CITY OF MILPITAS

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DRAFT

January 20, 2009

The Honorable Donald F. Gage, Chairperson
Santa Clara County Board of Supervisors
70 West Hedding Street
San Jose, CA 95110

Comprehensive County Expressway Planning Study 2008 Update

Dear Chairperson Gage,

The Comprehensive County Expressway Planning Study 2008 Update was reviewed and endorsed at the Milpitas City Council meeting on January 20, 2009. The Update provides a good report on the accomplishments from the 2003 Study as well as revising the region's long-term plan to improve the County's Expressways. Milpitas appreciates the recognition of Montague Expressway's capacity and operational improvement project between Interstates 680 and 880 as well as identifying the pedestrian needs for sidewalk gap infill and bicycle safety.

The City of Milpitas looks forward to our continued partnership with the County to implement the projects within the 2008 Update.

If you have any questions, or require any more assistance, please contact me at (408) 586-3027.

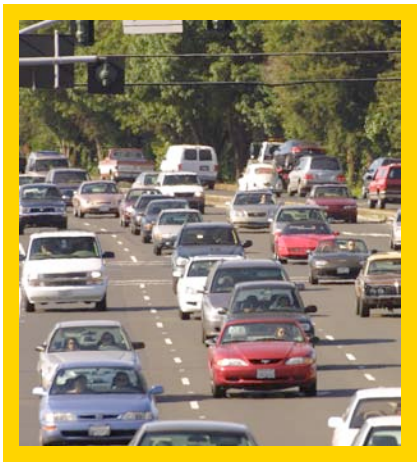
Sincerely,

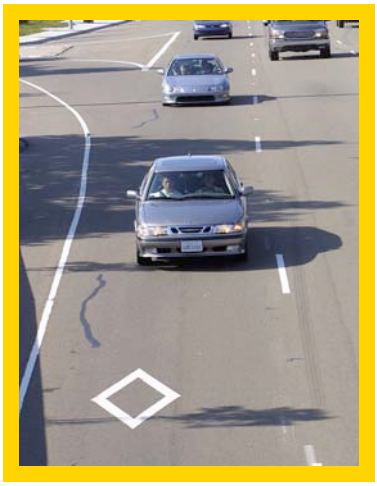
Robert Livengood
Mayor

cc: Milpitas City Council

Comprehensive County Expressway Planning Study

DRAFT 2008 UPDATE





COUNTY OF SANTA CLARA
ROADS AND AIRPORTS DEPARTMENT

OCTOBER 9, 2008

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Comprehensive County Expressway Planning Study

Draft 2008 Update

County of Santa Clara

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October 9, 2008

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EXECUTIVE SUMMARY

Adopted in 2003, the Comprehensive County Expressway Planning Study provides a long-term plan for the improvement and maintenance of the County Expressway System. It includes all areas of need: capacity and operational improvements, signal operations, high-occupancy vehicle (HOV) lanes, bicycle and pedestrian improvements, and finishing elements such as landscaping and sound walls. It also includes a summary of ongoing operating and maintenance needs and funding strategy recommendations.

The 2008 Update is the first update of the 2003 Expressway Study. While it is primarily an administrative update to reflect new conditions, it also tackled some key issues unresolved in the 2003 Study. These issues included developing an expenditure plan for the highest priority expressway capacity and operational improvements, integrating South County's Santa Teresa-Hale Corridor's needs into the project lists, and developing a plan to more completely accommodate pedestrians on all expressways.

The same collaborative planning process used to develop the 2003 Expressway Study was used for the 2008 Update. Elected officials and staff from twelve cities and the Santa Clara Valley Transportation Authority (VTA), representatives from the County Roads Commission, and the County Bicycle and Pedestrian Advisory Committee (BPAC) participated in the development of the Update. Public comments will be solicited during the circulation of the Draft Update document.

Accomplishments Since 2003

The benefits of having the 2003 Expressway Study have been substantial and systemwide. The Study has brought a greater understanding of the value provided by the expressway system as part of the transportation system in Santa Clara County. It has also increased awareness of what is needed to keep the expressway system functioning well, thereby, helping the County take advantage of every possible opportunity. The highest priority expressway capacity and operational improvements (Tier 1A) became the Expressway Program in the VTA Valley Transportation Plan 2030 (VTP 2030), laying the groundwork for grant allocations and federal earmarks. In addition, the comprehensive list of expressway needs has been a resource for cities in conditioning developers to provide improvements.

Specific project delivery accomplishments include:

- **Capacity and Operational Improvements** – Twelve of the 28 highest priority expressway capacity and operational improvements (Tier 1A at-grade projects) have been completed or funded by various grants, County funding sources, and city contributions through developer mitigations. In addition, six of the seven next highest set of priority projects (Tier 1B grade separation projects) have full or partial funding commitments from city development impact fees.
- **Bicycle Improvements** – Nine of the eleven projects listed in the 2003 Study have been delivered or funded. These improvements involved widening shoulders at pinch points and improving delineation of shoulder areas for bicycle use.
- **Pedestrian Improvements** – Some progress has also been made in providing pedestrian improvements as identified in the 2003 Pedestrian Element including constructing new sidewalk segments along five of the expressways, providing crossing enhancements at several high demand locations, and installing pedestrian countdown timers at 39 intersections.

Little or no progress has been made in providing new and higher replacement sound walls or installing new landscaping due to a lack of funding sources. In addition, no progress has been made to increase levels of effort for expressway operations and maintenance. Rather, the annual operations and maintenance shortfalls were exacerbated by the declining value of the gas tax and the year-by-year uncertainty whether the State would borrow roadway maintenance funds, making it a challenge to sustain current levels of effort.

Capacity and Operational Improvement Element

As in the 2003 Study, the 2008 Update capacity and operational improvements include the following types of projects:

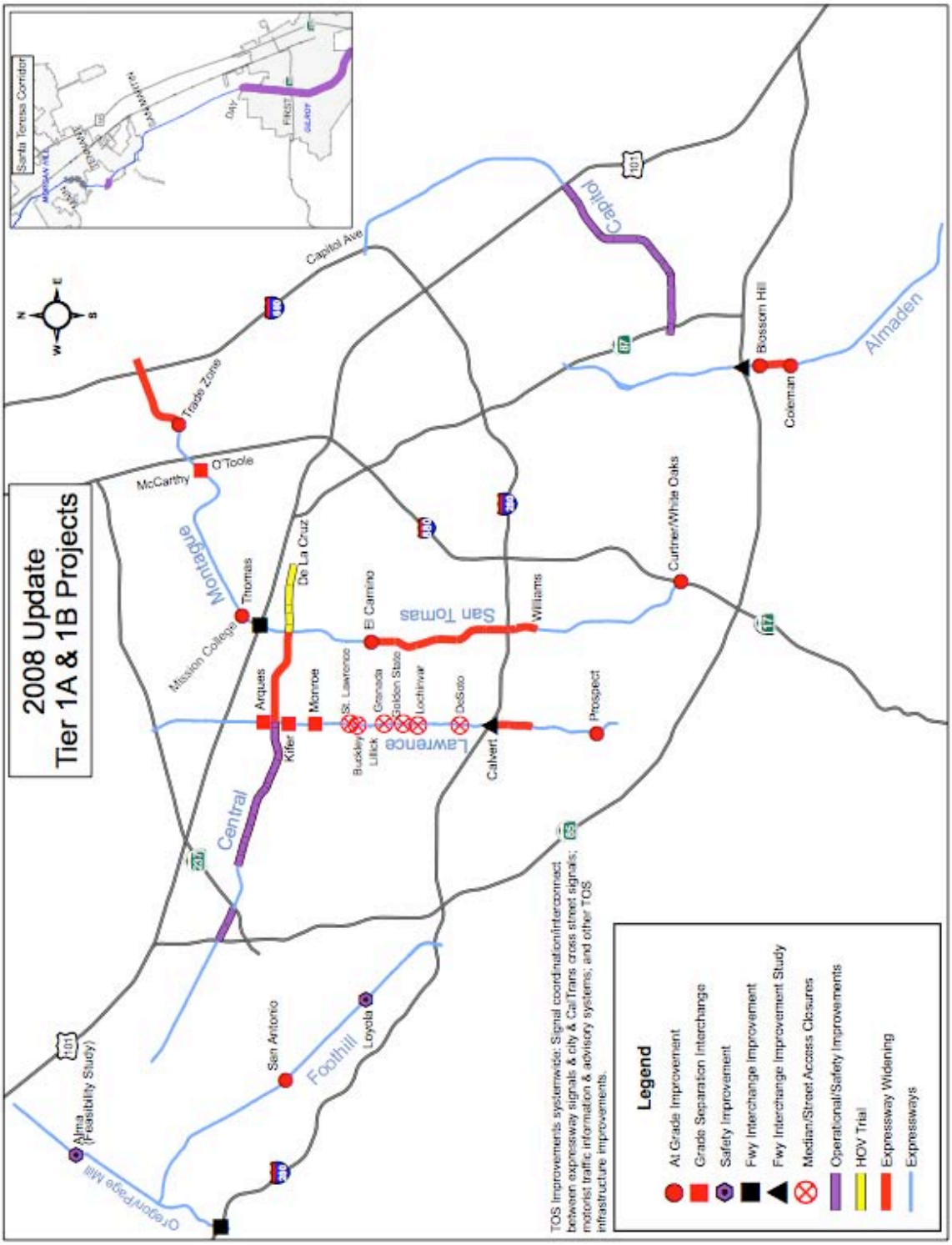
- Capacity Projects – Roadway widening, new turning lanes at intersections, and new or reconfigured interchanges/grade separations.
- Operational and Safety Improvements – Auxiliary lanes, median/access closures, and bridge replacements.
- Signal Operational Improvements – Traffic Operations System (TOS) equipment using advanced technologies to monitor and improve traffic flow, replacement of outdated equipment, and expanded coordination with city signal systems.
- High Occupancy Vehicle (HOV) System Projects – Recommendations to improve the effectiveness of the HOV system, including corrective actions dealing with high violation rates and removing a little-used peak-hour queue jump lane on Central Expressway.

The total roadway capital program includes 74 projects at an estimated cost of $2.2 to 2.6 billion. To determine priorities for funding and implementation, the projects were divided into tiers using slightly modified criteria from the 2003 Study. Table ES-1 provides a summary of the tiers and Figure ES-1 maps the highest priority projects (Tier 1A and 1B).

Table ES-1: Roadway Projects Tier Summary

Tier	Tier Criteria	# of Projects	Cost (2008 $/millions)
1A	Improves 2001 and 2006/07 LOS F intersections, provides operational improvements, or conducts feasibility studies	25	$166
1B	Constructs interchanges at 2001 LOS F intersections	5	$253
1C	Improves 2025 projected LOS F intersections	20	$76
2	Provides other expressway capacity improvements or new technologies	15	$875-930
3	Reconstructs major existing facilities or constructs new facilities	9	$861-1,126
	Totals	**74**	**$2,231-2,551**

Figure ES-1: 2008 Tier 1A and 1B Projects



Bicycle Element

Bicycles are accommodated on all expressways and along the Santa Teresa-Hale Corridor. The 2003 Bicycle Element focused on bringing all expressways into compliance with the Expressway Bicycle Accommodation Guidelines. No changes in policy or approach are made in the 2008 Bicycle Element. A total of six projects are shown in the Bicycle Element. Included are projects from the 2003 Bicycle Element that have not been completed, a systemwide bicycle signal detection improvement project, and an improvement for the Santa Teresa-Hale Corridor.

Pedestrian Element

In line with the County's belief that the safest way to accommodate pedestrian use of expressways is on improved sidewalks behind the curb or on parallel routes off the expressway, the 2008 Update has taken a far more proactive pedestrian route planning approach than the 2003 Study. The goal of the 2008 Update was to identify continuous routes, either in the right-of-way or along alternate parallel routes, providing for pedestrian travel along both sides of the expressways wherever possible. The 2008 Update Pedestrian Element completely replaces the 2003 Expressway Study Pedestrian Element, including all policies, project lists, and recommendations.

The net results of this proactive approach for pedestrian route planning are recommendations for 38 miles of new sidewalks, a comprehensive signage program to help guide pedestrians along parallel routes, and a recommendation that all expressway intersections should include design considerations for pedestrian crossing enhancements whenever opportunities arise for these improvements.

Finishing Element

The Finishing Program Element involves improvements to expressway medians and edges. These improvements include sound wall, landscaping, and street lighting. The 2008 Update carries forward the 2003 Study recommendations for 63,500 feet of new sound walls and replacing 36,000 feet of existing walls with higher sound walls. In addition, the basic level of landscaping recommended continues to be trees and limited shrubs, median finishes (such as decomposed granite), sound walls covered with ivy, and automated irrigation systems. Due to a lack of adequate annual funding for landscape maintenance, the Update also continues to support the County's policy to only allow installation of new landscaping if full recovery of capital and maintenance costs can occur.

New to the Finishing Element for the 2008 Update is the consideration of pedestrian scale lighting to support the ambitious pedestrian access plans. Because the utility and maintenance costs of street lighting are high and beyond the means of the expressway system's operating budget, the Update includes a policy similar to the landscaping policy, where installation of pedestrian scale street lighting along the expressways is only allowed if full recovery of capital and maintenance costs can occur.

Annual Operations and Maintenance Costs

Operations and maintenance (O&M) include all activities and material necessary to keep the expressways functioning safely and effectively while looking presentable. It includes signal operations, sweeping, pavement maintenance, landscape maintenance, enforcement, and aging infrastructure replacement. As part of the 2003 Study, target levels of effort were developed. The 2003 Study also indicated that the annual costs for these target levels of effort exceeded existing available revenues.

Since the 2003 Study, the annual O&M costs for the target levels of effort have grown 51% (from $18 million to $27.2 million) due to increased labor and material costs as well as an expanded Traffic Operations System that must be maintained. With an annual cost estimate of $27.2 million in 2008 dollars and only $10.8 million expected to be available for expressway O&M in 2009, there will be an annual shortfall of $16.4 million to achieve the target levels of effort. This shortfall is expected to grow as real gas tax revenue declines.

Funding Strategy

With approximately $2.5 billion in capital needs (see Table ES-2) and an annual $16.4 million shortfall for operations and maintenance, some innovative and aggressive strategies are needed. In reviewing all known and potential capital funding sources, the net result through 2035 is likely to be:

- All Tier 1A projects and half of the Tier 1B projects will be funded over the next 25 years. In addition, most of the bicycle needs and some of the pedestrian needs will be funded.
- The following needs will not be funded: the remainder of the Tier 1B projects; the roadway projects in Tiers 1C, 2, and 3; most of the pedestrian needs; and the sound walls and landscaping needs listed in the Finishing Program.

Table ES-2: Capital Program Funding Needs [1]

Element	Total Cost	Committed Funds [2]	Potential Funding [3]	Net Needs
Capacity & Operational Improvements	$2,244-2,564	$106.3		$2,138-2,458
Bicycle	16.5		10.9	5.6
Pedestrian	76.3-84.3		23.3	53-61
Finishing: Sound Walls	76.6		13.7	62.9
Finishing: Landscaping	24-29			24-29
			Total	$2,284-2,617 million

[1] All costs are in millions of 2008 dollars.

[2] Committed sources include grants (Federal earmarks, VTA Bicycle Expenditure Program, other sources) and city commitments, including development impact fees.

[3] Other potential funding sources include funded, Tier 1A, and Tier 1B roadway projects (project costs include appropriate bicycle, pedestrian, and sound wall needs) and land development conditions.

[4] Includes San Tomas Expressway Culvert project.

It will be a challenge to maintain the current O&M levels of effort, and it will not be possible to expand the levels of effort to reach any of the targets without an increase in sustainable revenue sources. O&M efforts necessary to maintain the safety of the expressway system will continue to be the highest priority for the limited funding. However, the forecast is that pavement conditions will decline, the County will be less responsive to signal timing requests, there will be less sweeping and more weeds/litter, and most other non-critical maintenance will be deferred.

The County will continue to take the following actions: pursue all possible grants and partnerships for expressway improvement and O&M needs; work with the cities to acquire traffic mitigation fees and new development conditions to support the expressway system; and, support all state efforts to index the gas tax to inflation and to increase the gas tax to help fund the O&M needs of the expressway system. However, these actions are not likely to be enough to deliver all the high priority capital needs or increase O&M levels of effort.

Acquiring new revenue sources for both capital and O&M needs is very difficult in the current economic environment. However, some opportunities do exist and the following strategies are recommended to the meet the needs identified in the 2008 Update:

- Request full funding for the Tier 1A Capacity and Operational Improvements in VTP 2035 with Tier 1B projects also listed should additional funding become available.
- Seek $52 million from the 2010 STIP for the first set of Tier 1A projects with follow up requests of $25 million and $12 million from the 2012 and 2014 STIPs, respectively, to fund a little over half of the Tier 1A projects by 2015.
- Seek funding from VTP 2030's Pavement Maintenance Program to cover the next round of expressway pavement maintenance needs to come due between 2010 and 2012 at a cost of approximately $12-15 million annually.
- Advocate for a commitment from future High Occupancy Toll (HOT) lane revenue to help improve and maintain sections of expressways and Santa Teresa-Hale if determined to be within HOT lane corridors.
- Explore, through State liaison, opportunities for opening a State maintenance revenue stream for expressways.
- Support initiatives for vehicle registration fees or vehicle miles traveled fees to help fund expressway and local road improvement and maintenance needs.
- Advocate that MTC institute a return-to-source policy for its 10-cent gas tax authority giving the cities and County local control to meet high priority O&M needs, or continue to pursue new local funding sources for expressway O&M needs, taking advantage of partnerships with other local agencies facing annual deficits in road O&M budgets and pursue a 10-cent gas tax as a local initiative.

Next Update

The County will update the Expressway Study every four years in conjunction with the regular updates of VTA's VTP plans to reflect changing traffic and financial conditions. Special tasks recommended for the 2012 Update include conducting new traffic modeling to project future conditions, evaluating the HOV performance targets, updating the sound wall needs list, and assessing where pedestrian crossing improvements are needed at expressway intersections. Similar to the 2003 Study and 2008 Update, a collaborative process involving elected officials, local agency staff, and the public will be used to develop the 2012 Update.

SECTION ONE
INTRODUCTION

Launched in 2001, the Comprehensive County Expressway Planning Study provides a long-term plan for the improvement and maintenance of the County Expressway System. The Study took two years to complete and culminated in the development of an *Implementation Plan*, which was adopted by County Board of Supervisors in 2003. The Expressway Study provides a basis for and guides the investment of money and resources in the expressways. It includes all areas of need: capacity and operational improvements, signal operations, high-occupancy vehicle (HOV) lanes, bicycle and pedestrian improvements, and finishing elements such as landscaping and sound walls. It also includes a summary of ongoing operating and maintenance needs.

An extensive collaborative planning process was used during the study to ensure the local cities and their residents would support the 2003 Expressway Study. Study progress and direction was monitored by a Policy Advisory Board (PAB) consisting of city elected officials, County Supervisors, and County Roads Commission members. A Technical Working Group (TWG), consisting of city and other agency staff, provided review and input to both study staff and the PAB. Community outreach activities included telephone surveys, various neighborhood and business community meetings, and a project open house.

The benefits of the 2003 Expressway Study have been substantial and systemwide. The highest priority expressway capacity and operational improvements became the Expressway Program in the Santa Clara Valley Transportation Authority (VTA) Valley Transportation Plan 2030 (VTP 2030). From VTP 2030, these projects were then incorporated into the Metropolitan Transportation Commission (MTC) regional transportation plan (Transportation 2030), laying the groundwork for

grant allocations and federal earmarks. The bicycle element projects have received grant funds through VTA's Bicycle Expenditure Plan (BEP). The expressway operations and maintenance element helped develop support for grant funds for pavement maintenance and signal synchronization. The comprehensive list of all expressway needs have also provided a reference for conditioning development impact mitigations through the city planning process.

One of the key next steps identified in the 2003 Expressway Study is to update the plan regularly in conjunction with the updates of VTA's VTP plans to reflect changing traffic and financial conditions.

Purpose of 2008 Update

In November 2007, the County of Santa Clara began the development of the first update to the 2003 Expressway Study. Taking approximately one year to complete, this 2008 Update is mostly an administrative update. It reflects new conditions, provides input related to expressways for VTA's VTP 2035 and MTC's Transportation 2035, and addresses issues requiring resolution. These issues include:

- Developing an expenditure plan for the Tier 1A list of capacity and operational projects.
- Incorporating any expressway-related recommendations from the South County Circulation Study.
- Continuing to monitor HOV performance.
- Developing a plan to more completely accommodate pedestrians on all expressways.

As an administrative update, no new major technical work (e.g., traffic modeling) was undertaken. The Update document itself is a supplement to, not a replacement of, the 2003 Expressway Study. It updates project lists and costs; however, except for specific areas noted otherwise in this document, the basic information, expressway vision statements, and County policies from the 2003 Plan remain unchanged.

Process

The same collaborative planning process used for the 2003 Expressway Study was used for the 2008 Update.

- A Policy Advisory Board (PAB) consisting of elected officials from the County Board of Supervisors, cities with expressway mileage, South County cities, and VTA Board of Directors, along with County Roads Commission members, provided policy input. The PAB met three times during the Update process.
- A Technical Working Group (TWG) consisting of staff from the cities with expressway mileage, South County cities and VTA met regularly to provide ongoing technical input. Caltrans and MTC representatives were also kept informed as the study progressed. The TWG met six times during the Update process.
- The County Bicycle and Pedestrian Advisory Committee (BPAC) reviewed and commented on the 2008 Update. The draft bicycle and pedestrian elements, as well as the entire 2008 Update document, was brought to the BPAC at three of their regularly scheduled meetings.

As part of the approval process for the 2008 Update document, the Draft 2008 Update will be presented to city councils for review and comment from October through December 2008. Public comments will be solicited through stakeholder interviews and inviting public comments at a Roads Commission meeting in January 2009. The Board of Supervisors is expected to adopt the Final Expressway Study 2008 Update document by February 2009.

Document Organization

This document is organized by element as was done in the 2003 document. Listed below are the document sections with a brief content description:

- Section 2: Capacity and Operational Improvement Element – Provides a list of accomplishments for expressway capacity and operational improvements since the 2003 Study, followed by a description of the Santa Teresa/Hale Corridor for South County and a high occupancy vehicle (HOV) lane monitoring report with recommendations for improving HOV lane performance. The next part provides current level of service (LOS) information and revised tier criteria resulting in the updated project list and cost estimates for the capacity and operational improvement tiers. The section ends with a brief discussion of implementation requirements and strategies.
- Section 3: Bicycle Element – Provides a list of accomplishments for expressway bicycle improvements since the 2003 Study and an updated project list.
- Section 4: Pedestrian Element – Provides a list of accomplishments for expressway pedestrian improvements and an overview of the pedestrian route plans for each expressway developed as part of the 2008 Update. A new project list, with cost estimates, is provided

consistent with the route plans. Implementation strategies for the pedestrian improvements are also discussed.

- Section 5: Finishing Element – Provides a current status of sound wall and landscaping improvements and updated cost estimates. Also includes a policy for adding pedestrian scale lighting to the expressways.
- Section 6: Operations and Maintenance Element – Provides a current status and an overview of new challenges for expressway operations and maintenance. Updated cost estimates for achieving the target levels of effort for operations and maintenance are also provided.
- Section 7: Funding Strategy – Provides an overview of current funding sources for both one-time capital improvements and ongoing operations and maintenance. Discusses strategies for closing the shortfalls and setting priorities for the limited funding. Provides an expenditure plan for the Tier 1A Capacity and Operational Improvement projects.
- Section 8: Future Updates – Provides a list of issues to address in the next update of the Expressway Study.

SECTION TWO

CAPACITY AND OPERATIONAL IMPROVEMENT ELEMENT

The 2003 Expressway Study listed 72 capacity and operational improvements totaling nearly $2 billion (2003 dollars). It included the following types of projects:

- Capacity Projects – Roadway widening, new turning lanes at intersections, and new or reconfigured interchanges/grade separations.
- Operational and Safety Improvements – Auxiliary lanes, median/access closures, and bridge replacements.
- Signal Operational Improvements – Traffic Operations System (TOS) equipment using advanced technologies to monitor and improve traffic flow, replacement of outdated equipment, and expanded coordination with city signal systems.
- HOV System Projects – Recommendations to improve effectiveness of HOV system, including adding one new HOV lane, removing HOV lanes experiencing operational problems, and adding expressway-freeway HOV direct connector ramps.

To determine priorities for funding and implementation, the roadway projects were divided into tiers using specific criteria. The two top ranked tiers were as follows:

- Tier 1A – Relatively low-cost operational/at-grade improvements for areas with existing problems, including 2001 LOS F intersections. There were 28 Tier 1A projects for a cost of $150

million (2003 dollars). These projects were included in VTP 2030 under the Expressway Program as eligible for state/federal funding.

- Tier 1B – Grade separation/interchange projects to mitigate existing LOS F intersections. There were seven Tier 1B projects for a cost of $260-270 million (2003 dollars). These projects were included in VTP 2030 without funding allocations.

2003 Capacity and Operational Improvement Element Progress Report

Since adoption of the 2003 Expressway Study, opportunities for funding expressway improvements have been limited. There has been no funding available in the STIP (state and federal funds) for these improvements. Work completed or underway has been due to the 1996 Measure B sales tax program, federal earmarks, city contributions through developer mitigations, and County Roads & Airport Department staff completing the work in-house or folding it into another grant funded project. These projects were chosen in response to funding opportunities, project viability, and local interests, rather than through a specific priority order.

Table 1 provides the status of each Tier 1A and 1B project. Figure 1 illustrates the 2003 Tier 1A and 1B projects which have been completed, are in progress, or are fully funded. When looking at overall program implementation status, it can be seen that most of the Tier 1A projects completed were generally the low-cost, easy implementation projects, and the high cost Tier 1B projects have received some relatively significant funding commitments.

- While 42% of the Tier 1A projects have been started or have funding identified, they represent only 26% of the total Tier 1A project costs.
- Tier 1B projects were not included in the funded portion of VTP 2030. However, six of the seven Tier 1B interchange projects have full or partial funding commitments, all due to city development impact fees.

2008 Update Approach

To update the Capacity and Operational Improvement Element, the following tasks were performed:

- The South County Circulation Study recommended list of improvements were reviewed and a determination was made about how to resolve the question of geographic equity related to South County and the Expressway Program.

Table 1: 2003 Tier 1A and 1B Project Status

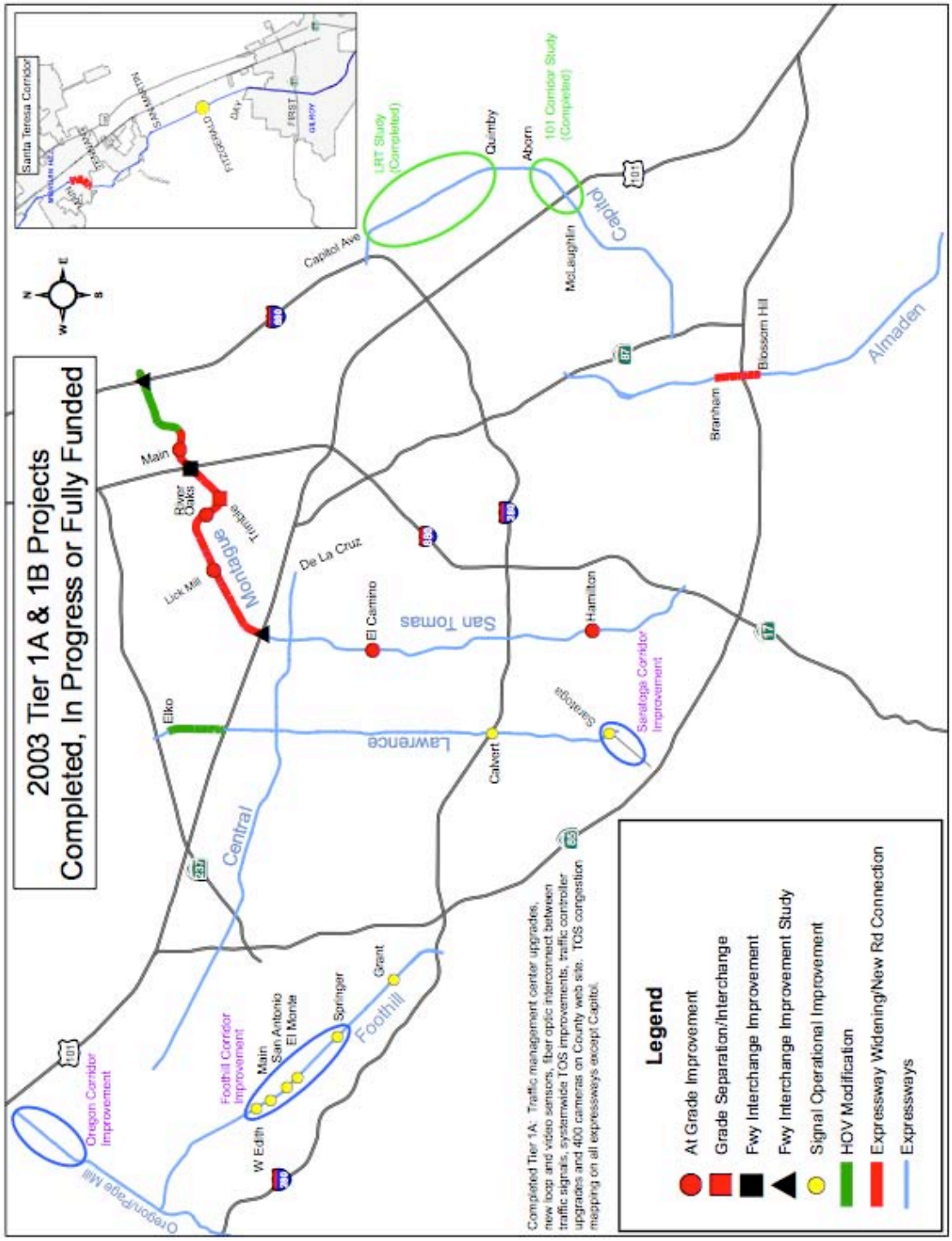
Expressway	Project	Status
2003 Tier 1A List		
Almaden	Widen to 8 lanes between Coleman and Blossom Hill	Unfunded
	Prepare SR 85 interchange Project Study Report	Unfunded
	Widening and operational improvements between Branham and Blossom Hill through SR 85 interchange	Funded/ In Progress
Central	Add auxiliary lanes between Mary and Lawrence	Unfunded
	Widen to 6 lanes between Lawrence and San Tomas	Unfunded
	Convert HOV lane between San Tomas and De La Cruz if unsuccessful after trial	HOV Trial
Foothill	Signal operational improvements	Completed
	Extend deceleration lane at San Antonio	Unfunded
	Replace Loyola Bridge and make circulation improvements	Unfunded
Lawrence	Signal coordination along Lawrence/Saratoga Avenue corridor to SR 85	Completed
	Widen to 8 lanes between Bollinger and Calvert	Unfunded
	Signal operational improvements at I-280/Lawrence interchange and Stevens Creek	Completed
	Prepare Lawrence/Calvert/I-280 interchange Project Study Report	Unfunded
	Close median at Lochinvar and right-in-and-out access at 5 locations	Unfunded
	Convert HOV lane north of US 101 to mixed flow due to operational and safety problems	Completed
Montague	Convert HOV lane on 6-lane portion between I-880 and I-680 to mixed flow due to operational and safety problems	Completed
	Widen to 8 lanes from Mission College to Park Victoria, including various intersection at-grade improvements and I-880 and I-680 interchange work	Partially completed; partially funded

Table 1: 2003 Tier 1A and 1B Project Status (continued)

Expressway	Project	Status
Oregon-Page Mill	Construct I-280/Page Mill interchange modification	Unfunded
	Prepare Alma Bridge replacement feasibility study	Unfunded
	Oregon corridor operational and pedestrian improvements	Funded/ In Progress
San Tomas	At-grade improvements at SR 17/San Tomas	Unfunded
	Additional left turn lanes at Hamilton intersection	Funded/ In Progress
	Widen to 8 lanes between Williams and El Camino Real	Unfunded
	Additional right turn lane at Monroe	Unfunded
Signal Operations/TOS Capital Improvements	Systemwide improvements divided into 4 types of projects including motorist traffic information, automatic traffic count collection, and two signal interconnection/coordination with cross streets projects	Partially funded/ partially completed
2003 Tier 1B List		
Capitol	Interchange at Silver Creek	Unfunded
Lawrence	Interchange at Monroe	Partially funded [1]
	Interchange at Kifer	Partially funded [1]
	Interchange at Arques	Partially funded [1]
Montague	At-grade improvements at Mission College and par-clo interchange at US 101	Partially funded/PSR in progress
	Trimble Flyover	Funded
	McCarthy-O-Toole square loop interchange	Partially funded

[1] The City of Sunnyvale has committed to fund thirty percent (30%) of the cost of the three Lawrence Expressway interchange projects through development traffic mitigation fees. The funding may be split among the three interchanges or used to completely fund one of the interchanges.

Figure 1: 2003 Tier 1A and 1B Projects Completed, In Progress, or Fully Funded



- The performance of the current expressway HOV lanes was evaluated based on the five performance measures defined in the 2003 Expressway Study. HOV-related recommendations were adjusted based on the performance analysis.
- Current level of service (LOS) data was analyzed and the results used to determine changes to the Tier 1A project list.
- All unfunded and under-funded projects were reviewed to confirm need for the projects and revise project descriptions and cost estimates as needed. This included the Signal Operations/TOS and HOV System capital projects.

South County Corridor

The Cities of Gilroy and Morgan Hill participated in the 2003 Expressway Study to help resolve plans for an expressway or continuous arterial in South County and determine how to incorporate South County's needs into the Expressway Study. A subcommittee of the Policy Advisory Board (PAB) composed of San Jose, Morgan Hill, Gilroy, and County elected officials determined that a South County "local corridor" was needed to facilitate travel between Gilroy and Morgan Hill. It did not necessarily need to be called an "expressway" or fall under single-jurisdiction ownership, but it did need consistent standards and an identifiable alignment. It was also recommended that a regional transportation plan (i.e., a "South County Circulation Study") be prepared for the South County area. The 2003 Expressway Study committed to consider the results of the South County Circulation Study (SCCS) in the next update of the Expressway Study.

VTA, working with the Cities of Gilroy, Morgan Hill, and San Jose, the County of Santa Clara, and Caltrans, completed the SCCS in early 2008. The Study identified over $1.1 billion in local roadway improvements and over $2.0 billion in freeway improvements for the South County area. The SCCS recommended improving three north-south arterials (Santa Teresa Blvd/Hale Avenue, Monterey Road, and Center/Marcella/Hill/Peet) to serve travel demand between Gilroy and Morgan Hill.

As part of the 2008 Update process, it was agreed to include the Santa Teresa Blvd-Hale Avenue Corridor in the Expressway Study due to its history as a former planned expressway. The original plan for the County expressway system, dating back to the late 1950s, included an expressway from South San Jose to Gilroy following the Santa Teresa Boulevard/Hale Avenue alignment. The County improved significant mileage as a two-lane roadway and, along some portions in city jurisdiction, entered into expressway maintenance agreements with the cities for the operation of the boulevard. Since that time, and as San Jose, Morgan Hill, and Gilroy have grown and developed, much of the

alignment has been relinquished or annexed into the cities, and those cities have built and/or widened sections of the arterial to four lanes.

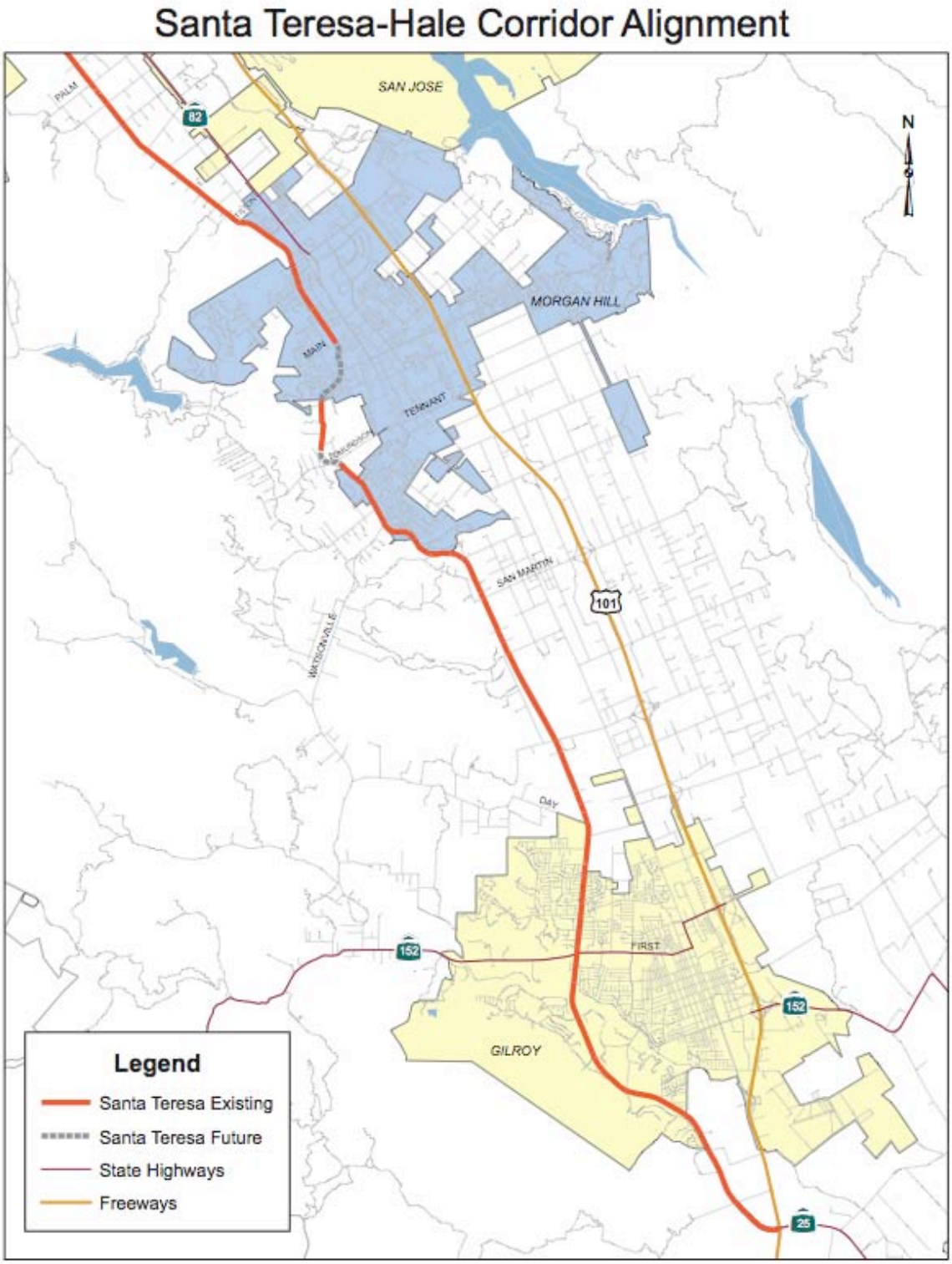
The Santa Teresa Blvd/Hale Avenue north-south corridor extends for approximately 19 miles from Palm Avenue at the southern border of San Jose's Coyote Valley project north of Morgan Hill to the US 101/SR 25 interchange in southern Gilroy. Figure 2 provides a map of the corridor. The current roadway varies from two to four lanes and is discontinuous, with the alignment incorporating DeWitt Avenue and Sunnyside Avenue south of Morgan Hill.

The long-term plan as defined in the SCCS is for a continuous four-lane arterial. The SCCS identified approximately $260 million worth of capacity and operational improvements to achieve the four-lane arterial concept. An additional $7.5 million in current safety and operational project needs were also identified. These improvements are included in the Capacity and Operational Improvement Element project list. The County will fulfill its obligation to the former expressway plan by helping to plan this north-south arterial while continuing to transfer operation to the cities. While the County will help seek funding for the capital improvements, the cities will be the lead agency for delivering the capacity and operational projects within their jurisdictions. As has already taken place in Gilroy, it is anticipated that a significant portion of the financing will come from development mitigations/ fees.

HOV System Evaluation and Recommendations

The 2003 Expressway Study took a comprehensive look at the expressway HOV system, including the performance of existing HOV lanes and potential expansion of the HOV system. Five of the eight expressways have HOV lanes: Capitol, Central, Lawrence, Montague, and San Tomas. The hours of operation and occupancy requirements of expressway HOV lanes are similar to the freeway HOV lanes. As of 2007, clean air vehicles (i.e., certain hybrids and alternate fuel vehicles) with the freeway HOV lane access stickers are allowed in the expressway HOV lanes. Unlike freeway HOV lanes, expressway HOV lanes operate in the right lane next to the shoulder. Lack of access control (i.e., driveways) and/or certain intersection/ramp configurations along some expressway segments can create operational difficulties for expressway HOV lanes.

Figure 2


Santa Teresa-Hale Corridor Alignment
SAN JOSE
MORGAN HILL
SAN MARTIN
GILROY
N
Legend
Santa Teresa Existing
Santa Teresa Future
State Highways
Freeways

Performance Measures

To evaluate the expressway HOV lanes, five performance measures were developed. These performance measures were based on similar measures used by Caltrans and MTC to evaluate freeway HOV lanes, but were modified to take into account that expressway HOV lanes are operated in right-hand lanes and have a lower capacity than freeway HOV lanes. The performance measures are:

1. Total vehicles per peak hour – minimum of 400 (freeway is 800)
2. Total persons per peak hour – minimum of 880 (freeway is 1,800)
3. Lane productivity (ratio of people in HOV lane to a single mixed-flow lane) – Minimum of 0.8 (freeway has no standard, but most operate at 2.0 to 3.0)
4. Violation rates – no higher than 15% (freeway is 10%)
5. Travel time savings compared to mixed flow lanes – at least 0 seconds per mile (freeway is 1 minute per mile)

2003 Study Findings and Recommendations

- Lawrence Expressway's HOV lane north of US 101 to SR 237 was performing poorly and had excessively high violation rates. This was due to operational problems created by the early merging of single-occupant vehicles into the lane to prepare for entry onto SR 237. It was recommended that this section be converted to mixed-flow since there were no feasible alternatives to correct the operational problems.
- Montague Expressway's HOV lane performance was marginal to under performing. Lack of access control (i.e., many driveways between intersections) between I-680 and I-880 creates operational problems. It was recommended that the HOV lane between I-680 and I-880 be converted to mixed-flow on the current 6-lane expressway due to operational problems and poor performance. When the 8-lane widening is completed, the new lanes would be designated as HOV on a trial basis for 3 to 5 years to see if the operational problems are reduced and overall performance improves.
- In 2003, Central Expressway had two HOV queue jump lanes: at Scott Blvd and at Bowers Avenue. These queue jump lanes were performing very poorly even though the Central Expressway/Bowers Avenue intersection was operating at LOS F. Part of the likely explanation

for this is that Central Expressway closely parallels US 101 which has a competing and long distance HOV lane. A Measure B project in progress was adding an HOV lane from De La Cruz to San Tomas Expressway, encompassing the Scott Blvd queue jump lane. It was recommended that the new HOV lane operate on a trial basis for 3 to 5 years to see if it can perform successfully. It was also recommended to consider removing the Bowers Avenue queue jump lane if performance does not improve at this location.

- No new expressway HOV lanes or lane extensions were recommended due to either relatively low levels of traffic congestion, other community priorities for right-of-way, operational problems from lack of access control, or competing parallel freeway HOV lanes. The study did, however, identify 6 locations that would benefit from direct connections between the expressway HOV lane (right lane) and freeway HOV lane (left lane).

HOV Lane Actions Since 2003 Study

- The Central Expressway HOV lane from De La Cruz to San Tomas Expressway has been completed and is in operation.
- The Lawrence Expressway HOV lane north of US 101 was converted to mixed use as recommended in the 2003 Study.
- The HOV lane on the 6-lane segments of Montague Expressway between I-680 and I-880 has been converted to mixed use as part of a pavement resurfacing project. The HOV lane will be added back on a trial basis as part of the 8-lane widening project.

2007 Performance of Expressway HOV Lanes

Table 2 indicates the current performance of the existing HOV lanes using the performance measures developed during the 2003 Study. The purpose of the performance measures was to identify through relative comparisons under-performing HOV lanes so that appropriate corrective action could be taken. Minor variations are not considered significant, and the validity of the performance criteria is a subject for future investigation and research. For example, results showing HOV lane productivity near a value of 1.0, but the number of HOV vehicles and persons well below performance measure targets, suggest those performance measure targets are set too high.

Table 2: HOV Lane Performance

Express-way	Cross Street	Peak Hr & Direction	Viola-tion Rate	Persons/ HOV Lane	Produc-tivity Ratio	HOV Veh Peak Hr	Com-mute Direction	Sec. Saved/ Mile
Capitol	Story	AM-NB	26%	378	0.81	200	AM NB/EB	-7
		PM-SB	27%	487	0.89	260	PM SB/WB	-2
Central	Bowers	AM-WB	30%	189	0.31	103	AM/WB	50
		AM-EB	39%	130	0.22	75		
		PM-WB	21%	156	0.34	80		
		PB-EB	19%	199	0.30	101	PM/EB	-15
	Lafayette	AM-WB	44%	169	0.25	101		
		PM-EB	34%	535	0.66	299		
Lawrence	Monroe	AM-NB	26%	742	0.90	393	AM/NB	17
		PM-SB	27%	878	1.02	468	PM/SB	7
Montague	De La Cruz	AM-WB	36%	453	0.97	256	AM/WB	47
		PM-EB	32%	324	0.59	179	PM/EB	-29
San Tomas	Monroe	AM-NB	24%	690	0.96	361	AM/NB	35
		PM-SB	25%	710	1.22	373	PM/SB	0

Notes:
Shading indicates where performance exceeds performance measure standards.
Intersection counts were conducted by the County in the Fall of 2007 or January 2008.
The "Seconds Saved per Mile" represents the average over the entire length of each HOV lane.

Key findings are as follows:

- All of the expressway HOV lanes have very high violation rates even allowing for inaccurate counts. (Note: The counting methodology is not technologically sophisticated. With limited time and sightlines, contractors stand by the side of the roadway and look for occupants in the vehicle.) Increased enforcement is needed to reduce violations.
- Capitol Expressway no longer has the best performing HOV lane. It meets the productivity ratio measure, but falls far short on all the others. Decreased traffic volume on Capitol Expressway may explain the lower performance. In addition, the high violation rates may be contributing to the poor performance. No corrective action is recommended. It is likely performance will

improve as traffic congestion returns to 2001 levels. In addition, most of the Capitol Expressway HOV lane will be eliminated when the planned LRT project is built.

- Central Expressway's new HOV lane from De La Cruz to San Tomas Expressway (flowing through Lafayette Street) is doing relatively poorly for the persons, vehicles, and productively ratios. The travel time savings is mixed – it saves nearly 1 minute per mile in the westbound direction (AM peak) compared to the mixed flow lanes, but loses 15 seconds per mile in the eastbound direction (PM peak). It is recommended that the trial period continue until at least 2010.
- Central Expressway's HOV queue jump lane at Bowers is the worst performing HOV lane and has not improved in performance since the 2003 Study. It is recommended that it be converted to mixed use to improve operations in the short term, and eliminate the need to grade separate the Central/Bowers intersection in the longer term.
- Lawrence Expressway currently has the best performing HOV lane. It meets all performance measures (except the violation rate) in one direction and is very close to meeting all of them in the other direction. No corrective action is required.
- Montague Expressway's HOV lane through the De La Cruz intersection (between I-880 and US 101) meets the productivity ratio for westbound travel but falls far short on vehicle and persons performance measures. Travel time savings in the westbound direction (AM peak) is excellent, but there is a significant travel time loss in the eastbound direction (PM peak). Performance may improve when the 8-lane widening is completed for the entire expressway, if HOV continuity can be maintained crossing I-880 and a feasible design solution can be identified for merging and weaving conflicts.
- San Tomas Expressway's HOV Lane meets the productivity ratio in both directions, has good travel time savings, and is very close to meeting the performance measures for persons and vehicles. No corrective action is recommended. It is likely performance will improve as traffic congestion returns to 2001 levels.

HOV Update Recommendations

- Work with CHP to increase enforcement and lower violation rates.
- Convert the Central Expressway Bowers HOV queue jump lane to mixed use. This queue jump lane has a 12-year history of poor performance. Conversion could help improve LOS and avert a future need to grade separate the Central/Bowers intersection. VTA does not have any buses using the queue jump lane.

- Continue the trial period for the Central Expressway HOV Lane from De La Cruz to San Tomas Expressway until at least 2010.
- Continue the regular monitoring program for the expressway HOV lanes using the five performance measures. If not performing to standards, take appropriate corrective action to improve performance whenever feasible (e.g., increasing enforcement to reduce violation rates; finding ways to encourage carpool use; removing an operational problem). Converting an HOV lane to a mixed-used lane is a last resort measure for under-performing lanes in areas with LOS problems where no feasible corrective action exists and policymakers approve the conversion.
- Evaluate the targets for the HOV lane performance measures and determine whether adjustments are needed during the next Expressway Study Update.
- Continue with the other HOV Element recommendations included in the 2003 Study, such as supporting freeway-expressway HOV direct connector ramps and working with Caltrans to continue expressway HOV lanes through freeway interchange areas.

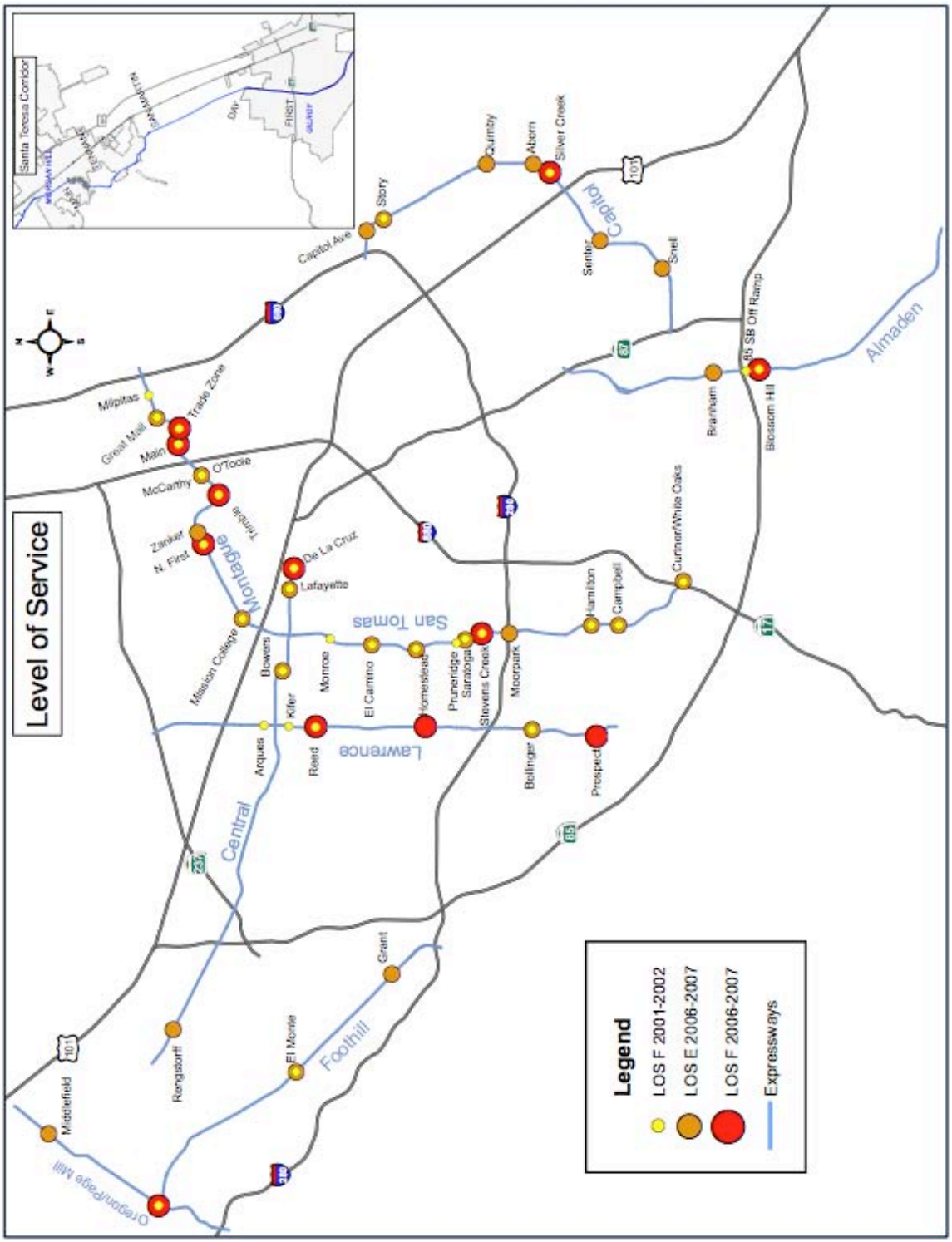
Expressway Level of Service Performance

Level of service (LOS) measures the interrelationship between travel demand (volume) and supply (capacity) of the transportation system. LOS is categorized into six levels, A through F, with A representing ideal conditions or no congestion and LOS F representing very poor conditions or significantly congested flow. Roadways at LOS F are considered deficient and do not meet Congestion Management Program (CMP) standards. Figure 3 shows which intersections were performing at LOS F in 2001 (the 2003 Study data year) and which were performing at LOS E and F in 2006/2007 (the 2008 Update data years).

Key findings in changes in LOS performance between 2001 and 2006/2007 are as follows:

- In 2001, there were 30 LOS F intersections along the expressway system. In 2006/2007, there were 12 LOS F intersections. The improved conditions are due to the following factors:
  - The dot-com crash occurred just after the 2001 LOS was developed. The loss of jobs in Santa Clara County led to lighter traffic demand throughout the County.
  - Completion of Measure B expressway improvements as well as other expressway improvements provided capacity improvements at some LOS F locations.

Figure 3: Intersection Level of Service



- Completion of some freeway and local arterial projects may have contributed to improved expressway traffic flow as expressway users chose parallel facilities.
- 2005 expressway system signal retiming allowed all the expressways to flow more smoothly, improving LOS.

- Of the 18 2001 LOS F locations that are no longer at LOS F, 14 are currently at LOS E. Most of these locations have received no capacity improvements and are currently LOS E due to reduced traffic demand.
- Traffic demand is returning to 2001 levels as the economy grows. From 2001 to 2004, expressway traffic volume decreased by 6%. Between 2004 and 2007, two-thirds of the decrease was gained back – in 2007, volumes were only 2% less than 2001 levels.

Santa Teresa/Hale Corridor LOS

Current and projected future LOS information for the Santa Teresa/Hale Corridor was taken from VTA's 2008 South County Circulation Study. According to the SCCS, the corridor is currently operating at LOS D south of SR 152 in Gilroy and LOS C or better north of SR 152 through County unincorporated and Morgan Hill areas. There are currently no existing LOS E or F intersections along the alignment. Conditions are due to change, however, by 2030. The Santa Teresa/Hale corridor LOS is projected to degrade to E south of SR 152 in Gilroy and north of Main Avenue in Morgan Hill. Six intersections are projected to degrade to LOS F along the corridor by 2030.

Project Tiers

In the 2003 Expressway Study, the roadway projects were divided into tiers using specific criteria to determine priorities for funding and implementation. During the 2008 Update, the tier criteria was reviewed and revised slightly to account for changes in conditions. Table 3 lists the criteria used for assigning projects to tiers.

Table 4 provides a summary of the number of projects and total costs per tier. Table 5 provides the list of capacity/operational improvement projects divided into the tiers. Figure 4 illustrates the 2008 Update Tier 1A and 1B projects. Appendix A details the changes in the tier project lists between the 2003 Study and the 2008 Update including why a project was modified, moved, or deleted.

Table 3: 2008 Update Criteria for Tier Assignment

Tier	Criteria
Tier 1A	❖ At-grade improvements to mitigate 2006/2007 level of service (LOS) F intersections or 2001 LOS F intersections that are currently LOS E ❖ Operational improvements to eliminate weaving, merging/diverging, and queuing problems, thus improving safety conditions ❖ Signal operational 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
Tier 1B	❖ Grade separation/interchange projects to mitigate 2001 LOS F intersections
Tier 1C	❖ Improvements (both at-grade and grade separation/interchange projects) needed to mitigate the projected 2025 LOS F intersections ❖ Longer term signal operational improvements
Tier 2	❖ 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
Tier 3	❖ Major existing facility reconstruction and new facilities such as HOV direct connectors.

Table 4: Summary of Tier Results

Tier	# of Projects	Cost (2008 $/millions)
1A	25	$166
1B	5	$253
1C	20	$76
2	15	$875-930
3	9	$861-1,126
Totals	**74**	**$2,231-2,551**

Table 5: Capacity and Operational Improvement Projects

Expressway	Project Description	Cost (2008 $/millions)
Funded Projects (for future implementation)		
Montague	Widen to 8 lanes between Lick Mill and Trade Zone (funded by San Jose)	N.A.
	Construct Trimble Flyover Ramp (funded by San Jose)	N.A.
Tier 1A List		
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	10.5
	Initiate a Caltrans Project Study Report (PSR)/Project Development Study (PDS) to reconfigure SR 85/Almaden interchange	0.4
Capitol	Add TOS infrastructure (fiber-optic trunkline, CCTV, Ethernet-capable controller, battery back-up system, system detector loops) from US 101 to Almaden Expressway	3.5
Central	Install median curbs where missing and enhance existing median curbs as needed between SR 85 and SR 237 to improve safety and operations.	0.8
	Widen between Mary and Lawrence to provide auxiliary and/or acceleration/deceleration lanes to improve ramp operations and safety (may also include a turning lane improvement at Central/Mary)	17.0
	Widen to 6 lanes between Lawrence and San Tomas Expressways without HOV lane operations	13.6
	Convert HOV queue jump lane at Bowers to mixed flow based on 10 years of poor performance and LOS problems	0.1
	Convert the Measure B HOV lane widening between San Tomas and De La Cruz to mixed flow if unsuccessful after a 3 to 5-year trial period	0.1

Table 5: Capacity and Operational Improvement Projects (continued)

Expressway	Project Description	Cost (2008 $/millions)
Foothill	Extend existing WB deceleration lane at San Antonio by 250 feet	0.7
	Widen Loyola Bridge (This improvement project will also provide necessary bicycle and pedestrian facilities, and channelization and operational improvements at adjacent intersections.)	7.0
Lawrence	Provide additional left-turn lane from EB Prospect to NB Lawrence	2.6
	Widen to 8 lanes between Moorpark/Bollinger and south of Calvert with additional WB through lane at Moorpark	5.2
	Prepare Caltrans PSR for Tier 1C project at the Lawrence/Calvert/I-280 interchange area	1.0
	Close median at Lochinvar and right-in-and-out access at DeSoto, Golden State, Granada, Lillick, Buckley, and St. Lawrence/Lawrence Station on-ramp	1.5
Montague	At-grade improvements at Mission College intersection	4.0
	Widen to 8 lanes from Trade Zone to Park Victoria, including Phase I of I-680 interchange improvements (fill in deck over I-680 to add through lanes); designate new lanes between I-880 and I-680 as HOV for a 3 to 5-year trial period.	20.0
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	6.6
	Alma Bridge Replacement Feasibility Study	0.3
San Tomas	At grade improvements at SR 17/San Tomas: ❖ 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 and safety improvements in the interchange area	2.6
	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	40.7

Table 5: Capacity and Operational Improvement Projects (continued)

Expressway	Project Description	Cost (2008 $/millions)
Santa Teresa-Hale Corridor	Realign DeWitt S-Curve between Origilia Lane and Spring Avenue to improve operations and safety	2.5
	Add TOS infrastructure (fiber-optic trunkline, CCTV, Ethernet-capable controller, battery back-up system, system detector loops) on Santa Teresa Blvd from US 101 in Gilroy to Buena Vista	5.0
System Signal Operations/ TOS Capital Projects	Signal Coordination/Interconnect between Expressway Signals & City/Caltrans Signals on Cross Streets	5.0
	Santa Clara County Motorist Traffic Information & Advisory Systems (Electronic Changeable Message Signs, Advisory Radio, Web page)	5.0
	Santa Clara County Traffic Operations System Infrastructure Improvements: ❖ Automated traffic count collection system ❖ Wireless controller communication system ❖ Signal & video monitoring infrastructure upgrades ❖ Wireless vehicular detection system	10.0
	Tier 1A Total	**165.7**
Tier 1B List		
Lawrence	Interchange at Monroe	59.0
	Interchange at Kifer	59.0
	Square Loop Interchange at Arques	45.0
Montague	Par-clo interchange at US 101	12.0
	McCarthy-O'Toole square loop interchange	78.0
	Tier 1B Total	**253.0**
Tier 1C List		
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	7.2

Table 5: Capacity and Operational Improvement Projects (continued)

Expressway	Project Description	Cost (2008 $/millions)
Capitol	Provide a third left-turn lane from SB Senter to EB Capitol	5.9
	Improvements between McLaughlin and Aborn as identified by US 101 Central Corridor Study including intersection modifications, left-turn lanes, carpool lane adjustments, and striping modifications	4.6
	Provide a third left-turn lane from NB Aborn to WB Capitol and a second right-turn lane from EB Capitol to SB Aborn	7.2
	Provide a third left-turn shared with through lane from SB Capitol Avenue to SB Capitol Expressway	2.6
Lawrence	Provide additional left-turn lane from EB Saratoga to NB Lawrence	2.6
	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)	10.5
	Provide additional EB through lane on Homestead [1]	2.6
	Provide additional left-turn lane from WB Benton to SB Lawrence	2.6
	Provide a third left-turn lane from EB Oakmead/Duane to NB Lawrence	2.6
San Tomas	Provide additional right-turn lane from WB Scott to NB San Tomas	1.3
	Provide an additional right-turn lane form WB Monroe to NB San Tomas	1.3
Santa Teresa-Hale Corridor	Signalize Santa Teresa Blvd and Miller Avenue intersection	0.6
	Signalize Santa Teresa Blvd and Day Road southern intersection	0.6
	Signalize Santa Teresa Blvd and San Martin Avenue intersection	0.6
	Signalize Santa Teresa Blvd and Watsonville Road intersection and add eastbound left turn lane	1.0

Table 5: Capacity and Operational Improvement Projects (continued)

Expressway	Project Description	Cost (2008 $/millions)
Santa Teresa-Hale Corridor (continued)	Signalize Santa Teresa Blvd/Hale Avenue and West Main Avenue intersection	0.6
	Signalize Santa Teresa Blvd/Hale Avenue and Tilton Avenue intersection and add northbound right turn lane	1.0
	DeWitt/Sunnyside Avenue 2-lane roadway realignment at Edmundson Avenue	6.6
System Signal Operations/ TOS Capital Projects	Adaptive traffic signal system for selected or all expressways based upon further study	14.4
	Tier 1C Total	**76.4**
Tier 2 List		
Almaden	Widen to 6 lanes from Almaden Road to south of Camden [2]	15
Central	Depress the Rengstorff/Central intersection in conjunction with the adjacent Rengstorff/Caltrain railroad tracks grade separation project	50
	Depress Central at light rail crossing near Whisman	45
	Interchange at Bowers [3]	60
Lawrence	Signalize the Wildwood Avenue intersection including opening the median, realigning Wildwood Avenue, and re-timing signals between US 101 and Elko	5
Montague	Interchange at Mission College	70
	Interchange at Great Mall/Capitol [4]	55
San Tomas	Interchange at Stevens Creek	65-90
	Interchange at El Camino Real	80
	Interchange at Monroe	70
	Interchange at Scott	85

Table 5: Capacity and Operational Improvement Projects (continued)

Expressway	Project Description	Cost (2008 $/millions)
Santa Teresa-Hale Corridor	Hale Avenue/Sunnyside Avenue 2-lane connection from Edmundson Avenue to W. Main Avenue (may use portions of DeWitt Avenue)	23
	Widen Santa Teresa Blvd/Hale Avenue to 4 lanes from Day Road to Palm Avenue (may be constructed in segments)	120
	Widen Santa Teresa Blvd/Hale Avenue to 4 lanes from US 101/SR 25 interchange to SR 152/First Street	62
System Signal Operations/ TOS Capital Projects	New technology/Intelligent Transportation System (ITS) updates over the next 30 years	70-100
	Tier 2 Total	**875-930**
Tier 3 List		
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	25
Lawrence	Reconstruct the interchange to provide direct access ramps between Lawrence, I-280, and Stevens Creek, and HOV direct connector ramps. Costs include for a feasibility study/PSR/PDS for this project (estimated at $1.5 million)	330-395
Montague	Phase 2 of I-680 interchange modification	18
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 [5]	5
	Alma Bridge reconstruction based on results of Tier 1A feasibility study	130
	Reconfigure US 101/Oregon Expressway/Embarcadero Road interchange to resolve operational problems due to ramp queues backing up on Oregon Expressway. Costs include a feasibility study/PSR/PDS for this project (estimated at $0.5 million)	50

Table 5: Capacity and Operational Improvement Projects (continued)

Expressway	Project Description	Cost (2008 $/millions)
San Tomas	Reconstruct SR 17/San Tomas Interchange. Costs include for a feasibility study/PSR/PDS for this project (estimated at $0.5 million)	130-260
Santa Teresa-Hale Corridor	Santa Teresa Blvd extension from Castro Valley Road to US 101/SR25 interchange and complete interchange	43
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	130-200
	Tier 3 Total	861-1,126

Notes:

[1] An additional EB through lane 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.

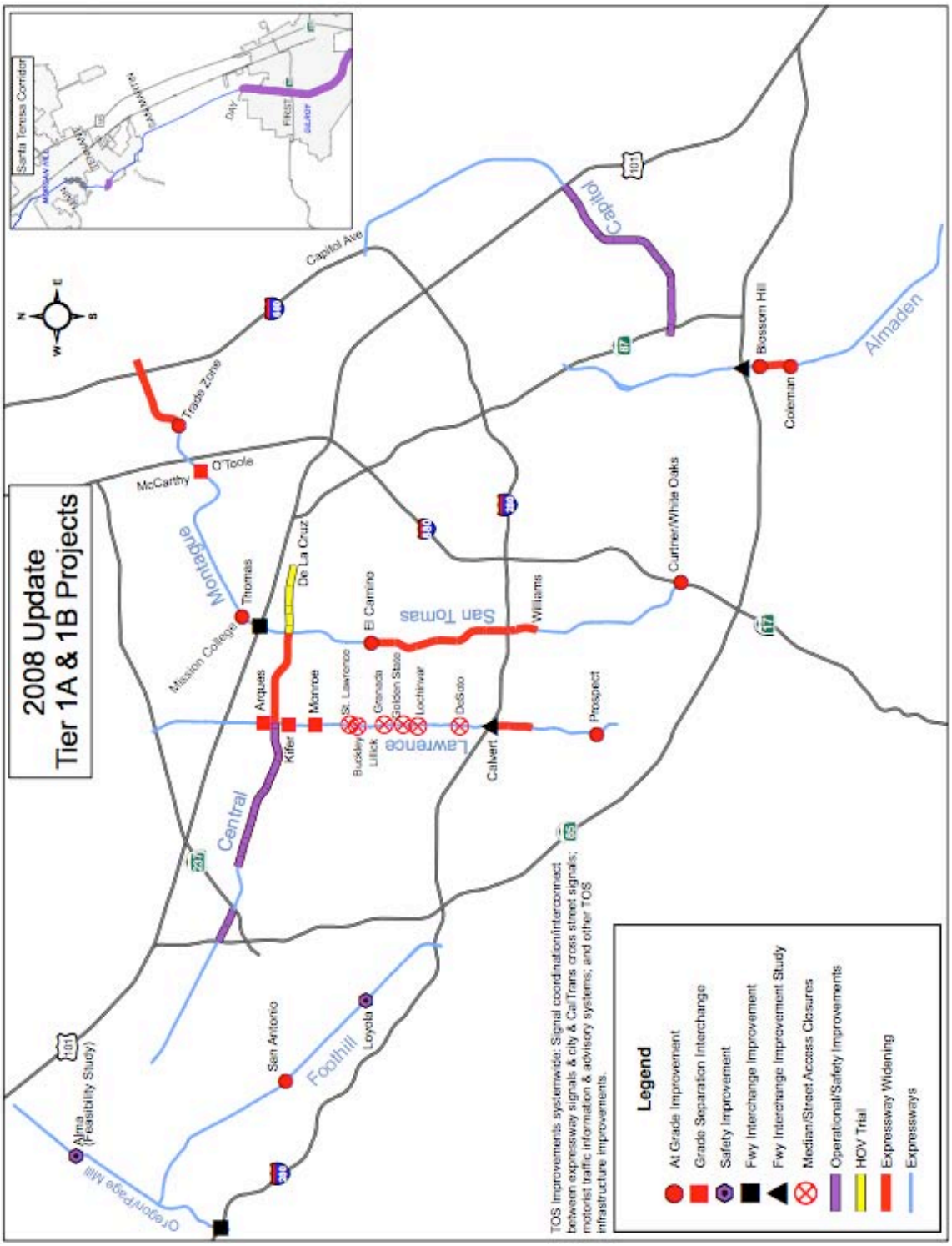
[2] Implementation of an extension of Almaden Expressway to Bailey Avenue and additional improvements for the existing Almaden Expressway will be determined by City of San Jose land use decisions.

[3] The 2003 Expressway Study determined that 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, interchanges will be required at Bowers and Lafayette to remove LOS F conditions.

[4] 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.

[5] 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 can be evaluated. Should a future evaluation indicate LOS improvements are still needed, the project could be moved into Tier 1 with Palo Alto's concurrence.

Figure 4: 2008 Tier 1A and 1B Projects



Implementation Requirements and Strategies

As capacity and operational improvement projects receive funding and move forward into project development, the following conditions will apply:

- Each capacity improvement project will undergo design, environmental review, and community outreach as appropriate. Operational improvement projects (such as median closures, TOS improvements, safety improvements) will also have appropriate traffic analysis, community outreach, and environmental review before implementation. Project descriptions and cost estimates may require some changes based on the results of these activities.
- All projects will be designed and constructed consistent with the 2003 Expressway Bicycle Accommodation Guidelines. All costs related to bicycle improvements within a project's limits are included in the project's overall cost estimate.
- All projects will include appropriate pedestrian improvements as specified in the 2008 Update Pedestrian Element (e.g., add new sidewalks and/or crossing enhancements), assuming meaningful and continuous segments can be included in the project limits. All costs related to pedestrian improvements within a project's limits are included in the project's overall cost estimate. In situations of limited or restricted funding, Routine Accommodation guidelines shall apply.
- All capacity improvement projects will incorporate 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.
- All projects will be designed and constructed consistent with the latest Americans with Disabilities Act (ADA) standards and the National Pollutant Discharge Elimination System (NPDES) requirements.

Implementation Strategies

Similar to the 2003 Expressway Study, the 2008 Update Tier 1A projects are the highest priority and will be submitted for VTA's Valley Transportation Plan (VTP) 2035 as part of the constrained funding plan. Tier 1B projects will also submitted for VTP 2035 as part of the unconstrained plan so they are eligible for regional funds should additional funds become available.

Tiers 2 and 3 do not reflect tier priorities but are divided based on type of project. In other words, Tier 3 projects may be pursued before Tier 2 projects should funding become available. It should be noted that Tier 1A includes feasibility/project studies for two Tier 3 projects to position these projects to compete for funding in the future.

Recognizing that not all Tier 1A projects can be worked on concurrently and the funding will not be available all at once, a Tier 1A Expenditure Plan was developed as part of the 2008 Update. This Expenditure Plan is included in the Funding Strategy section of this document.

SECTION THREE
BICYCLE ELEMENT

The Bicycle Element is based on the following two principles:

- Bicycle travel will be accommodated on all expressways.
- The expressways should only be used by advanced-skilled bicyclists and should not be used by children or novice bicyclists.

As part of the 2003 Study, Expressway Bicycle Accommodation Guidelines (BAG) were developed and have been used to define improvement needs and guide new project construction. The basic premise for the expressways is to "delineate but not designate" meaning the expressway shoulder width and striping are consistent with Class 2 bicycle lane standards but the shoulders are not designated as bicycle lanes. The BAG document provides guidelines for the following main areas: travel width, delineation, entrance/exit ramps, safe passage across intersections, trail connectivity, and maintenance. The BAG is available at www.expressways.info.

The list of 2003 bicycle improvement recommendations was based on bringing all expressways into compliance with the BAG. The 2003 Bicycle Element also identified a need to work with Caltrans to develop design options for freeway/expressway interchange ramps where there are double right on-ramps that force a bicyclist to cross more than one conflicting vehicle lane at a time.

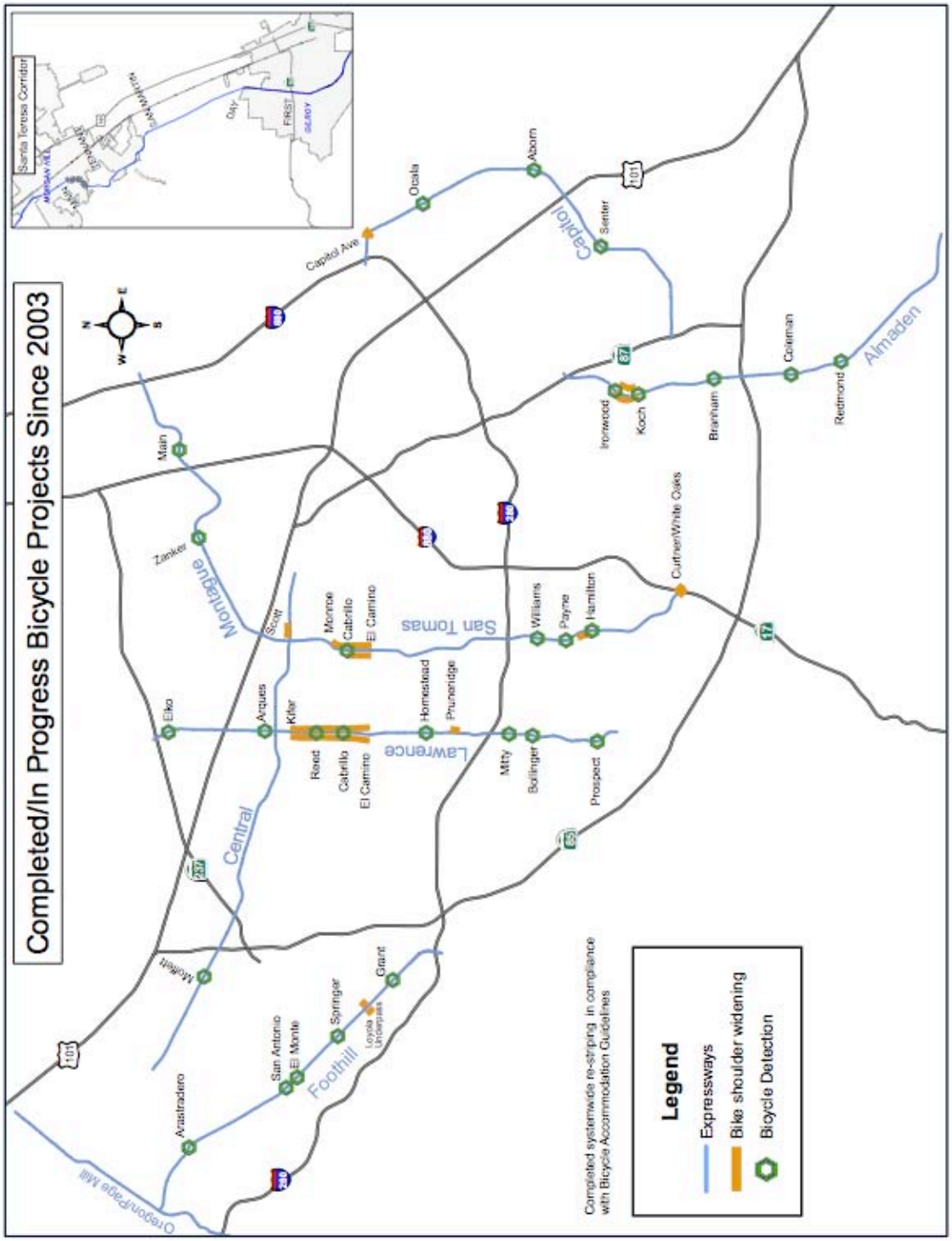
2003 Bicycle Element Progress Report

The 2003 Expressway Study identified ten specific expressway bicycle improvements plus one systemwide project with a total cost estimate of $3.75 million (2003 dollars). As shown in Table 6, eleven projects (nine from the 2003 Study and two new projects) have been completed or are in progress. Figure 5 illustrates the locations of these projects.

Table 6: 2003 Bicycle Projects Completed/In Progress

Expressway	Project Description	Status
All Expressways	Re-striping per Bicycle Accommodation Guidelines	Completed
Almaden	Widening between Ironwood and Koch to provide adequate shoulder per BAG	Completed
Capitol	Widen WB approach at Silver Creek to provide a bicycle slot	Completed
	Widen NB approach to Capitol Avenue and SB approach to Excalibur to provide bicycle slots	Completed
Foothill	Widen EB approach at Magdalena to provide a bicycle slot	Completed
	Provide more shoulder width in both directions under the Loyola Bridge	In Progress
Lawrence	Widen NB approach to continue shoulder before Pruneridge	Completed
	Provide more shoulder width from El Camino Real to Kifer	Completed
San Tomas	Stripe bicycle delineation from Camden Avenue thru Curtner intersection and NB SR 17 ramp area	In Progress
	Widen SB approach at Hamilton to provide adequate shoulder per BAG	In Progress
	Widen NB approach at Cabrillo to provide adequate shoulder per BAG	Completed

Figure 5: 2003 Bicycle Projects Completed or In Progress



2008 Update Approach

No changes in policy or approach are recommended for the Bicycle Element. Projects from the 2003 Bicycle Element that have not been completed and are not in progress are carried over to the 2008 Update project list. In addition, a systemwide bicycle signal detection improvement project and an improvement for the Santa Teresa-Hale Corridor have been added to the list.

The Santa Teresa-Hale Corridor will not be a County-operated expressway; therefore, the approach for bicycle accommodations includes a variety of treatments along this 19-mile urban and rural corridor. Bicycle accommodation plans for the corridor are as follows:

- Improved 4-lane sections of Santa Teresa Blvd/Hale Avenue within Gilroy and Morgan Hill have Class 2 bike lanes. As the cities annex, widen, and/or build additional sections of the corridor, Class 2 bike lanes will be provided.
- The 2-lane segment in Gilroy south of 152 has increasing traffic demand with some intersections including acceleration/deceleration lanes and right-turn pockets. This segment has paved shoulders for bicycle use but will have bicycle lanes added when it is widened to 4 lanes by the City of Gilroy. Until the widening, the Expressway BAG can be applied to the intersections to better accommodate bicycle use (new project for the 2008 Bicycle Element).
- The unincorporated portions in the County's jurisdiction have paved shoulders that are generally adequate for bicycle use through the rural/agricultural areas. Some portions of the road are along hillsides and the shoulders are narrow. Widening these shoulders at this time is not practical, but wider shoulders will be a part of future roadway expansion.

2008 Project List

Table 7 lists the 2008 Bicycle Element projects. It also includes a column indicating implementation opportunities for each project. The total list of project costs is $16.5 million; however, approximately $10.9 million of the funding will be provided through roadway improvement projects (i.e., Tier 1A Capacity and Operational Improvements) reducing the need for bicycle-related funding to $5.6 million.

Table 7: 2008 Bicycle Element Project List

Expressway	Project Description	Cost (2008 $/millions)	Potential Implementation
Foothill	Widen WB approach at San Antonio to provide a bicycle slot	0.3	Tier 1A roadway project [1]
	Provide bicycle channelization and shoulder width on the approaches to and over Loyola Bridge	7.0	Tier 1A roadway project and BEP list [2]
Oregon-Page Mill	Provide more shoulder width in both directions under the Alma Bridge	NA	Very long term – requires bridge reconstruction
	I-280 interchange modification to support bicycle travel through interchange: 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	6.6	Tier 1A roadway project and BEP list [2]
Santa Teresa-Hale Corridor	Provide bicycle delineation at 8 intersections between Castro Valley Road and SR 152	0.5	Apply for BEP
All Expressways and Santa Teresa/Hale Corridor	Install bicycle detection on shoulders, left turn lanes, and cross streets as needed at all signalized intersections (will support bicycle adaptive signal timing)	2.1	Apply for BEP
	Total Project Costs	**16.5**	

[1] Roadway project costs in the Capacity/Operational Improvement Element include this bicycle improvement.

[2] Cost listed is the total cost for the project which includes improvements for all modes of travel. The Tier 1A Capacity/Operational project includes the bicycle-related improvements; however, the projects are also included in VTA's Bicycle Expenditure Program (BEP) for partial funding (e.g., for matching funds to roadway-related grants).

Overall, the Bicycle Element total costs are low compared to other Expressway Study elements and most of the projects have a reasonable chance of being implemented in the next ten years. The remaining needs to fully accommodate bicyclists on the expressways are facing some significant challenges as follows:

- Oregon Expressway/Alma Bridge area – The Capacity and Operational Improvement Element identifies the need to reconstruct the Alma/Oregon Expressway interchange and has listed it as a Tier 3 project (no funding identified). It is expected that reconstruction could cost upwards of $130 million (2008 dollars) due to the complexity of this project involving the railroad as well as the two roadways and the very limited right-of-way.
- The Page Mill/I-280 interchange modifications – Improvements at freeway interchanges fall under Caltrans jurisdiction; therefore, Caltrans study and agreement will be needed to implement the proposed project. This will lead to a longer delivery time for this project.
- Freeway interchange conflict areas: There are six freeway/expressway interchanges, in addition to Page Mill/I-280, with double right on-ramp conflict locations (one lane is usually an HOV bypass lane). They are Almaden/SR 85, Capitol/US 101, Lawrence/US 101, Lawrence/SR 237, Montague/San Tomas/US 101, and San Tomas/SR 17. Modifications to these interchanges will require Caltrans agreement on design changes and, potentially, changes to the Highway Design Manual. No project costs are provided because the improvements are still to be determined. County staff will continue to work with Caltrans staff to study design options that can improve the situation yet still meet traffic demand requirements.

Implementation Strategies

The County will seek funding for the projects listed in Table 7 using roadway and BEP grants and will continue to work with Caltrans to improve freeway interchange conflict areas. Clarification to California Vehicle Code Section 21960 language relating to local agency regulation of bicycles on expressways should also be considered to support efforts to improve and enhance safe access for bicycles.

SECTION FOUR
PEDESTRIAN ELEMENT

In 1991, the Santa Clara County Board of Supervisors adopted a "Policy for Bicycle and Pedestrian Usage of the Expressways." The policy stated that the County is committed to accommodating pedestrians wherever possible, subject to safety considerations and fiscal constraints. The 2003 Pedestrian Element supported that policy by proposing improvements for two different pedestrian needs: traveling along the expressways and crossing the expressways.

During the 2003 process, city and community input focused mostly on facilitating safe pedestrian crossings of the expressway. As a result, the 2003 Pedestrian Element identified 45 high demand pedestrian crossings and developed a "toolbox" of crossing enhancement options that could be considered for these intersections on a case-by-case basis. These crossing enhancement options ranged from reconfiguring intersections to installing pedestrian countdown timers and pedestrian curb ramps. Two new pedestrian overcrossings (POCs) were also recommended.

For traveling along the expressways, a list of new sidewalk locations was developed to close gaps in otherwise continuous sidewalks, to access transit stops, and to provide access to land uses fronting on the expressways. The 2003 Element also recommended improved connections and directional signage to parallel pedestrian facilities, such as trails and frontage roads.

2003 Pedestrian Element Progress Report

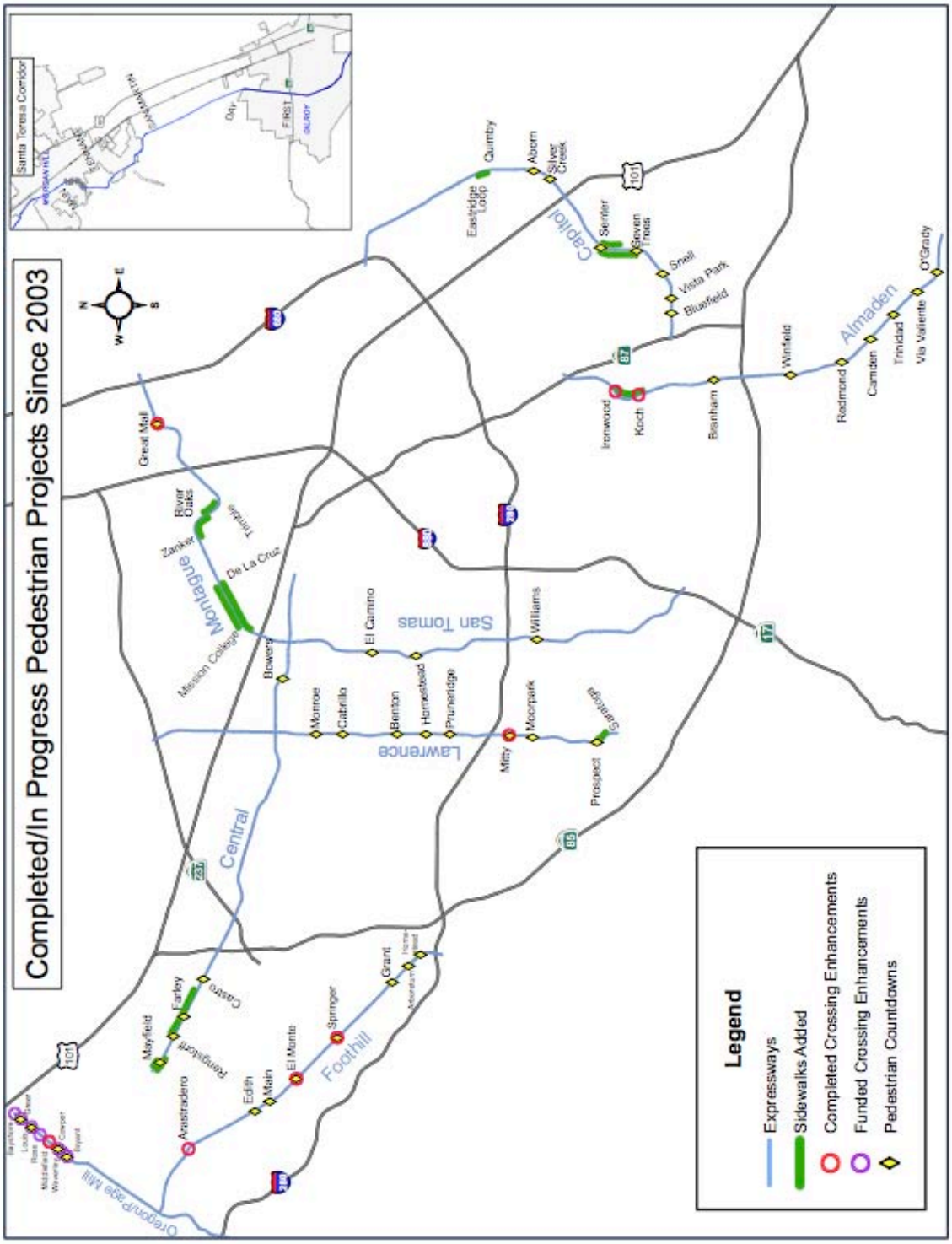
The Pedestrian Element recommended new sidewalks at 31 locations along six[1] of the eight expressways at a total cost of $6.6 million (2003 dollars). Funding sources for expressway sidewalk projects have been limited to developer mitigations, capacity and operations project grants, the County Road Fund, and the County's share of TDA Article 3 funds (County receives approximately $70,000 annually). As a consequence, only a few sidewalk improvements have been made since 2003. As shown on Figure 6, Almaden, Capitol, Central, Lawrence, and Montague Expressways have received new sidewalk segments, representing full or partial completion of 7 of the 31 locations identified in 2003.

A total of 45 high demand pedestrian crossing locations were identified with a recommendation that they be studied for potential crossing enhancement improvements when funding becomes available. There was a wide cost estimate range for improving an intersection ($50,000 to $300,000 in 2003 dollars) depending on what was needed at an intersection. Based on an assumption that many of the intersections would need the more expensive intersection reconfiguration treatments, the total potential cost for crossing enhancements was set at $8.4 million (2003 dollars). In addition, two POCs were recommended at a cost of $4 million each. Since 2003, the following crossing improvements have been implemented:

- Crossing enhancement improvements have been made at nine of the high demand intersections, including a new crossing of Lawrence Expressway at Mitty to connect with the Saratoga Creek Trail. In addition, the Oregon Expressway Improvement Project currently under development includes crossing enhancements for five intersections.
- Pedestrian countdown timers have been added to 37 of the 45 intersections identified in the 2003 Pedestrian Element and to 2 other expressway intersections.
- Of the two new recommended pedestrian overcrossing locations: the County has assisted with coordination and funding (Rule 20A) for utility undergrounding as part of the City of San Jose project at the Almaden Expressway location; and no progress to date has been made for the San Tomas Expressway location.

[1] New sidewalks for Montague Expressway were included in the 8-lane widening project and were not listed separately. No new sidewalk locations were recommended for Oregon-Page Mill.

Figure 6: 2003 Pedestrian Projects Completed or in Progress



2008 Update Approach

The 2003 Study Pedestrian Element focused on identifying locations for new sidewalks that would close gaps in existing sidewalks, access transit stops, and provide access to land uses fronting on the expressway. In other words, it was reactive to where there was existing demand for pedestrian travel. However, this approach left many sections of the expressways without sidewalks or convenient parallel routes for pedestrians. In line with the County's belief that the safest way to accommodate pedestrian use of expressways is on improved sidewalks behind the curb or on parallel routes off the expressway, the 2008 Update has taken a more proactive pedestrian route planning approach with the following goal:

> *To identify continuous routes, either in the right-of-way or along alternate parallel routes, providing for pedestrian travel ideally along both sides of the expressways.*

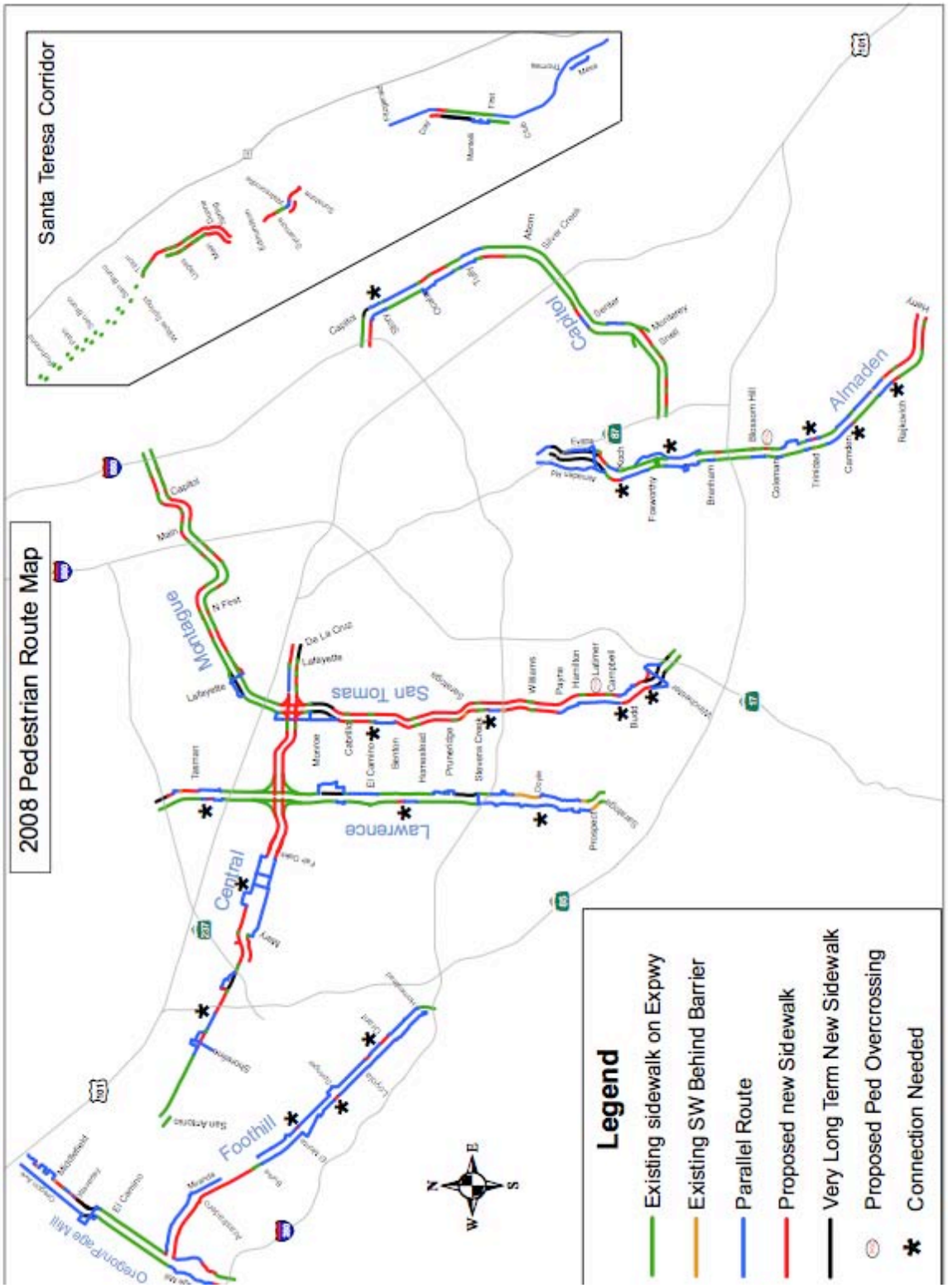
The 2008 Update Pedestrian Element completely replaces the 2003 Expressway Study Pedestrian Element, including all policies, project lists, and recommendations.

Pedestrian Route Plans

The cornerstone of the 2008 Update Pedestrian Element is the pedestrian route plans for all eight expressways and the Santa Teresa-Hale Corridor. The following steps were taken to develop these pedestrian route plans: 1) County and city staff met to develop initial pedestrian route maps and gather information on implementation opportunities; 2) extensive field review of all 164 miles of roadway frontage was conducted; and 3) the preliminary pedestrian route maps were presented to the Technical Working Group and the County/VTA Bicycle and Pedestrian Advisory Committee (BPAC) for review and comment. During the process, additional high demand pedestrian crossing locations were identified.

Figure 7 illustrates the continuous pedestrian route plans for the eight expressways and Santa Teresa-Hale Corridor in a countywide map. A separate *Pedestrian Element Working Paper* is available that includes a detailed map for each roadway.

Figure 7: 2008 Pedestrian Route Map



The continuous routes use the following three types of facilities:

- Existing sidewalks on the expressway
- Parallel routes outside the expressway right-of-way
- Recommended new sidewalk locations on the expressway, including "Very Long Term" new sidewalks

Parallel Routes

Parallel routes are within a convenient distance of the expressway and consist of creek trails, park pathways, frontage roads, and parallel city streets. Routes are not designated through non-County/City property even if they are open to public use (e.g., shopping centers, parking lots, schools).

Field review has confirmed that almost all of the frontage roads and city streets designated as parallel routes have continuous sidewalks along at least one side of the street. A few locations do not have sidewalks by neighborhood design/preference (e.g., some Campbell and Los Altos residential streets). A listing of sidewalk gaps along parallel routes is provided in the *Working Paper*. Some cities have indicated a desire to make these streets a high priority for their city sidewalk programs.

Some of the pedestrian route plans indicate future trails as the designated parallel route. One of these trails is currently under construction and all others are included in trail plans, some with funding plans and timelines.

Improvements to the parallel streets and trails are not listed as part of the expressway program because they are outside the expressways' right-of-way and under other agencies' jurisdiction. The list of expressway improvements does include improving connections to parallel facilities and providing pedestrian guide signage for using the parallel facilities.

It has also been noted that some creek trails and park paths are only open from sunrise to sunset. It is not anticipated that this will be a great hindrance to pedestrian travel along the expressways as most pedestrian use occurs during the day. Directional signage, however, could specify the limited hours as applicable.

Very Long Term Sidewalks

Very long term sidewalks are recommended in areas designated as "hard spots." These are locations where physical constraints limit available space and alternate routes are not apparent or are inconvenient. Specifically, a location was designated a hard spot if it met all of the following conditions: no usable space is available behind the curb; no lane or shoulder reduction is possible; no median reduction/relocation is possible; and no convenient parallel route is available. Typically, hard spots were located where the only way to obtain more right-of-way would be to take adjacent residents' backyards or reconstruct a very high cost overpass/bridge structure.

The general approach for hard spots was to take the long view – thus the term "very long term sidewalks." These sidewalks will be built when the physical constraint is removed (i.e., the structure is rebuilt or the land use is redeveloped). Because it is undesirable to have a pedestrian route discontinue mid-block, very long term sidewalks are shown extending between two pedestrian access points even if only a portion of this stretch is truly a hard spot. In the meantime, a route is provided on the other side of the expressway or the closest possible alternate route is identified.

Sidewalks Not Recommended

Certain locations along the expressways and Santa Teresa-Hale corridor face unique situations where it would be undesirable to provide sidewalks, even in the very long term. These areas are as follows:

Central Expressway – South side in Mountain View along the Caltrain trackway fence.
There are no pedestrian destinations or bus stops along the south side of Central Expressway between Mayfield and Bernardo. Providing a sidewalk would have pedestrians walking adjacent to the Caltrain railroad tracks separated only by a chain link fence, providing a temptation to jump the fence as a shortcut to reach destinations on the other side of the tracks. A continuous route on the north side of Central Expressway is planned in this area.

Central Expressway – Through the freeway-like, below grade section in Sunnyvale.
There are no pedestrian destinations or bus stops through this section of Central Expressway; therefore, there is no need to provide sidewalks and pedestrian crossings in an area that operates like a freeway. Parallel routes on both sides of the expressway are identified.

Foothill Expressway – North side in Los Altos and Palo Alto between Edith and Arastradero. This area is adjacent to down slopes into backyards and into a creek bed creating environmental challenges to widening. There are no pedestrian access points, pedestrian destinations, or bus stops along this 1 1/2-mile section. The recommendation is to focus on providing a continuous route on the south side of the expressway.

Santa Teresa/Hale Corridor – Through the rural/agricultural areas and along hillsides. Providing continuous sidewalks is inconsistent with the rural/agricultural environment along the two-lane rural road sections. There are also very long distances between potential pedestrian destinations. In addition, certain areas along hillsides may be too environmentally sensitive to widen to add sidewalks. Sidewalks are planned for the urban areas of the corridor.

2008 Project List

New Sidewalks

Table 8 provides a list of the new sidewalks recommended and 2008 cost estimates. Nearly 38 miles of new sidewalk are listed with a total cost estimate of $44.2 million (2008 dollars). These cost estimates are based on constructing a 5-foot wide Portland Cement Concrete (PCC) sidewalk. The cost estimates assume no new right-of-way will be required. Where needed, costs do include installing curb and gutter, retaining walls, ADA pedestrian curb ramps, and connections to parallel pedestrian routes. These additional costs can double or triple the cost per linear foot of sidewalk, accounting for why some sidewalk segments will be far more expensive to construct than others of the same length. The *Pedestrian Element Working Paper* provides more detail about the sidewalk locations.

Surfaces other than concrete (e.g., asphalt) can be considered when funding becomes available to construct sidewalks for a location. However, no matter what type of surface is used, a pedestrian facility must be ADA compliant in terms of width, cross slope, surface condition, and curb ramps, and for practical purposes must be durable and able with minimal maintenance to remain in an ADA compliant condition over its service life. The full lifetime cost of the surface type should be considered, not just the initial installation cost. Concrete sidewalks require no or little ongoing maintenance and have a very long life. Asphalt requires more surface maintenance and eventual replacement. Aggregate base treatments, such as decomposed granite or jogging path surfaces, have been suggested as cost saving alternatives but trade off much more frequent maintenance issues,

Table 8: 2008 New Sidewalks

Expressway	Project Locations [1]	Cost [2] (2008 $/millions)	Potential Implementation
Almaden	East side: ❖ Harry to Shadow Brook ❖ Gap between Redmond and Winfield with connection to frontage road West side: ❖ Harry to Almaden Road ❖ Rajkovich to Serenity with connection to frontage road ❖ Gap between Camden and Trinidad with connection to frontage road ❖ Gap just south of Coleman	$2.8	
	East side: two gaps between Coleman and Blossom Hill	0.20	Tier 1A roadway project [3]
	East side: SR 85 off-ramp to Cherry	0.22	Land developer
	❖ East side: Ironwood to Curtner off-ramp and connector to future trail south of Capitol ❖ West side: Gap north of Lincoln with connection to frontage road	0.29	
	Almaden Total	**3.51**	
Capitol	❖ South side: five gaps between Narvaez and Seven Trees ❖ North side: three gaps between Senter and McLaughlin	1.22	
	West side: between Nieman and Quimby	0.41	Land developer
	East side: ❖ North of Tully to Ocala ❖ Connection between existing sidewalk and frontage road north of Story	0.52	LRT project
	South side: Excalibur through I-680 interchange	0.44	
	Capitol Total	**2.59**	

Table 8: 2008 New Sidewalks (continued)

Expressway	Project Locations [1]	Cost [2] (2008 $/millions)	Potential Implementation
Central	North side: ❖ Five gaps from west of Shoreline to Mary ❖ Connection to a frontage road west of SR 85 ❖ Ramps to Whisman and Middlefield South side: ❖ Bernardo to Mary off-ramp	2.35	
	North side: ❖ Mary to Soquel ❖ Gaps on Soquel, Indio, and San Bernardino with connection to frontage road Both sides: ❖ Santa Elena to San Tomas Expressway, with ramp connections to Wolfe and San Tomas Expressway	6.43	Tier 1A roadway projects [3]
	Both sides: San Tomas Expressway to Scott	0.70	Partial by land developer
	❖ South side: Two gaps between Scott and Lafayette ❖ North side: Lafayette to De La Cruz	0.65	
	Central Total	**10.13**	
Foothill	North side: ❖ Page Mill Expressway to Miranda ❖ Gap east of El Monte with connection to frontage road ❖ Two gaps between Miramonte and Grant with connections to frontage road South side: ❖ Page Mill Expressway to Old Oak Ct ❖ Gap west of Miramonte with connection to frontage road	4.10	
	Foothill Total	**4.10**	

Table 8: 2008 New Sidewalks (continued)

Expressway	Project Locations [1]	Cost [2] (2008 $/millions)	Potential Implementation
Lawrence	West side: ❖ Gap south of Benton with connection to frontage road ❖ Gap north of Sandia with connection to frontage road East side: ❖ Palamos to Tasman	0.52	
	East side: north of Elko	0.10	Land developer
	Lawrence Total	**0.62**	
Montague	South side: ❖ Ramp connection to Lafayette ❖ Three gaps between De La Cruz and Trimble North side: ❖ Three gaps between Lick Mill and River Oaks	1.51	San Jose 8-Lane Widening
	Both sides: Three gaps to the west and east of McCarthy/O'Toole	0.44	Tier 1B roadway project [3]
	Both sides: Three gaps between I-880 and McCandless/Trade Zone	0.56	San Jose 8-Lane Widening
	❖ Both sides: Trade Zone to Great Mall/Capitol Ave ❖ North side: east of Great Mall to east of Milpitas Blvd	1.34	Tier 1A roadway project [3]
	South side: three gaps between Capitol Ave and Pecten	0.21	
	Montague Total	**4.06**	
Oregon-Page Mill	North side: I-280 interchange to Old Page Mill	0.31	Tier 1A roadway project [3]
	South side: Old Page Mill to Deer Creek	0.28	
	South side: Four gaps between Waverley and Indian	0.41	Current roadway project
	Oregon-Page Mill Total	**1.00**	

Table 8: 2008 New Sidewalks (continued)

Expressway	Project Locations [1]	Cost [2] (2008 $/millions)	Potential Implementation
San Tomas	East side: ❖ Winchester ramp to Budd ❖ Rincon to Williams West side: ❖ Waldo to Bucknall with connection across culvert to trail ❖ Payne to Williams	4.64	
	East side: ❖ Williams to El Camino Real West side: ❖ Williams to Moorpark ❖ Gap between Moorpark and Stevens Creek ❖ Stevens Creek to Benton ❖ Connection between existing sidewalk and frontage road south of El Camino Real	6.40	Tier 1A roadway project [3]
	❖ East side: El Camino Real to Monroe ❖ West side: El Camino Real to Cabrillo	1.00	
	West side: Cabrillo to south of Monroe	0.14	Trail Project
	Both sides: Walsh to Scott including connections to San Tomas Expressway	1.23	Partial by land developer
	San Tomas Total	**13.41**	
Santa Teresa-Hale Corridor	❖ East side: Sunrise to West Day ❖ West side: North of Longmeadow to East Day	0.64	New high school and land development
	East side of Sunnyside: ❖ Sunshine to Native Dancer ❖ Via de Castillo to north of Encino West side: ❖ Native Dancer to Watsonville	1.41	
	Both sides: DeWitt to Main Street	NA	New road construction

Table 8: 2008 New Sidewalks (continued)

Expressway	Project Locations [1]	Cost [2] (2008 $/millions)	Potential Implementation
Santa Teresa-Hale Corridor (continued)	Both sides: several gaps between Main and Via Loma	1.79	4-lane widening/ land developer
	East side: Via Loma to south of Curry	0.96	Land developer
	Santa Teresa-Hale Total	**4.80**	
	Total Sidewalk Costs	**$44.22**	

[1] Sidewalk needs are divided into expressway segments for ease of comparison to roadway widening projects and other implementation opportunities. Each segment can be divided into smaller projects as long as a usable segment is constructed (i.e., each end connects to an intersection or continuing sidewalk/parallel pedestrian route).

[2] Cost is based on constructing a standard PCC 5-foot sidewalk. Where needed, costs also include curb and gutter, retaining walls, ADA pedestrian curb ramps, and connections to parallel pedestrian routes.

[3] Roadway project costs in the Capacity/Operational Element include these sidewalks. Only Tier 1A and 1B roadway projects are shown because they are most likely to be funded.

including weed intrusion, a particularly difficult issue for response due to limitations on herbicide application. For sidewalks alongside the expressway, a curb must be provided to provide separation between the shoulder and pedestrians.

A light rail extension is planned for Capitol Expressway from the existing light rail line on Capitol Avenue to Quimby. The LRT project includes replacing all existing pedestrian facilities on Capitol Expressway along the LRT extension with a continuous six-foot wide sidewalk along the west side and a continuous ten-foot wide multi-use path with a connection to Silver Creek Trail on the east side. Table 8 includes sidewalk improvements on Capitol Expressway between Tully and Ocala and at Story. These improvements are listed as a contingency should the planned light rail extension be significantly delayed and there is a desire to provide sidewalks for current pedestrian use.

The planned road improvements, LRT project, and new developments listed in the "Potential Implementation" column of Table 8 could provide $23.3 million of the improvements, a little over

half of the $44.2 million needed. For the remaining $20.9 million in needs, it would take $12.1 million to provide a continuous route along one side of each expressway as shown below:

- Almaden - $1.4 million
- Capitol - $0.8 million
- Central - $2.3 million
- Foothill - $3.6 million
- Lawrence - $0.3 million
- Montague - $0
- Oregon-Page Mill - $0
- San Tomas - $2.5 million
- Santa Teresa/Hale - $1.2 million

The *Working Paper*'s detailed maps also highlight the nearest parallel routes for locations where new sidewalks are recommended. These are considered "interim" parallel routes because they are not as convenient as the parallel routes that are formally part of the expressway's continuous route, but they do provide an option until expressway sidewalks can be built.

Pedestrian Directional Signage

A key to the success of the pedestrian route plans is directional signage to help guide pedestrians to and from the designated parallel routes. The cost to install directional signage systemwide is estimated to be $100,000. The signs placed on County right-of-way would be installed and maintained by the County. Guideway signs may also be placed in city and trail right-of-way with appropriate approvals and sign maintenance agreements.

Pedestrian Crossing Enhancements

A major pedestrian issue for all expressways continues to be to facilitate safe pedestrian crossings, especially at high demand locations near schools, community centers, transit facilities, and trail connections. In the 2003 Study, 45 high demand pedestrian crossing locations were identified through city and community comments. During the 2008 pedestrian route planning process, an additional 27 intersections were added to the list for a grand total of 72 locations, or more than half of all signalized expressway intersections. In light of the high degree of interest in pedestrian crossings and the new approach to sidewalks, the concept of high demand intersections as the only locations to receive special design consideration was put aside for the 2008 Update Pedestrian Element. Instead, all expressway intersections should include design consideration for pedestrian crossing enhancements consistent with the specific needs and unique geometry of each crossing whenever opportunities arise for these improvements.

Quantifying needs is somewhat more difficult without assessments of each intersection. In general, we can expect that the costs could range from $0 to $500,000 per crossing. To give an order of magnitude of how much may be needed for pedestrian crossing improvements, if 50% of the existing 134 intersections require significant reconstruction, it could cost as much as $34 million. Many intersections have the potential to be improved as part of roadway projects planned or already underway, and many others may be affected by future developments. Transportation projects and new development should include studying pedestrian crossing locations within their boundaries to determine optimal intersection design and if the intersection can be made more pedestrian friendly as part of the project.

The next update of the Expressway Study should include an assessment of expressway system intersections to determine how many could use major reconstruction to make them more pedestrian friendly (e.g., square corners, eliminate free-running rights, etc.) so a cost estimate can be developed. Until such information is available, the Expressway Study 2008 Update includes a placeholder of $20 million for improvements to intersections that are outside a planned roadway improvement project.

The County will continue to make low-cost improvements (e.g., countdown signals) for all high demand crossing locations whenever possible. The County will also pursue grants (e.g., Safe Routes to Schools) to make more extensive improvements for locations not located within a planned roadway improvement where there is a definitive need for the improvement. Grant location selection will be based on opportunities and on priorities of city partners. Cities are best placed to evaluate pedestrian demands, especially demands associated with city services such as parks, community centers, libraries, and schools.

Pedestrian Overcrossing (POC) Structures

The 2003 Study recommended two new POCs: one on Almaden Expressway near Coleman Road and one on San Tomas Expressway near Latimer. The 2008 Update continues to recommend these two locations. Recent cost experiences with POCs indicate that these two POCs will cost from $6 to $10 million each, depending on design and right-of-way requirements.

Total Pedestrian Element Costs

The total cost for all pedestrian improvements adds up to $76.3-84.3 million: $44.2 million for sidewalks, $100,000 for directional signage, $20 million for pedestrian crossing enhancements, and

$12-20 million for POCs. Of this total, approximately $23.3 million may be provided through funded/planned roadway projects and land development conditions.

Implementation Strategies

Funding opportunities for providing the new sidewalks include developer conditions imposed by cities, inclusion in roadway improvement projects, and a proposed VTA/County funding program that would be matched by city contributions. It must be recognized that it will likely take decades to fund all pedestrian improvements. The implementation strategies below are designed to ensure the highest priority improvements are constructed as soon as possible as well as identifying other actions needed to support pedestrian use of the expressways:

- Cities should continue to require developers to provide sidewalks when the opportunity arises and help solicit or provide matching funds for high priority sidewalk improvements. The advantage of producing the pedestrian route maps is that it gives cities guidance for imposing developer conditions. Each City will be provided with copies of the *Working Paper* with the detailed maps for reference when reviewing land development proposals. In addition, cities are encouraged to look for opportunities to require intersection crossing enhancements for pedestrians wherever appropriate.
- The County will work with VTA to finalize details and seek VTA Board of Directors approval of the proposed funding where the County and VTA each provide $150,000 annually to be matched by city contributions to construct the expressway pedestrian improvements.
- The cities will decide which sidewalks or crossing enhancements will be built first by applying for the VTA funds and providing one-third of the project costs as the city's match, or by partnering with the County to apply for other grant sources. It is recommended that the cities give priority consideration to improving pedestrian safety by focusing on the following types of locations:
  - Gap closures for existing sidewalks and locations with existing pedestrian demand (e.g., bus stops).
  - Locations that will ensure at least one side of the expressway provides a continuous pedestrian route.
  - Locations where there is no interim parallel route or where the detours are longest for the interim parallel routes.

- Intersections with a high volume of pedestrian crossings where existing geometries and operations suggest enhancements will be beneficial.

Some of these higher priority locations may be due to receive sidewalks through a Tier 1A roadway project. However, the larger Tier 1A projects will not be completed until 15 to 25 years from now, and cities may wish to pursue sidewalks before the roadway improvement is made if there is existing demand.

- Pedestrian prohibition signs, where existing, will be removed when sidewalks are constructed on the expressway or if cities repeal ordinances.
- The County will develop a plan for a directional signage program. The plan will determine the types of signage to use and where they are needed.

SECTION FIVE
FINISHING ELEMENT

The Finishing Program Element involves improvements to expressway medians and edges. These improvements include sound wall and landscaping needs. In addition to defining these needs, the element discusses the tradeoffs that are required between sidewalks, sound walls, and landscaping when right-of-way is limited. The element also describes the County's street lighting policy for the expressways.

2003 Finishing Program Element Progress Report

Sound Walls

The 2003 Expressway Study included an assessment of sound wall needs based on Caltrans and Federal Highway Administration (FHWA) guidelines. The assessment used predicted noise levels resulting from projected 2025 expressway traffic conditions. The Finishing Program Element identified a need for $26.8 million (2003 dollars) for new sound walls and $21.0 million (2003 dollars) for higher replacement walls along the expressways. The replacement of sound walls that are adequate for noise protection but have reached the end of their useful life are part of the Operations and Maintenance Element.

No funding sources have become available for building new sound walls or replacing existing walls with higher walls. Therefore, the only opportunities for sound wall improvements continue to be as

part of expressway capacity improvement projects or through new land developments or redevelopment. Progress to date includes:

- Montague Expressway has received sound wall improvements as part of the completed 8-lane widening sections.
- Almaden Expressway, northwest of Cherry, will receive sound wall improvements as part of the current widening project in the vicinity.

VTA is currently conducting a Noise Reduction Screening Program to help identify candidate locations along existing freeways and expressways that might qualify for funding for noise mitigation. Only locations where no sound walls currently exist are eligible. VTA is screening locations based on project eligibility criteria for State funding and VTA's Basic Noise Mitigation Standard. The County submitted all expressway locations requiring new walls for screening. In addition, some cities submitted expressway locations that were not on the 2003 Expressway Study list. VTA has completed Phase I (quantitative assessment) and has disqualified a few expressway sound wall locations from VTA's eligibility list. Phase II (qualitative assessment) is due to be completed after the 2008 Update is completed and may result in additional locations being disqualified.

Landscaping

The 2003 Study identified a cost of $19 – 23 million (2003 dollars) to install a basic level of landscaping along the expressway system where landscaping gaps exist. This basic level consists of trees and limited shrubs, median finishes (such as decomposed granite), sound walls covered with ivy, and automated irrigation systems. The annual cost to maintain this landscaping systemwide was estimated to be $4.0 million (2003 dollars).

Due to a lack of adequate funds for annual landscaping maintenance, the County's current policy is to only allow installation of new landscaping if full recovery of capital and maintenance costs can occur. The expressways that have extensive landscaping are all under maintenance agreements where the cities, private developers, or assessment districts are paying for landscape maintenance.

2008 Update Approach

The update to the 2003 Finishing Program Element included the following tasks:

- The sound wall and landscaping cost estimates were increased from 2003 to 2008 dollars.
- The sound wall needs lists were revised as appropriate, noting those areas that are considered ineligible for VTA's Noise Mitigation Program.
- The Finishing Program for the Santa Teresa-Hale Corridor was described.
- A revised street lighting policy was developed to take into account the more extensive pedestrian access plans in the Pedestrian Element.

2008 Project Lists

Sound Walls

Tables 9 and 10 provide the new and replacement sound wall lists with updated cost estimates for the expressways. The revisions include removing the two completed sound wall projects from the list and updating the potential implementation opportunities. The sound wall costs were increased based on Caltrans construction cost index. The total costs are estimated to be $76.6 million: $44.9 million for new sound wall locations and $31.7 million for higher replacement sound walls. Approximately $13.7 million of the sound wall needs could be provided through roadway capacity projects, leaving $62.9 million unfunded.

The sound wall needs assessment conducted as part of the 2003 Study did not include the Santa Teresa-Hale Corridor. However, there does not appear to be a need to seek funding for new or higher replacement sound walls since Morgan Hill and Gilroy are providing for any necessary sound walls as part of development conditions. Sound walls are not needed in the unincorporated, rural areas of the Santa Teresa-Hale Corridor.

As noted above, VTA is conducting a Noise Reduction Screening Program to help identify candidate locations for new sound walls that might qualify for the VTP 2035 noise mitigation program. They have already disqualified certain expressway locations in Table 9 due to the development being built after the last expressway improvement or because the location is within the limits of a Tier 1A capacity project. During the next phase of VTA's screening process (qualitative analysis), additional

Table 9: 2008 New Sound Wall Locations

Expressway	Project Locations [1]	Cost (2008 $/millions)	Potential Implementation
Almaden	Gaps south of Coleman: ❖ SW of Trinidad ❖ East side between Winfield and Redmond	$0.45	
	West side between Coleman and Mesa	0.40	Tier 1A roadway project [2]
	NE of Foxchase	0.22	To be studied as part of current widening project
	SE and NW of Koch	3.20	
Capitol	Between SR 87 and US 101: ❖ NW of Copperfield ❖ Gap closure south side between Vista Park and Bluefield ❖ NW and SE of Vista Park ❖ SW of Seven Trees ❖ NE and SE of Senter	5.47	Copperfield/ Bluefield and Visa Park areas do not meet VTA eligibility [3]
	Gap closures north and south side between I-680 and Capitol Ave/Excalibur	0.47	
Central	❖ North side from Rengstorff to east of Farley ❖ Gap closure NW of Shoreline ❖ Gap closures NW and NE of Moffett ❖ North side between SR 85 and Whisman	4.97	
	❖ SE of Pastoria ❖ NE of Mathilda ❖ South side between Mathilda and Fair Oaks	2.31	Tier 1A roadway project [2]

Table 9: 2008 New Sound Wall Locations (continued)

Expressway	Project Locations [1]	Cost (2008 $/millions)	Potential Implementation
Foothill	Spot improvements: ❖ NW of Moana Court and adjacent to residences along Blue Oak ❖ North side between El Monte and Springer ❖ SW of Magdalena ❖ South side between Magdalena and east of Loyola ❖ NW and NE of Grant ❖ NW of Newcastle ❖ South side between St Joseph and Vineyard	13.6	
	NE of San Antonio	0.50	Tier 1A Roadway Project [2]
Oregon-Page Mill	Both sides between US 101 and Alma [4]	9.56	
San Tomas	Between SR 17 and Williams: ❖ West side between Williams to south of Payne ❖ East side small gap near Sunnyhaven ❖ SE of Hamilton ❖ NW and SW of Bucknall ❖ SW of Budd ❖ NW of Winchester ramp	3.77	
	Total New Sound Wall Costs	**$44.92**	

[1] Sound wall needs are divided into expressway segments for ease of comparison to roadway widening projects. Each segment can be divided into several separate sound wall projects because the sound wall needs are not continuous along the length of each segment.

[2] Roadway project costs in the Capacity/Operational Element included these sound wall installations. Only Tier 1A roadway capacity increasing projects are shown because they are likely to be funded. Operational improvements do not typically trigger noise mitigations and projects beyond Tier 1A are less likely to be funded.

[3] Residential developments were built after the last roadway improvement project and, therefore, did not qualify for VTA's noise barrier program.

[4] The new walls on Oregon-Page Mill are listed to document the need for sound mitigation measures. The local community and city have indicated that other sound mitigation measures may be preferred in place of sound walls.

Table 10: 2008 Higher Replacement Sound Wall Locations

Expressway	Project Locations [1]	Cost (2008 $/millions)	Potential Implementation
Almaden	❖ SW of Trinidad ❖ East side between Winfield and Redmond ❖ NW of Branham ❖ SW of Koch	$5.11	
Capitol	SW of Seven Trees	0.34	
Central	❖ South side between Mary and Potrero ❖ SW of Pastoria	1.27	Tier 1A Roadway Project [2]
Foothill	NE of Loyola/Fremont	0.75	
Lawrence	Between Central and I-280: ❖ West side near Dahlia ❖ SW of Poinciana ❖ East side near St. Lawrence ❖ NW and SW of Granada ❖ NW of Homestead ❖ SW of Pruneridge	4.4	
	NW of Prospect	1.61	
San Tomas	Between Central and El Camino Real: ❖ NW and NE or Cabrillo ❖ East side from Cabrillo to El Camino Real	3.59	
	Between El Camino Real and Williams: ❖ East side from El Camino Real to Forbes ❖ SW of Benton ❖ SW of Saratoga ❖ West side adjacent to Greenlee residences north of I-280 and Larkmead residences south of I-280 ❖ East side gap closure north of Williams	9.04	Tier 1A Roadway Project [2]

Table 10: 2008 Higher Replacement Sound Wall Locations (continued)

Expressway	Project Locations [1]	Cost (2008 $/millions)	Potential Implementation
San Tomas (continued)	Between Williams and SR 17: ❖ SE of Hamilton to NE of Campbell ❖ East side Budd to Winchester	5.55	
Total Replacement Sound Wall Costs		**$31.66**	

[1] Sound wall needs are divided into expressway segments for ease of comparison to roadway widening projects. Each segment can be divided into several separate sound wall projects because the sound wall needs are not continuous along the length of each segment.

[2] Roadway project costs in the Capacity/Operational Element included these sound wall installations. Only Tier 1A roadway capacity increasing projects are shown because they are likely to be funded. Operational improvements do not typically trigger noise mitigations and projects beyond Tier 1A are less likely to be funded.

locations may be disqualified because the expressway list is based on projected 2025 traffic volumes and VTA's screening is based on current traffic volumes. The intention is to keep these disqualified locations on the expressway list of needs but to note that, similar to higher replacement sound walls, they are not eligible for any existing grant funding sources.

In addition, some cities submitted new locations for expressway sound walls that did not appear to qualify for noise mitigation when the 2003 Expressway Study conducted its assessments. If VTA determines that any of these new locations qualify for noise mitigation, they will need to be added to the expressway list for new sound walls.

The following steps should be taken for the Sound Wall piece of the next Expressway Study Update:

- Update the list of new sound wall locations to indicate any that do not qualify for VTA's Noise Mitigation Program and to add any new locations that do qualify.
- Reconfirm that the locations listed for new or higher sound walls are consistent with city urban design plans for the expressway frontage. In 2003, some locations that would qualify for noise mitigation were dropped from the list due to conflicts with community preferences and city plans. As cities develop new land use plans, it may affect the desirability of constructing sound walls in some locations.

Landscaping

The expressway system landscaping installation costs in 2008 dollars is $24-29 million based on a 5% annual escalation rate from the 2003 estimate. The estimated 2008 annual cost to maintain this basic level of landscaping for the entire expressway system is $5.2 million. The County currently spends approximately $1.5 million annually performing very basic maintenance (e.g., control weeds, trim trees, repair fences) in areas without maintenance agreements.

Different landscaping standards would apply for the Santa Teresa-Hale Corridor compared to the expressways. In line with the philosophy of Santa Teresa-Hale as ultimately a city street, Gilroy and Morgan Hill will take the lead and set standards for installing and maintaining any landscaping within the incorporated areas. Formal landscaping of the unincorporated, rural areas would not be consistent with normal County practice and is not proposed.

Street Lighting

The 2003 Study noted that it is County policy to not light expressways for vehicles or pedestrians, except at intersections as a safety measure for areas of higher risk. The utility and maintenance costs of street lighting are high and beyond the means of the expressway system's operating budget. During the 2003 Study, there were no requests from local communities for lighting and one community specifically requested that the expressway not be lit because it would disturb the surrounding homes.

However, it has been noted that as part of the 2008 Update, a far more extensive pedestrian system is planned for the expressways and pedestrian scale lighting may be desirable. Therefore, a revised street lighting policy was developed as part of the 2008 Update. Similar to landscaping, the most significant costs related to lighting are the recurring operating and maintenance (O&M) costs not the one-time installation capital costs. The County has an annual O&M shortfall and is not in a position to incur a significant new O&M cost. Similar to the landscaping policy, pedestrian scale street lighting along the expressways will be subject to the following policy:

> "Pedestrian scale lighting shall not be installed unless full recovery of capital and operations and maintenance costs can occur. The County shall cooperate fully with public agencies and private entities seeking to make pedestrian scale light improvements to the expressway system."

SECTION SIX

OPERATIONS AND MAINTENANCE ELEMENT

The Operations and Maintenance (O&M) Element includes all activities and materials necessary to keep the expressways functioning safely and efficiently while looking presentable. It includes signal operations, sweeping, pavement maintenance, landscape maintenance, enforcement, and aging infrastructure replacement.

2003 O&M Element Progress Report

The 2003 Study approach was to develop target levels of effort for each O&M activity. The Study identified an annual need of $18 million (2003 dollars) to achieve these target levels. In 2003, the sustainable annual funding available for O&M was $5.2 million, leaving a $12.8 million annual shortfall for implementing the target levels of effort.

No new ongoing funding sources have been available between 2003 and 2008, and annual shortfalls have been exacerbated by the State borrowing funds that are designated for roadway maintenance. One-time funding sources have been made available for some activities including:

- $6.4 million in federal Surface Transportation Program (STP) funds for expressway pavement management program (PMP) needs.
- Transportation Fund for Clean Air (TFCA) and other grants to synchronize lights along most of the expressways.

2008 Update Approach

The 2008 Update included re-confirming the target levels of effort and updating the annual cost estimates to 2008 dollars. In addition, new O&M needs and challenges are identified and the O&M approach for the Santa Teresa-Hale Corridor is described.

2008 O&M Element Costs

Table 11 provides the target level of effort and 2008 cost for each O&M activity. The updated annual cost to provide the target levels is $27.2 million.

Cost increases for maintenance activities that involve capital expenditures (e.g., pavement maintenance/reconstruction and infrastructure replacement) were based on the Caltrans Construction Cost Index. The Cost Index accounts for the impact of oil prices on pavement maintenance cost estimates and other major construction cost increases beyond a 5% annual inflation rate.

For the operational activities (e.g., signal operations, sweeping, landscaping maintenance), the cost increases were based on a mix of current cost experience and a 5% annual inflation rate. Factors that have contributed to a larger than 5% annual increase for some activities include the following:

- Maintaining a growing inventory of TOS equipment along with maintaining a more sophisticated website for the public's use (e.g., 400 cameras, congestion mapping, e-service requests).
- Americans with Disabilities Act (ADA) compliance implementation and other signal enhancements that have maintenance implications (chirping bird, countdown head, bike detection and programming).
- Monitoring and maintaining National Pollutant Discharge Elimination System (NPDES) mitigations and other project mitigations (habitat, trees, etc).
- Increased landscape maintenance costs to comply with Integrated Pest Management (IPM) restrictions (e.g., more hand weeding and mowing).

The expressway system will receive approximately $10.8 million for O&M in 2009, resulting in an annual shortfall of $16.4 million below the amount necessary to achieve the target levels of effort. Current O&M revenue sources are detailed in the Funding Strategy (Section 7).

Table 11: 2008 O&M Target Levels of Effort and Costs

Category	Target Level of Effort	Annual Cost [1] (2008 $/millions)
Signal Operations	❖ Develop and optimize variable timing plans for different times of the day and days of the week for all expressways annually ❖ Maintain Traffic Operations System (TOS) and website	$2.5
Sweeping	❖ Twice per month plus on-call response	1.2
Landscaping Maintenance [2]	❖ Maintain landscaping and irrigation systems ❖ Replacement plantings as needed ❖ Control weeds and clean up litter ❖ Repair fences as needed	5.2
Pavement Maintenance	❖ Patch potholes as encountered ❖ Resurface on 15-20 year cycle ❖ Preventive maintenance/ rehabilitation to extend life of pavement on 8-10 year cycle ❖ Use more expensive products like Rubberized Asphalt Concrete with longer life cycle where cost effective	5.3
Pavement Reconstruction	❖ Reconstruct/replace 10% of expressway pavement sections every 30 years	2.3
Sound Wall Maintenance	❖ Respond to graffiti within 1 to 3 days of notification	0.3
Sound Wall Infrastructure Replacement	❖ Replace all existing noise sufficient sound walls based on a 30-40 year life cycle	2.9
Traffic Control/Safety Devices Infrastructure Replacement (e.g., signal & lighting systems, guard rails, signs, delineators)	❖ Implement preventive maintenance by replacing on scheduled basis before worn out ❖ Replace and upgrade materials to reflect latest technologies/ materials where cost effective	4.2
Other Infrastructure Replacement (e.g., sidewalks, drainage, and other utility systems)	❖ Implement preventive maintenance by replacing on scheduled basis to prevent service interruption ❖ Replace with more expensive but longer service life materials where cost effective	1.7

Table 11: 2008 O&M Target Levels of Effort and Costs (continued)

Category	Target Level of Effort	Annual Cost [1] (2008 $/millions)
Facility, Equipment, and Fleet	❖ Implement routine maintenance ❖ Repair as needed ❖ Replace based on variable standard life cycles	1.5
Enforcement	❖ Continue to contract with CHP to patrol HOV portions of Central, San Tomas, Montague, and Lawrence Expressways[3] ❖ Cities continue to provide enforcement on all other expressways	0.1
	Total	**$27.2**

Note: Utility and maintenance costs for any pedestrian-scale lighting added to the expressways are not included. As noted in the policy for pedestrian-scale lighting, these costs would be covered by maintenance agreements funded by the cities, developers, or assessment districts.

[1] For some activities, such as signal operations, sweeping, and landscaping maintenance, the costs are incurred annually. For infrastructure replacement and pavement maintenance, the costs are incurred at various intervals, and the costs have been annualized.

[2] The annual cost for the landscaping category reflects the maintenance cost if all eight expressways are brought up to the landscaping standard described in the Finishing Program Element. The capital costs for landscaping installation is not included here.

[3] Portions of these expressways are patrolled by the CHP to enforce the HOV lanes. The CHP uses the fines collected from HOV lane violations to pay for costs of enforcement.

Santa Teresa-Hale Corridor

Current O&M responsibilities for the Santa Teresa-Hale Corridor are divided between the County, Morgan Hill, and Gilroy. The County is responsible for the unincorporated portions of the 20-mile corridor and the sections within Gilroy and Morgan Hill with executed expressway maintenance agreements in place. A portion of Santa Teresa north and south of SR 152 that had an expressway maintenance agreement now has a superceding agreement establishing Gilroy maintenance responsibility. The 2003 Study "South County Working Paper" suggested continued communications between the County and cities to establish consistent jurisdiction limits and maintenance responsibilities, with the intent that the Santa Teresa-Hale improvements inside city jurisdictions would ultimately become city roadways. The O&M needs for the unincorporated two-lane, rural portions of the Santa Teresa-Hale Corridor are part of the County's 608-mile unincorporated roads O&M budget. No O&M costs for the Santa Teresa-Hale Corridor are included in the expressway O&M cost estimates; however, the Santa Teresa-Hale Corridor should be considered in any regional fund sources that may become available to support expressway O&M activities.

O&M Implementation Challenges

Table 11 provides the annualized costs for O&M activities. However, large-scale infrastructure rehabilitation and replacement projects require large outlays in a single year rather than an annual amount over a 10 to 40-year life span. Under ideal circumstances, the annualized cost would be set aside in a reserve fund each year to be drawn from when it is time for a large infrastructure rehabilitation or replacement project. With the O&M annual shortfall, this has not been possible and, typically, these large-scale projects depend on securing one-time funding sources (e.g., grants and sales tax measures).

The following two O&M needs are imminent and present major funding challenges:

- San Tomas Box Culvert Repairs – The box culvert structure, which is about four miles long begins south of Williams Road in San Jose and ends downstream north of Cabrillo Avenue in Santa Clara. The structure was constructed between 1963 and 1968. An inspection revealed significant erosion and etching of the concrete invert surface. Structural reinforcing steel is exposed and deteriorating, compromising the structural integrity. With continued scour, failure mechanisms are conceivable which could ultimately lead to the collapse of the structure. This is a serious safety concern since portions of the roadway overtop the structure. In addition, there would be significant environmental and local flooding issues associated with structure collapse. The project cost estimate is $13.2 million. While the annualized rehabilitation costs (approximately $0.35 million for the 40-year life span) for the culvert are included in the estimated O&M annual needs, there is no current funding source with $13.2 million available for the project.
- Expressway Pavement Maintenance – The annualized cost for a preventive maintenance and resurfacing program for all eight expressways is $5.3 million. If the expressway pavement maintenance needs were appropriately staggered and $5.3 million were available every year, there would be no funding challenge. However, due to the O&M shortfall, expressway pavement maintenance has been dependent on grants and sales tax measures. The 1996 Measure B Sales Tax provided $27 million for expressway pavement maintenance leading to nearly all the expressways being resurfaced in the same time period (late 1990s/early 2000s). As a consequence, they are all coming due for maintenance again from 2010 through 2012 at a cost of nearly $15 million per year. The consequences of deferring maintenance will be an escalating rate of pavement deterioration and greater costs for pavement repairs.

SECTION SEVEN
FUNDING STRATEGY

The 2003 Expressway Study identified a total capital program of nearly $2 billion and an annual need of $18 million for operations and maintenance (O&M). The primary funding sources for the capital improvement program were identified as being federal and state grants. The only continuous source of expressway O&M funds was the County's share of the state gas tax, from which the expressways were receiving $5.2 million per year.

2003 Funding Strategy Progress Report

Listed below are the key funding strategy recommendations from the 2003 Study and the progress on each:

- *Seek $150 million allocation in VTP 2030 for the 2003 Tier 1A Projects and resolve the expressway local match issue.* VTA did allocate $150 million in VTP 2030 for the Tier 1A projects and included the Tier 1B projects below the funding line should additional funds become available. However, there was no excess funding capacity in the 2004 and 2006 State Transportation Improvement Program (STIP) for expressway allocations. The new programming capacity from the Proposition 1B STIP allocation was used toward the VTP 2030 Freeway and Local Streets & County Roads Programs. VTA has indicated that the Expressway Program is in line for an allocation from the 2010 STIP.

- *Resolve the expressway local match issue during VTA's VTP 2030 process.* VTA concurred that the expressway needs should be fully allocated in the VTP 2030 without a 20% reduction for a local match. However, local match is still required with federal and state grants and the County is only able to provide matches for small-scale projects. City developer impact fees and/or exchanging federal/state funds for local funds with no match requirements remain the only way to handle the match for most Tier 1A projects.

- *Jointly with VTA, pursue additional revenue for meeting both the transit operating needs and the expressway maintenance/operations needs, including capital program local match requirements.* Two attempts have been made to increase funding for expressway needs in combination with other transportation funding needs. The first was Senate Bill (SB) 680 in 2005. SB 680 would have imposed a $5.00 annual vehicle registration surcharge in Santa Clara County for eight years. The funding was designated for litter removal/landscape restoration (freeways and expressways), Tier 1A expressway projects, local road congestion relief projects, and Caltrain capacity improvements. The bill was vetoed by the Governor. The second attempt was for a half-cent general purpose countywide sales tax in 2006 with the funding slated for health services, affordable housing, BART, and roadway improvements, including expressways. The measure failed to win a majority approval at the polls.

- *Work with the cities to collect expressway traffic mitigations, and expressway pedestrian, sound wall, and landscaping improvements through land development approval processes.* Several cities in Santa Clara County have incorporated expressway capital improvements into their land development traffic impact mitigations. The 2003 Expressway Study was helpful in calling attention to expressway needs and further facilitating cities conditioning developers for improvements

- *Pursue grants and partnerships for non-roadway capacity projects, such as pedestrian, bicycle, sound wall, and TOS projects*. The County has had some success in acquiring grant funding for bicycle and TOS projects in highly competitive environments with relatively little funding available. There were no VTP 2030 funding programs that supported pedestrian improvements for the expressways, and the County's focus has been to work with VTA to develop the VTA/County/City matching fund that is discussed in the Pedestrian Element. There have also been no grant sources for sound walls, but the County has worked to keep the expressway sound wall needs on eligibility lists.

2008 Update Estimated Needs

Capital Projects

Table 12 summarizes the total capital program costs for the 2008 Update. The capital costs are substantially higher due to large increases in construction costs over the last few years, the addition of some new projects and the Santa Teresa-Hale Corridor needs, and the expansion of the pedestrian program.

Table 12: Capital Program Funding Needs [1]

Element	Total Cost	Committed Funds [2]	Potential Funding [3]	Net Needs
Tier 1A [4]	$178.9	$18.4		$160.5
Tier 1B	253	87.9		165.1
Tier 1C	76.4			76.4
Tier 2	875-930			875-930
Tier 3	861-1,126			861-1,126
Capacity & Operational Improvements Total	$2,244-2,564	$106.3		$2,138-2,458
Bicycle	16.5		10.9	5.6
Pedestrian	76.3-84.3		23.3	53-61
Finishing: Sound Walls	76.6		13.7	62.9
Finishing: Landscaping	24-29			24-29
			Total	$2,284-2,617 million

[1] All costs are in millions of 2008 dollars.

[2] Committed sources include grants (Federal earmarks, VTA Bicycle Expenditure Program, other sources) and city commitments, including development impact fees.

[3] Other potential funding sources include funded, Tier 1A, and Tier 1B roadway projects (project costs include appropriate bicycle, pedestrian, and sound wall needs) and land development conditions.

[4] Includes San Tomas Expressway Culvert project.

The primary funding sources for capital projects will continue to be grants (e.g., through VTP 2035 Expressway and Bicycle Programs and from Federal earmarks) and city development impact fees and conditions. The proposed expressway pedestrian funding program will be a relatively small pot of new funding. County Road Fund (County share of state gas tax, 2006 Proposition 1B, and Proposition 42) expenditures toward capital projects is limited to small projects with high benefit/cost ratios, local match for grant-funded projects, and cost escalation of projects already underway.

In reviewing all known and potential capital funding sources, the net result through 2035 is likely to be:

- All Tier 1A projects and half of the Tier 1B projects will be funded over the next 25 years. In addition, most of the bicycle needs and some of the pedestrian needs will be funded.
- The following needs will not be funded: the remainder of the Tier 1B projects; the roadway projects in Tiers 1C, 2, and 3; most of the pedestrian needs; and the sound walls and landscaping needs listed in the Finishing Program.

Operations and Maintenance

The annual O&M costs for the target levels of effort have grown 51% (from $18 million to $27.2 million) due to increased labor and material costs as well as an expanded Traffic Operations System that must be maintained. The pavement maintenance and infrastructure replacement costs have been particularly hard hit due to the substantial increases in oil prices and other materials used in construction.

The sources for O&M needs are the County Roads Fund and some one-time funding sources (e.g., federal pavement rehabilitation grants, TFCA signal timing grants, 2006 Proposition 1B). The County Road Fund receives approximately $24 million annually from the state gas excise tax for use on both the 625-mile unincorporated road network and the 62-mile expressway system. There are no special funds received by the County for operating the expressway system. Santa Clara County is the only county in the state with a high-capacity expressway network operating through incorporated cities. The state gas tax formula does not recognize the funding needs of such a unique system.

Starting in 2009, the County is scheduled to receive $12 million annually from Proposition 42 funds which will be divided up between unincorporated roads and the expressways. However, there is a provision that allows the state government to divert those funds to help close its budget deficit in times of fiscal emergency.

The County is also slated to receive $38 million in 2006 Proposition 1B (infrastructure bond) funds. The first allocation of $15 million was received for FY 2008 but was needed to compensate for the lack of Proposition 42 funds in FY 2008. An additional $3 million allocation was approved in June 2008.

The declining value of gas taxes is significantly impacting transportation system funding. The tax rate is set at a flat amount per gallon of gas. The federal tax is 18.4 cents per gallon and the State of California tax is 18 cents per gallon. The state and federal gas tax rates have not been adjusted since 1995 and 1993, respectively. As a result, the purchasing power of the gas tax has steadily been eroded by inflation. Also contributing to the decline in gas tax revenue is reduced demand due to the steep increases in the price of gas. Proposition 42 revenue will simply backfill some of the lost purchasing power and will not result in the ability to provide additional O&M efforts, while the remaining Proposition 1B revenue will provide one-time funding for small, high benefit/cost ratio projects, provided it is not needed to backfill a future Proposition 42 suspension.

The expressways account for approximately 9 percent of the total County road centerline miles and 20 percent of the total lane miles. They will receive a minimum of 30 percent of the County's gas tax and Proposition 42 allocations, equal to approximately $10.8 million for O&M in 2009. With an O&M cost estimate of $27.2 million in 2008 dollars, this leads to an annual shortfall of $16.4 million to achieve the target levels of effort. This shortfall is expected to grow as real gas tax revenue declines.

It will be a challenge to maintain the current O&M levels of effort, and it will not be possible to expand the levels of effort to reach any of the targets without an increase in sustainable revenue sources. O&M efforts necessary to maintain the safety of the expressway system will continue to be the highest priority for the limited funding. However, the forecast is that pavement conditions will decline, the County will be less responsive to signal timing requests, there will be less sweeping and more weeds/litter, and most other non-critical maintenance will be deferred.

Funding Opportunities

Acquiring new revenue sources for both capital and O&M needs is very difficult in the current economic environment. Adding to the challenges are the following competing interests:

- The state is in a budget crisis with structural budget deficits that led to a long impasse for adopting a fiscal year 2008-09 budget and is now projected to lead to a large State budget deficit again next year.
- VTA is seeking a countywide 1/8-cent sales tax increase to fund BART operating expenses.
- Many local agencies are facing severe budget deficits, especially for maintaining local infrastructure. MTC estimates that the San Jose/San Francisco Bay Area has a $10.9 billion 25-year shortfall to adequately maintain, operate, and improve local streets and roads. The City of San Jose has been exploring various funding sources ranging from taxes to property assessment districts to help reduce its deficit while the City of Campbell is requesting voters approve a 1/4-cent citywide sales tax for the city's general fund.
- There is a lack of state support for pursuing increases in vehicle registration fees. The Governor has a history of vetoing bills to increase the vehicle registration fees. A 2007 bill (AB 444) to authorize VTA (as Santa Clara County's congestion management agency) to place a $10 annual vehicle registration fee for congestion relief and environmental mitigation has been stalled in a Senate committee.

There has also been a difficulty in preserving current federal and state transportation funding levels and making sure they are made available for local agency use. With the State of California's annual budget deficit, funds intended for transportation purposes have at times been "loaned" to the state General Fund for non-transportation purposes. At the regional level, there is a desire to direct existing and new funding sources toward efforts to reduce greenhouse gases through land use changes and changing travel patterns which must be balanced with the need to maintain a deteriorating roadway system.

As discussed in the 2003 Expressway Study and still true today, the best opportunity to sustain and increase O&M revenue for the expressways and all local roadways is to increase the gas tax. If the gas tax is increased at the federal level, it is unpredictable how much of the funding would actually be returned to source and allocated to road maintenance needs. If the State increases the gas tax, or indexes it to inflation, there will be more funding coming to the County through the allocation

formula. Another opportunity is MTC's current authorization to place a regional 10-cent per gallon gas tax on the ballot for general road purposes. However, in 2008, there was legislation proposed (AB 2744) to repeal this authority and replace it with a 10-cent regional fuel "fee" that will be used to reduce greenhouse gas emissions from motor vehicles. This legislation failed passage in the Assembly but it is due to be reconsidered.

Still, there are opportunities that should be pursued when possible:

- The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorizes the federal surface transportation programs for highways, highway safety, and transit through 2009. The reauthorization opportunities include advocating for more direct subvention of maintenance funding to local agencies.
- The State has benefited enormously from Santa Clara County's history of self-help local initiatives to construct facilities that are normally a state responsibility. This self-help history traces back to the original expressway planning and construction bonding. It seems fair that as in-lieu of freeways, the expressways should have access to state freeway maintenance funds. Designation of a portion of State Highway Operation and Protection Program (SHOPP) funds, for example, could be pursued.
- Passage of AB 444 (vehicle registration surcharge) or another vehicle fee that ensures a stable source of transportation maintenance funding regardless of the amount of gasoline purchased by each vehicle should be supported. This could include fees based on vehicle miles traveled so that users pay proportional to their use of the roads.
- Efforts to increase the gas tax either by the State for direct subvention to local agencies or a local gas tax that can be used for road capital and O&M needs need to be pursued.
- Revenue from High Occupancy Toll (HOT) lanes may be used to support transportation needs within HOT lane corridors after paying for HOT lane start-up and operating costs. Portions of expressways and Santa Teresa-Hale may fall within HOT lane corridors and, therefore, would be eligible to receive HOT lane revenue.
- The most likely new funding opportunity for expressway capital needs is from the STIP, starting with the 2010 STIP. The amount of funding that may be available is unknown. The last few STIP cycles have seen little or no money available and it was only the infusion of Proposition 1B funds that provided a fair amount of programming capacity in the 2008 STIP.

Tier 1A Expenditure Plan

With the anticipation that some regional funding may be made available for the Expressway Tier 1A projects starting in 2010, an expenditure plan has been developed. This expenditure plan will help guide discussions with VTA and the cities about allocating regional funds to the expressways as part of the upcoming near term programming cycles.

The San Tomas Box Culvert repair from the O&M Element has been added to the Tier 1A Expenditure Plan for regional funding consideration. As discussed in the O&M Element, this $13.2 million project is needed to maintain the integrity of San Tomas Expressway. Technically, this project is not eligible for any traditional grant sources. However, given the magnitude and urgent need for the project, it has been submitted to VTA and MTC for VTP 2035 and Transportation 2035 consideration and is recommended for inclusion in the Tier 1A Expenditure Plan in case eligible funding becomes available (e.g., a new type of federal grant, a local fund/STIP exchange).

The expenditure plan focuses on determining which projects will be in the "near term" (by 2015) program. All other projects are designated as after 2015. In addition, it was necessary to stay as close to the expressway program regional fund targets set by VTA for these categories as possible. The expressway targets for regional dollars are:

- Near term (by 2015) – $90.2 million
- After 2015 (VTA's mid and long term) – $71.1 million

Similar to the approach of placing projects into tiers, criteria was used to determine which Tier 1A projects fell into the near term. Some projects were broken into phases and, therefore, span more than one time period. Projects meeting one of the following criteria were placed in the near term:

- Mitigates a 2006-2007 level of service problem (LOS F)
- Is an operational/safety improvement
- Has existing grants/funds attached
- Has specific timing requirements for the near term linked to other funds or other projects
- Is a study to support large, unfunded capital projects to identify project costs/design factors for future VTP considerations

Projects that were included in the near term were then divided into the three funding cycles (2010, 2012, 2014) based on the following considerations:

- Projects with a history of safety concerns and relatively low-cost, quick fix projects were placed in the first programming cycle (2010).
- Projects with specific timing requirements (e.g., linked to local funds or other projects) were placed in the appropriate cycle (2010, 2012, or 2014).
- Feasibility studies/Project Study Reports (PSRs) were placed in the third cycle (2014) because of the long term nature of securing funding for the final project and the need to focus on delivering near term improvements.
- Installing TOS infrastructure along new corridors is in the first cycle (2010) while other TOS improvements fall into second and third programming cycles (2012 and 2014).
- Large projects with long delivery times or complicated approval procedures were split into phases and different programming cycles to allow sufficient time for preliminary engineering/environmental clearance and to schedule needed construction funds in an achievable timeframe.

The Tier 1A Expenditure Plan is provided in Table 13. Appendix B shows the application of the near term criteria and programming cycle considerations in determining project placement in the Expenditure Plan.

Table 13: Tier 1A Expenditure Plan

Near Term Recommendations							
Exp.	**Project**	**Total Cost ($M)**	**Com-mitted ($M)**	**Net ($M)**	**Programming Cycle**		
					1 (2010)	**2 (2012)**	**3 (2014)**
Almaden	8 lanes Coleman - Blossom Hill (Phase 1 PE/Env)	2.5		2.5			2.5
	PSR for 85/Almaden Interchange	0.4		0.4			0.4
Capitol	TOS Infrastructure	3.5		3.5	3.5		
Central	Median curb improvement 85 to 237	0.8		0.8	0.8		
	Aux Lanes Mary - Lawrence	17.0	0.5	16.5	16.5		
Foothill	Extend decel lane at San Antonio	0.7		0.7	0.7		
	Widen Loyola Bridge	7.0	1.8	5.2		5.2	
Lawrence	Additional left-turn at Prospect	2.6		2.6	2.6		
	PSR for Lawrence/Calvert/I-280 interchange	1.0		1.0			1.0
	Close median and right ins/outs	1.5		1.5	1.5		
Montague	Mission College at-grade intersection improvements	4.0		4.0			4.0
	8 lanes Trade Zone - Park Victoria	20.0	13.0	7.0	7.0		
Oregon-Page Mill	I-280/Page Mill interchange modification	6.6	1.0	5.6	1.3	4.3	
	Alma Bridge feasibility study	0.3		0.3			0.3
San Tomas	8 lanes Williams - El Camino (Phase 1 PE/Env)	8.0		8.0		8.0	
	Culvert rehabilitation	13.2	0.5	12.7	12.7		
Santa Teresa/ Hale	DeWitt “S” Curve	2.5	0.5	2.0	2.0		
	Santa Teresa TOS Infrastructure (Phase 1 – Existing signals)	3.0		3.0	3.0		
Signal/ TOS	Signal coordination-interconnect (Phase 1)	2.5		2.5		2.5	
	Motorist traffic information	5.0		5.0		5.0	
	System TOS Infrastructure Improvements (Phase 1)	5.0	0.9	4.1			4.1
	TOTAL	**107.1**	**18.2**	**88.9**	**51.6**	**25.0**	**12.3**

Table 13: Tier 1A Expenditure Plan (continued)

After 2015 Recommendations		
Expressway	**Project**	**Total Cost [1] (millions)**
Almaden	8 lanes Coleman - Blossom Hill (Phase 2 Construction)	8.0
Central	6 lanes Lawrence - San Tomas	13.6
Lawrence	8 lanes Moorpark - south of Calvert	5.2
San Tomas	8 lanes Williams - El Camino (Phase 2 Construction)	32.7
	SR 17 area improvements	2.6
Santa Teresa/ Hale	Santa Teresa TOS Infrastructure (Phase 2 – New segment/signals)	2.0
Signal/TOS	Signal coordination-interconnect (Phase 2)	2.5
	System TOS Infrastructure Improvements (Phase 2)	5.0
	TOTAL	71.6

[1] There are no committed funds for these projects.

Note: The two Tier 1A HOV Lane conversion projects totaling $0.2 million would be fully funded from the County Road fund and are not included in the Tier 1A Expenditure Plan.

2008 Update Funding Strategy

For the most part, the funding strategy recommendations from the 2003 Expressway Study remain valid. The County will continue to take the following actions: pursue all possible grants and partnerships for expressway improvement and O&M needs; work with the cities to acquire traffic mitigation fees and new development conditions to support the expressway system; and, support all State efforts to index the gas tax to inflation and to increase the gas tax to help fund O&M needs of the expressway system.

Following are the funding strategy recommendations specific to the 2008 Update:

- Request full funding for the Tier 1A Capacity and Operational Improvements in VTP 2035 with Tier 1B projects also listed should additional funding become available.
- Seek $52 million from the 2010 STIP for the first Tier 1A near term programming cycle with follow up requests from the 2012 and 2014 STIPs to complete the near term Tier 1A projects as specified in Table 13.
- Seek funding from VTP 2030's Pavement Maintenance Program to cover the next round of expressway pavement maintenance needs to come due between 2010 and 2012 at a cost of approximately $12-15 million annually.
- Advocate for a commitment from future HOT lane revenue to help improve and maintain sections of expressways and Santa Teresa-Hale if determined to be within HOT lane corridors.
- Explore, through State liaison, opportunities for opening a State maintenance revenue stream for expressways.
- Support initiatives for vehicle registration fees or vehicle miles traveled fees to help fund expressway and local road improvement and maintenance needs.
- Advocate that MTC institute a return-to-source policy for its 10-cent gas tax authority giving the cities and County local control to meet high priority O&M needs, or continue to pursue new local funding sources for expressway O&M needs, taking advantage of partnerships with other local agencies facing annual deficits in road O&M budgets and pursue a 10-cent gas tax as a local initiative.

SECTION EIGHT
FUTURE UPDATES

The Expressway Study 2008 Update's project lists, cost estimates, policy recommendations, and implementation strategies are based on conditions known today. To keep the Expressway Study current and useful as a planning tool, it must be updated on a regular basis. The updates are timed to occur prior to VTA's VTP updates so the project lists can be incorporated into the VTP. With the VTP scheduled for update every four years, the next Expressway Update should occur in 2012.

Each element of the 2008 Expressway Study Update included various implementation strategies and action steps that will be pursued prior to the next 2012 Update. The general scope of every Update includes the following tasks:

- Provide a status of work accomplished since the last Update.
- Revise the project lists and cost estimates for all elements.
- Identify new challenges facing the expressway system.
- Recommend any necessary policy changes.

The following specific issues and work tasks should be addressed in the 2012 Update:

- Conduct traffic modeling to project future conditions on the expressways in addition to reviewing current level of service and operational/safety needs. When the 2012 Update begins, it will have been over 10 years since the traffic modeling and extensive traffic analysis was completed for the expressway system. This work is critical for defining current and future problems and developing project descriptions. Rising gas costs and concerns over

climate changes may lead to significant changes in commuting behavior affecting traffic volumes on the expressways. At the same time, the promotion of land use changes to focus more growth as in-fill development may increase the demand on the expressway system, which primarily serves intra-county shorter distance trips connecting residential and employment areas, beyond previous projections.

- Evaluate the targets for the HOV lane performance measures and determine whether adjustments are needed. The current performance measures were set in 2003 based on adjustments to freeway HOV lane performance measures. As noted in the HOV performance discussion of the Capacity and Operational Improvement Element, there is an indication that some of the targets for the performance measures need adjustment to truly reflect the operating characteristics of expressway HOV lanes. Continued monitoring of the HOV lanes between now and the 2012 Update will provide key data for determining what adjustments may be needed.
- Revise the sound wall list and set priorities based on the results of VTA's noise analysis and city land use planning preferences (e.g., take into account recent city decisions to have some developments front on the expressway without sound walls).
- Conduct an assessment of expressway system intersections to determine how many could use major reconstruction to make them more pedestrian friendly (e.g., square corners, eliminate free-running rights, etc.) providing for a formal project list and cost estimates.

Similar to the 2003 Study and 2008 Update, a collaborative process involving elected officials, local agency staff, and the public will be used to develop the 2012 Update.

APPENDIX A

PROJECT TIER CHANGES
FROM 2003 EXPRESSWAY STUDY TO 2008 UPDATE

PROJECT TIER CHANGES
From 2003 Expressway Study to 2008 Update

Tier 1A Project List Changes

Projects removed because they are completed or in progress:

- Almaden – Widening and operational improvements between Branham and Blossom Hill through SR 85 interchange
- Foothill – Signal operational improvements
- Lawrence – Signal coordination along Lawrence/Saratoga Avenue corridor to SR 85
- Lawrence – Signal operational improvements at I-280/Lawrence interchange and Stevens Creek
- Lawrence – Convert HOV lane north of US 101 to mixed flow
- Montague – Convert HOV lane on 6-lane portion between I-880 and I-680 to mixed flow
- Oregon-Page Mill –Oregon corridor operational and pedestrian improvements
- San Tomas – Additional left turn lanes at Hamilton intersection

Projects moved to another list:

- Montague – 8-lane widening Lick Mill to Trade Zone. Moved to funded list for future implementation.
- San Tomas – Additional right turn lane at Monroe. Moved to Tier 1C due lack of LOS problem.

Projects remaining on list with modified project descriptions and/or costs due to changes in scope:

- Foothill – Widen Loyola Bridge and make circulation improvements. Cost estimate reduced due to change in scope from bridge replacement to bridge widening.
- Lawrence – Close median at Lochinvar and right-in and –out access at various locations. Added Lillick to the list of access closures to be studied at City of Santa Clara's request.
- Montague – Widen to 8 lanes between Trade Zone and Park Victoria, including I-680 interchange improvements with lane additions to be operated as HOV on a trial basis. 8-lane widening from Mission College to Trade Zone is either complete or fully funded. The portion that is not yet fully funded remains in the Tier 1A project list.
- Signal/TOS Capital Improvements – Install equipment to provide signal coordination/interconnection with cross streets. Combined this project with the 2003 Tier 1A project to install equipment to interconnect with Sunnyvale, Palo Alto, Mountain View, and Los Altos signal systems.
- Signal/TOS Capital Improvements – Various expressway system TOS infrastructure improvements. Project description and cost estimate revised to reflect the next level of systemwide TOS enhancements.

New projects added to the Tier 1A list:

- Capitol – Install TOS infrastructure from US 101 to Almaden Expressway
- Central – Convert Bowers queue jump lane to mixed use
- Central – Median curb improvements between SR 85 and SR 237
- Lawrence – Add left turn lane from eastbound Prospect (moved from Tier 1C List)
- Montague – Mission College intersection at-grade improvements (split off from Tier 1B project)
- Santa Teresa/Hale Corridor – Realign DeWitt S-Curve
- Santa Teresa/Hale Corridor – Add TOS infrastructure from US 101 to Buena Vista

Tier 1B Project List Changes

- Capitol Expressway – Removed Silver Creek interchange project from list as requested by the City of San Jose requested because this project would conflict with local plans for the area.
- Montague – Moved Trimble flyover project to the funded list for future implementation.

Tier 1C Project List Changes

- Santa Teresa-Hale Corridor – Added projects for this corridor which met Tier 1C criteria.
- Capitol Expressway – Combined the US 101 Central Corridor Study recommended improvement for the section between McLaughlin and Aborn with the 2003 Tier 1C McLaughlin intersection improvement project.
- San Tomas Expressway – Moved the former Tier 1A Monroe intersection improvement into Tier 1C.

Tier 2 Project List Changes

- Central Expressway – Changed the project description and cost estimate for the Central/Rengstorff intersection from constructing an interchange to depressing the Central/Rengstorff intersection in conjunction with the adjacent Rengstorff/Caltrain railroad tracks grade separation project. This is consistent with city plans and an updated LOS analysis.
- Central Expressway – Removed the "at grade improvements or interchange at Mary" project as requested by Sunnyvale. This project is not consistent with local community plans, there is no LOS need for it, and there are feasibility problems in implementing it.
- Lawrence Expressway – Removed the "interchange at Tasman" project as requested by Sunnyvale. This project is not consistent with local community plans, there is no LOS need for it, and there are feasibility problems in implementing it.
- Oregon-Page Mill Expressway – Removed the El Camino Real intersection improvement project. This project has been incorporated into the Oregon Expressway Corridor project currently in progress.

Tier 3 Project List Changes

- Lawrence and San Tomas – Simplified the list by combining the feasibility studies/Project Study Reports and project construction into one project listing.
- Oregon-Page Mill Expressway – Added reconfiguration of the US 101/Oregon Expressway/Embarcadero Road interchange project to the list.

APPENDIX B

TIER 1A EXPENDITURE PLAN CRITERIA

Tier 1A Expenditure Plan
Criteria and Timing Recommendations

Project	Criteria						Recom-mendation
	2006-07 LOS F	Op/ Safety	Study Only	Funding Commitments	Timing Issues	Phasing Options	
Almaden – 8 lanes Coleman to Blossom Hill	Yes				Still working on Branham to Blossom Hill Project (completed in 2-3 years)	1) PE/Env 2) Construct	1) Near Term (Cycle 3) 2) After 2015
Almaden – PSR for SR 85/Almaden Interchange			Yes				Near Term (Cycle 3)
Capitol – TOS Infrastructure		Yes					Near Term (Cycle 1)
Central – Median curb improvement SR 85 to SR 237		Yes					Near Term (Cycle 1)
Central – Auxiliary Lanes Mary to Lawrence		Yes		2008 Federal Earmark to start PE	History of safety concerns		Near Term (Cycle 1)
Central – 6 lanes Lawrence to San Tomas							After 2015
Foothill – Extend decel-eration lane at San Antonio		Yes					Near Term (Cycle 1)
Foothill – Widen Loyola Bridge		Yes		BEP plus potential LS&CR for off-expressway			Near Term (Cycle 2)
Lawrence – Additional left-turn at Prospect	Yes						Near Term (Cycle 1)

Project	Criteria						Recom-mendation
	2006-07 LOS F	Op/ Safety	Study Only	Funding Commitments	Timing Issues	Phasing Options	
Lawrence – 8 lanes Moorpark to south of Calvert							After 2015
Lawrence – PSR for Lawrence/ Calvert/I-280 interchange			Yes				Near Term (Cycle 3)
Lawrence – Close median and right ins/outs		Yes		Sunnyvale funds			Near Term (Cycle 1)
Montague – Mission College at-grade intersection improvements					Should be planned/ designed jointly with Montague/101 Par-Clo (a near term project in VTP 2035 Freeway Program and due for construction in 2014)		Near Term (Cycle 3)
Montague – 8 lanes Trade Zone to Park Victoria	Yes			San Jose, Milpitas, and VTA BART funds	San Jose local funds due 2010 and project must be completed by 2016		Near Term (Cycle 1)
Oregon-Page Mill – I-280/ Page Mill interchange modification		Yes					Near Term (Cycle 2)
Oregon-Page Mill – Alma Bridge replacement feasibility study			Yes				Near Term (Cycle 3)
San Tomas – SR 17 area improvements							After 2015
San Tomas – 8 lanes Williams to El Camino	Yes				Very large-scale, complex project – 10-year delivery	1) PE/Env 2) Construct	1) Near Term (Cycle 2) 2) After 2015

Project	Criteria						Recom-mendation
	2006-07 LOS F	Op/ Safety	Study Only	Funding Commitments	Timing Issues	Phasing Options	
San Tomas – Culvert rehabilitation		Yes		2008 Federal Earmark to start PE	Must be completed within 5-7 years to reduce structure damage		Near Term (Cycle 1)
Santa Teresa/Hale – DeWitt "S" Curve		Yes		Morgan Hill funds	History of safety concerns		Near Term (Cycle 1)
Santa Teresa/Hale – Santa Teresa TOS Infrastructure		Yes			A portion of the corridor in Gilroy is not yet constructed/widened	1) Existing 4-lane portion 2) New/ widened portions	1) Near Term (Cycle 1) 2) After 2015
Signal/TOS – Signal coordination-interconnect		Yes				Can be phased	1) Near Term (Cycle 2) 2) After 2015
Signal/TOS – Motorist traffic information		Yes					Near Term (Cycle 2)
Signal/TOS – System TOS Infrastructure Improvements		Yes				Can be phased	1) Near Term (Cycle 3) 2) After 2015

Note: High-occupancy vehicle (HOV) lane conversion projects would be implemented in-house by the County Roads & Airports Department and does not require outside funding; therefore, these Tier 1A projects are not listed here.

Abbreviations:
BEP = VTA's Bicycle Expenditure Program
LS&CR = VTA's Local Streets and County Roads Program
PE/Env = Preliminary engineering/Environmental clearance
PSR = Project Study Report
TOS = Traffic Operations System

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