old Oakland, and McCandless/Trade Zone; designate new lanes between I-880 and I-680 as HOV for a 3 to 5-year trial period	\$38.5

Table 3-3: Capacity and Operational Improvement Projects (continued)

Projects for each tier are listed by expressway and proceed from south to north or west to east for each expressway ⁽¹⁾

Expressway	Project Description ⁽²⁾	Cost (millions)
Oregon-Page Mill	I-280/Page Mill interchange modification: remove SB loop on-ramp and construct SB diagonal on-ramp with signal operations; signalize NB off-ramp intersection; and provide proper channelization for pedestrians and bicycles	\$5
	Alma Bridge Replacement Feasibility Study	\$0.25
	Oregon corridor improvements: <ul style="list-style-type: none"> Replace signal poles and optimize timing plan avoiding impacts on safety at unsignalized intersections ⁽⁶⁾ Construct pedestrian ramps with relocation of traffic signal poles at signalized intersections Study operational changes at the unsignalized intersections at Waverley, Ross, and Indian that avoid increasing traffic impacts on cross and parallel streets, enhance bicycle and pedestrian safety, and maintain vehicle safety Conduct feasibility study of adding turn lane at Middlefield Road and converting to 8-phase signal operation to enhance efficiency and safety without taking right-of-way 	\$5
San Tomas	At grade improvements at SR 17/San Tomas: <ul style="list-style-type: none"> Re-stripe the EB through lane on White Oaks to provide an optional left as 3rd left-turn lane Provide second right-turn lane on SB off-ramp Study potential operational & safety improvements in the interchange area 	\$2
	Provide a 2nd left-turn lane from EB and WB Hamilton to San Tomas and a 2nd left-turn lane from NB San Tomas to WB Hamilton	\$2
	Widen to 8 lanes between Williams and El Camino Real with additional left-turn lane from EB and WB El Camino Real to San Tomas	\$28
	Provide an additional right-turn lane from WB Monroe to NB San Tomas	\$1
Signal Operations/ TOS Capital Projects ⁽⁶⁾	Traffic information outlets such as electronic information signs, advisory radio, cable TV feeds, and a web page	\$5
	Install equipment to coordinate expressway signals with city signals on perpendicular streets	\$10
	Install equipment to connect with Sunnyvale, Palo Alto, Mountain View, and Los Altos traffic signal interconnect systems	\$2.5
	Upgrade traffic signal system to allow automatic traffic count collection	\$0.5
	Total Tier 1A	148.5 -150.5

Table 3-3: Capacity and Operational Improvement Projects (continued)

Projects for each tier are listed by expressway and proceed from south to north or west to east for each expressway ⁽¹⁾

Expressway	Project Description ⁽²⁾	Cost (millions)
TIER 1B PROJECTS		
Capitol	Interchange at Silver Creek ⁽⁷⁾	\$50-60
Lawrence	Interchange at Monroe	\$45
	Interchange at Kifer	\$45
	Interchange at Arques with square loops along Kern and Titan	\$35
Montague	At-grade improvements at Mission College and par-clo interchange at US 101	\$11
	Trimble flyover	\$15
	McCarthy-O'Toole square loop interchange	\$60
	TOTAL TIER 1B	\$261 - 271
TIER 1C PROJECTS		
Almaden	Widen to 6 lanes starting south of Camden to conform with the current 6-lane segment south of Redmond with additional left-turn lane from EB and WB Camden to Almaden	\$5-6
Capitol	Provide a third left-turn lane from SB Senter to EB Capitol	\$4.5
	Provide a third left-turn from SB McLaughlin to EB Capitol ⁽⁷⁾	\$3.5
	Provide a third left-turn lane from NB Aborn to WB Capitol and a second right-turn lane from EB Capitol to SB Aborn ⁽⁷⁾	\$5-6
	Provide a third left-turn shared with through lane from SB Capitol Avenue to SB Capitol Expressway	\$2
Lawrence	Provide additional left-turn lane from EB Saratoga to NB Lawrence	\$2
	Provide additional left-turn lane from EB Prospect to NB Lawrence	\$2
	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 (based on results of Tier 1A PSR)	\$8
	Provide additional EB through lane on Homestead ⁽⁸⁾	\$2
	Provide additional left-turn lane from WB Benton to SB Lawrence	\$2
	Provide a 3rd left-turn lane from EB Oakmead/Duane to NB Lawrence	\$2
San Tomas	Provide additional right-turn lane from WB Scott to NB San Tomas	\$1

Table 3-3: Capacity and Operational Improvement Projects (continued)

Projects for each tier are listed by expressway and proceed from south to north or west to east for each expressway⁽¹⁾

Expressway	Project Description ⁽²⁾	Cost (Millions)
Signal Operations/ TOS Capital Projects ⁽⁶⁾	Adaptive traffic signal system for selected or all expressways based upon further feasibility study	\$10-12
	Total Tier 1C	\$49 - 53
TIER 2 PROJECTS		
Almaden	Widen to 6 lanes from Almaden Road to south of Camden ⁽⁹⁾	\$10
Central	Interchange at Rengstorff ⁽¹⁰⁾	\$60
	Depress Central at light rail crossing near Whisman	\$35
	At-grade improvements or interchange at Mary ⁽¹¹⁾	\$4-50
	Interchange at Bowers	\$45
Lawrence	Signalize the Wildwood Ave. intersection including opening the median, realigning Wildwood Ave., and re-timing signals between US 101 and Elko	\$4
	Interchange at Tasman ⁽¹²⁾	\$45
Montague	Interchange at Mission College	\$55
	Interchange at Great Mall/Capitol ⁽¹³⁾	\$42
Oregon-Page Mill	Provide a separate right-turn lane from WB Oregon to El Camino Real and lengthen left-turn lane from WB Oregon to El Camino Real ⁽¹⁴⁾	N.A.
San Tomas	Interchange at Stevens Creek	\$50-70
	Interchange at El Camino Real	\$60
	Interchange at Monroe	\$55
	Interchange at Scott	\$65
Signal Operations/ TOS Capital Projects ⁽⁶⁾	New technology/Intelligent Transportation System (ITS) updates over the next 30 years	\$55-75
	Total Tier 2	\$585 - 671

Table 3-3: Capacity and Operational Improvement Projects (continued)

Projects for each tier are listed by expressway and proceed from south to north or west to east for each expressway ⁽¹⁾

Expressway	Project Description ⁽²⁾	Cost (millions)
TIER 3 PROJECTS		
Almaden	Modify the SR 85/Almaden interchange to a par-clo type with loops in the NE and SE quadrants based on results of Tier 1A PSR/PDS	\$20
Lawrence	Initiate a feasibility study to provide direct access between Lawrence, I-280, and Stevens Creek, and HOV direct connectors at this interchange area	\$1
	Reconstruct the interchange to provide direct access ramps between Lawrence, I-280, and Stevens Creek, and HOV direct connectors	\$250-300
Montague	I-680 interchange modification	\$20
Oregon-Page Mill	Add a second SB right-turn lane from Junipero Serra to Page Mill; extend the SB right-turn lane half way to Stanford intersection. Maintain through bike lane, no free right-turn lane, avoid inadvertently inducing traffic shift onto Stanford Avenue ⁽¹⁵⁾	\$2-4
	Alma Bridge reconstruction based on results of Tier 1A feasibility study	\$100
San Tomas	Initiate a study to reconfigure SR 17/San Tomas Interchange	\$0.25
	Reconstruct SR 17/San Tomas Interchange	\$100-200
HOV Direct Connectors	Freeway/expressway direct connector HOV ramps at five locations: Capitol/US 101, Montague/I-880, Lawrence/US 101, Montague/San Tomas/US 101, and San Tomas/I-280	\$100-150
	Total Tier 3	\$593.25 – 795.25
OTHER PROJECTS		
Capitol	Any potential roadway improvements for the Nieman to Story segment of Capitol Expressway will be determined through coordination with VTA's light rail project and San Jose's policies. The light rail project Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to the Federal Transit Administration (FTA) will be released in late 2003.	TBD
South County	Actual improvements and costs to be determined by a separate South County Circulation Study to be conducted by VTA	TBD
	Grand Total	\$1,636.75 – 1,940.75

Table 3-3: Capacity and Operational Improvement Projects (continued)

Notes:

- (1) Expressway direction:
 - Almaden = south-north
 - Capitol = west-east from SR 87 to Aborn & south-north from Aborn to I-680
 - Central = west-east
 - Foothill = west-east
 - Lawrence = south-north
 - Montague = west-east
 - Oregon-Page Mill = west-east
 - San Tomas = south-north
- (2) When funding is obtained, each project will undergo design, environmental review, and community outreach as appropriate. Project description will be changed as needed based on the results of these activities.
- (3) May also include a turning lane improvement at Central/Mary; need for this improvement will be determined during project design.
- (4) The existing LOS F intersections between Lawrence Expressway and De La Cruz will be mitigated if the widening is operated as mixed-flow. If the new lanes between San Tomas and De La Cruz remain designated as HOV after the trial period and the widening between Lawrence and San Tomas is operated as HOV lanes, then interchanges will be required at 2 of the LOS F intersections (Bowers and Lafayette) and will need to be placed in Tier 1B.
- (5) Please see the HOV System Element for more information about these projects.
- (6) Please see the Signals/TOS Element for more information about these projects.
- (7) Actual improvements and cost estimates for the McLaughlin to Aborn segment of Capitol Expressway will be identified through VTA's US 101 Central Corridor Study to be completed by the end of 2003 or early 2004. Projects for McLaughlin, Silver Creek, and Aborn are listed here as placeholders.
- (8) 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.
- (9) Implementation of an extension of Almaden Expressway to Bailey Avenue and additional improvements for the existing Almaden Expressway will be determined by City of San Jose land use decisions.
- (10) The City of Mountain View is pursuing options for grade separating the Caltrain railroad tracks from Rengstorff Avenue. If this project is built, the signalized intersection at Central and Rengstorff may degrade to LOS F, in which case the Central/Rengstorff interchange project will move into Tier 1B.
- (11) Local and regional LOS standards are not projected to be violated at the Central/Mary intersection within the timeframe of the plan.
- (12) Local and regional LOS standards are not projected to be violated at the Lawrence/Tasman intersection within the timeframe of the plan.
- (13) If the new HOV lanes between I-880 and I-680 remain designated as HOV after the trial period, the Great Mall/Capitol interchange may need to be moved into Tier 1B.
- (14) Palo Alto may conduct further studies and minor operational improvements for the Oregon-Page Mill/El Camino Real intersection, as specified in the City's Comprehensive Plan.
- (15) Although this is an existing LOS F intersection, Palo Alto would like to wait on improvements until the benefits of the Sand Hill Road improvements and programs to encourage alternate modes of transportation on the LOS at this location can be evaluated. Should a future evaluation indicate improvements are still needed, the project could be moved into Tier 1 with Palo Alto's concurrence.

Project Completion Timing

The projects in each tier also tend to have similar implementation challenges and project delivery schedules. Listed below are the estimated delivery time for each project once funds become available for that project:

Tier 1A – Most of the projects in this tier can be completed in 3-4 years (including time for environmental review, community outreach, design, right-of-way acquisition, utility relocation, and construction). A couple projects may stretch to 6 years due to structures involved and coordination with other agencies. Projects where right-of-way is available (i.e., no right-of-way impact or acquisition) and complex utility relocation is not needed can be completed within 2 years. The feasibility studies will take 1 to 2 years to complete.

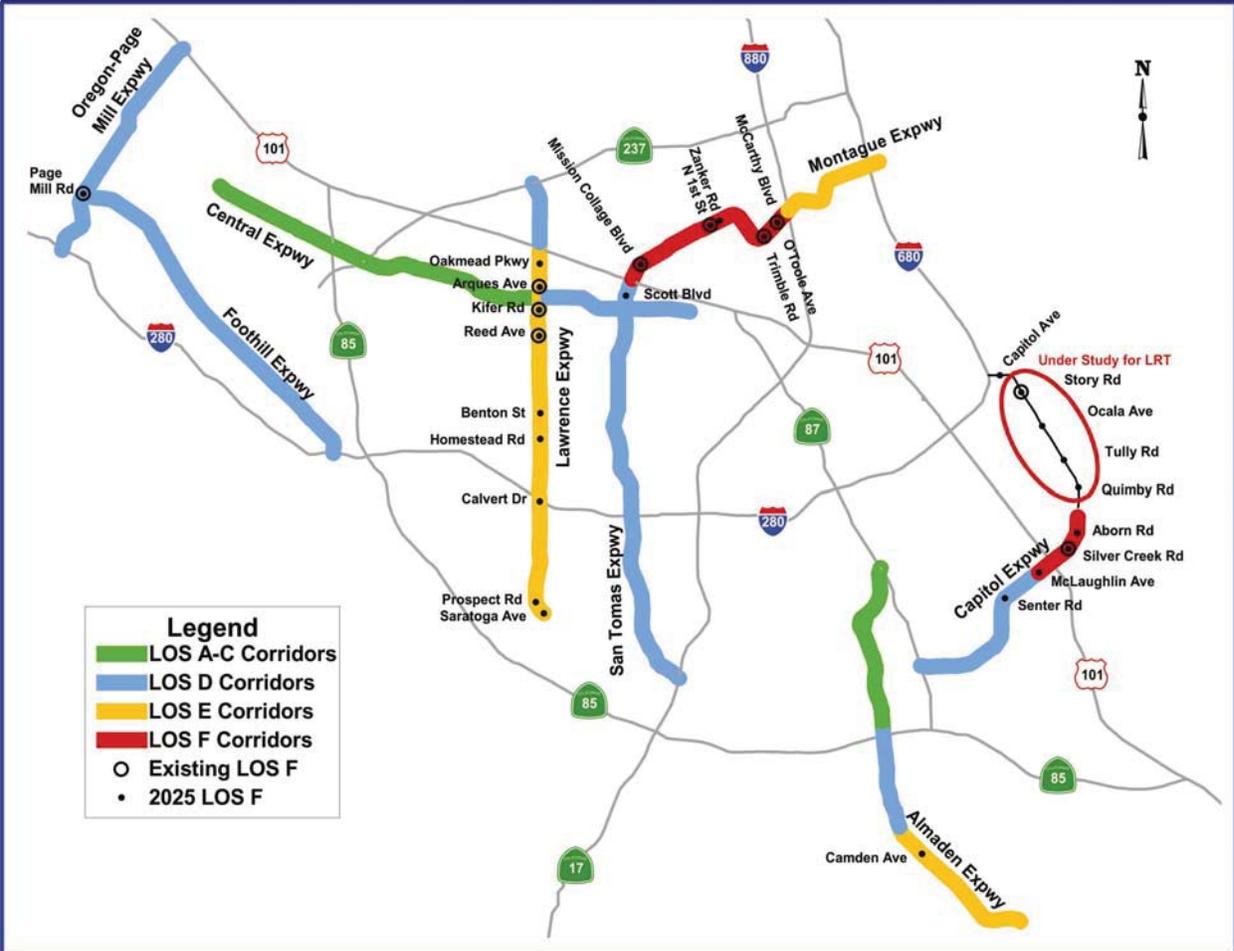
Tier 1B – These projects can typically be completed within 6-8 years. The 6-8 year implementation timeframe anticipates 2 years for environmental clearance and preliminary engineering, 1-2 years for final design, 1-2 years for right-of-way acquisition and utility relocation, and 2 years for construction. The only exception is the Montague/Mission College/101 par-clo interchange project, which will have a similar project schedule as Tier 3 projects (8-10 years) because of Caltrans involvement.

Tier 1C – The at-grade improvement projects in Tier 1C will have a similar implementation timeframe as the Tier 1A projects (1-4 years depending on right-of-way and utility impacts). The grade separation/interchange projects will have schedules similar to the Tier 1B projects (6-8 years).

Tier 2 – Most of these projects are grade separation/interchange projects that will have a similar implementation schedule as Tier 1B projects (6-8 years).

Tier 3 – Tier 3 projects will require significant right-of-way acquisitions and a relatively long project development process that will take 8-10 years to complete. All of these projects, except Alma Bridge reconstruction, involve Caltrans review and approval. The 8-10 year timeframe anticipates 3-4 years for Caltrans Project Study Report (PSR), Project Report (PR) and environmental document, 2 years for final design, 1-2 years for right-of-way acquisition and utility relocation, and 2 years for construction. The Alma Bridge reconstruction will

Figure 3-3: Corridor Level of Service for Tier 1A



involve coordination with the public utility commission (PUC) and Peninsula Corridor Joint Powers Board (JPB) due to the Caltrain tracks. This will affect delivery timing similar to a Caltrans project.

Tier 1A Effectiveness

The 28 Tier 1A projects address the top priorities for each expressway and improve most of the current LOS and operational problem areas for a total cost of \$150 million. These low-cost improvements can be delivered relatively quickly once funds are secured. Figure 3-3 illustrates the LOS effectiveness of the Tier 1A package of projects.

Compared with the “No Project” map in Figure 3-2, significant improvement is seen with Tier 1A:

- ❖ 18 of the existing 30 LOS F intersections and 24 of the 50 projected 2025 LOS F intersections are mitigated.
- ❖ Almaden between Camden Avenue and SR 85 is improved from a corridor LOS E to LOS D.
- ❖ Central east of Lawrence is improved from a corridor LOS F to LOS D.
- ❖ Montague east of I-880 is improved from corridor LOS F to E.
- ❖ San Tomas is improved from corridor LOS E to D.

Implementation Strategies

The following implementation strategies are recommended for the capacity/operational projects:

- ❖ The Tier 1A projects should be funded with existing resources without breaking up the package of improvements. However, not all 28 projects in Tier 1A can be worked on concurrently and the funding will likely not be available all at once. A project delivery schedule will need to be developed once roadway funds become available.
- ❖ The project lists and tier assignments should be revised regularly by the County. Project description/definition, cost, and tier assignments are based on conditions known today. They are also based on the limited design work that is completed in a long-range planning study. As funding becomes available for project development, the project description and cost estimates will be further defined and may require some changes. In addition, it is likely that new land use and transportation system decisions will affect the 2025 traffic projections that were used as the basis for planning in the Expressway Study and will require changes in the project list and tier assignments.
- ❖ When funding is obtained, each capacity improvement project will undergo design, environmental review, and community outreach as appropriate. Operational improvement projects (such as median closures, HOV conversions) will also have

appropriate traffic analysis, community outreach, and environmental review before implementation.

- ❖ All capacity improvement projects will incorporate pedestrian, bicycle, transit support (e.g., bus stops), and sound wall needs into the design and construction of the project. The costs for these improvements are included in the project's cost estimate. Landscaping improvements may also be included where provisions have been made for ongoing maintenance costs.

Recommended actions relating to funding sources are included in Section 10, Funding Strategies.