Kimley»Horn

MEMORANDUM

To: Tri-Valley Transportation Council Technical Advisory Committee

From: Mike Mowery, P.E. and Adam Dankberg, P.E.

Kimley-Horn and Associates, Inc.

Date: November 20, 2015

Subject: *Validation Review of the 2008 Nexus Study*

INTRODUCTION

The Tri-Valley Transportation Council Nexus Study (Nexus Study)[1] was completed in 2008 and provided a nexus analysis consistent with the California Mitigation Fee Act (Government Code Sections 66000-66025). Based on the findings of the Nexus Study, the individual local agencies in the Tri-Valley sub region updated the Tri-Valley Transportation Development Fee (TVTDF).

As part of the overall 2015 Strategic Expenditure Plan (SEP) update effort, Kimley-Horn and Associates, Inc. (Kimley-Horn) was retained to review the 2008 Nexus Study and to determine if a reasonable relationship between the unexpended fees and the purpose for which those fees were collected remains valid, and that the nexus study adequately complies with the Mitigation Fee Act. The results of the review and the recommendation on the appropriate course of action in relation to the 2008 Tri-Valley Transportation Council Nexus Study are detailed herein.

JOINT EXERCISE OF POWERS AGREEMENT

The most recent TVTC Joint Exercise of Powers Agreement (JEPA), adopted in 2013, grants the TVTC the power to enact the TVTDF in its member jurisdictions. According to the agreement, the TVTC 2008 Nexus Study (and any subsequent nexus study) establishes the maximum allowable traffic impact fees and shall be used as a legal basis for the TVTC to recommend impact fee amounts. The TVTC has elected to set the fee amount at only a fraction of the maximum allowable fee included in the Nexus Study. The fee is to be collected on a uniform basis within the party jurisdictions. The revenues from collected fees may only be used to fund transportation improvement projects identified in the SEP, as well as any administrative costs for the TVTC. The SEP is required to be adopted or updated every five years.

[1] Cambridge Systematics, Inc. *Tri-Valley Transportation Council Nexus Study Fee Update*, January 2008 (see **Exhibit A**).

Per the JEPA, the impact fee may be adjusted as of July 1 of each year based on the increase or decrease in the Engineering News Record Construction Cost Index (CCI) for the San Francisco Bay Area for the previous year. Fees may also be adjusted to reflect revisions in the project list, program revenue, and other factors. Member agencies may only receive TVTD fees if they have adopted the uniform TVTDF schedule, as adopted by the TVTC with a six-vote supermajority.

CALIFORNIA MITIGATION FEE ACT COMPLIANCE

The California Mitigation Fee Act requires that a "reasonable relationship" exist between the impacts of types of development and the facilities needed to mitigate their impact. It must be legislatively adopted by a jurisdiction as findings in support of the impact fees it enacts.

Per the Mitigation Fee Act, for a jurisdiction to enact impact fees a nexus determination is required to be made to identify the following statutory findings:

- Purpose for collecting development impact fees;
- Specific use of the fee and the facilities to be built;
- Reasonable relationship between the facility funded by fees and the type of development project paying the fee;
- Reasonable relationship between the need for the public facility and the type of development project paying the fee; and
- Reasonable relationship (proportionality) between the amount of the fee and the cost of public facilities.

The nexus determination for the 2008 TVTDF Nexus Study and the requirements of the Mitigation Fee Act as related to this determination could be affected by the changes in the growth projections that drive the impact fee calculation, changes to the project lists due to projects being completed and the planning of new projects, and a change in relationship between the unexpended fees and the purpose for which they were collected.

In addition to the required nexus determination, the Mitigation Fee Act requires an update of this nexus determination every five years as stated in California Government Code Section 66001:

> *For the fifth fiscal year following the first deposit into the account or fund, and every five years thereafter, the local agency shall make all of the following findings with respect to that portion of the account or fund remaining unexpended, whether committed or uncommitted:*
>
> *A. Identify the purpose to which the fee is to be put.*
>
> *B. Demonstrate a reasonable relationship between the fee and the purpose for which it is charged*
>
> *C. Identify all sources and amounts of funding anticipated to complete financing in incomplete improvements identified in paragraph (2) of subdivision (a).*

CHANGE IN PROJECT LIST

The 2008 Nexus Study includes 22 projects that were considered for TVTDF funding. Of these projects, 11 were original projects funded through the fee program adopted in 1995 and are referred to as Exhibit A projects in the Nexus Study. In addition, 11 other projects were proposed to be added to the fee program in 2007 and are referred to as Exhibit B projects.

Nearly all of the Exhibit A projects have been completed since the 2008 Nexus Study and a number of the Exhibit B projects are in the planning or design process. As a result, the total unfunded cost of identified fee program projects is lower than what was included in the 2008 Nexus Study.

FEE SCHEDULE HISTORY

A record of the fees charged per unit (shown as either density unit, thousand square feet, or peak hour trip) is shown in **Figure 1**. Included in this graph is the planned increase of the TVTDF to 25% of the maximum in the fiscal year 2015-2016, followed by an increase to 35% of the maximum in the following fiscal year.

Figure 1: Fee Schedule History 1998-2017

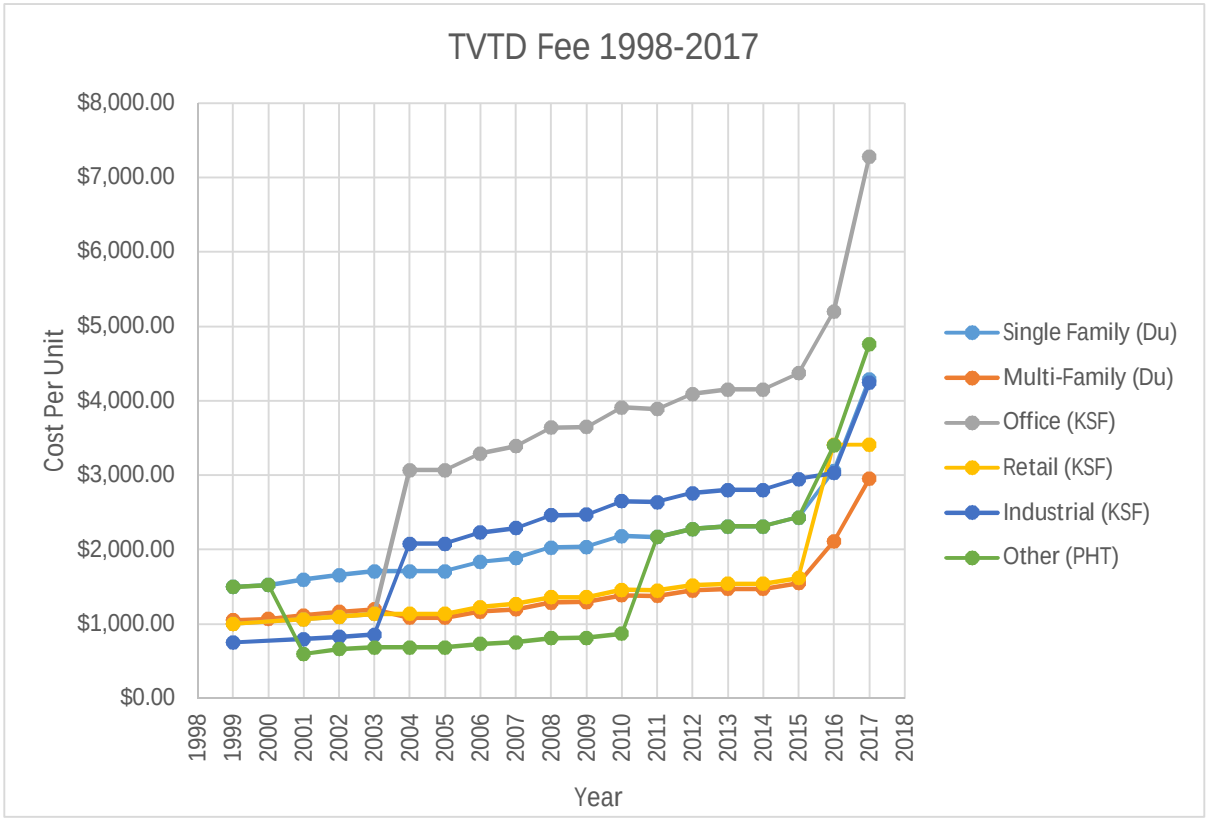

Table 1 indicates the maximum fee by land use category included in the 2008 Nexus Study. As shown in the table, the maximum fee is much higher than the fee that has been charged by the TVTC.

Table 1: 2008 TVTDF Nexus Study Maximum Fee

Land Use	Unit	Maximum Fee (2008 $)
Single Family	Du	$12,238
Multifamily	Du	$8,430
Retail	KSF	$22,708
Office	KSF	$20,804
Industrial	KSF	$12,102
Other	PHT	$13,597

EXPECTED GROWTH

The intent of this study is to determine if the calculations supporting the Nexus Study fee determination remain valid. The calculation of these fees are based on the improvements needed to mitigate the impact of future development, the cost of implementing those improvements, and the amount of development among which those costs will be distributed.

The impact fees developed as part of the 2008 Nexus Study were based on a set of population and employment projections from 2003. Since that time the Bay Area has gone through significant economic changes that have greatly impacted development activities and transportation funding. The first step in validating the impact fees developed for the 2008 Nexus Study is to compare the growth projections in the current Nexus Study to current growth projections for the Tri-Valley region.

2008 Nexus Study Growth Projections

The 2008 Nexus Study is predicated upon the 2003 Association of Bay Area Governments Projections forecast for population and employment growth for year 2030. These household and employment projections and the calculated annual growth rates are shown in **Table 2** and **Table 3**, respectively.

Table 2: 2008 TVTDF Nexus Study Household Forecasts

Land Use	2007	2030	2007-2030 Growth	Annual Growth Rate
Single Family	91,136	129,818	38,682	1.55%
Multifamily	21,959	41,042	19,083	2.76%
Total Households	113,095	170,860	57,765	1.81%

Table 3: 2008 TVTDF Nexus Study Employment Forecasts

Land Use	2007	2030	2007-2030 Growth	Annual Growth Rate
Retail	36,806	48,927	12,121	1.25%
Service	83,608	129,427	45,819	1.92%
Other	54,076	69,459	15,383	1.09%
Agricultural	1,483	1,182	-301	-0.98%
Manufacturing	20,048	30,895	10,847	1.90%
Trade/Wholesale	10,986	14,371	3,385	1.17%
Total Employment	207,007	294,261	87,254	1.54%

Plan Bay Area Projections

Since the TVTDF Nexus Study was released in 2008, new projections that incorporate more current economic, land use and demographic factors have been developed, vetted and approved by the cities and counties within the greater San Francisco Bay Area. In 2013 the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) adopted Plan Bay Area, an integrated long-range transportation, land-use and housing plan for the nine-county San Francisco Bay Area. As part of Plan Bay Area, the region's demographics and economic trends were tracked and forecast in order to inform and guide Plan Bay Area investments and policy decisions. For this study, the published Plan Bay Area forecast for jobs, population and housing were used as the basis of comparison for the Nexus Study forecasts.

Household and employment forecasts within Tri-Valley jurisdiction are shown in **Table 4** and **Table 5**, respectively.

Table 4: 2013 Plan Bay Area Household Forecasts

City	2010	2040	2010-2040 Growth	Annual Growth Rate
Danville	15,420	16,920	1,500	0.31%
Dublin	14,910	23,610	8,700	1.54%
Livermore	29,130	38,940	9,810	0.97%
Pleasanton	25,250	32,300	7,050	0.82%
San Ramon	25,280	30,730	5,450	0.65%
Alameda Unincorporated	812	2,430	1,618	3.72%
Contra Costa Unincorporated	9,832	10,270	438	0.15%
Total Tri-Valley	120,634	155,200	34,566	0.84%

Table 5: 2013 Plan Bay Area Employment Forecasts

City	2010	2040	2010-2040 Growth	Annual Growth Rate
Danville	13,460	17,620	4,160	0.90%
Dublin	16,810	31,650	14,840	2.13%
Livermore	38,450	53,210	14,760	1.09%
Pleasanton	54,340	69,640	15,300	0.83%
San Ramon	43,960	58,320	14,360	0.95%
Alameda Unincorporated	8,790	11,650	2,860	0.94%
Contra Costa Unincorporated	5,440	6,960	1,520	0.82%
Total Tri-Valley	181,250	249,050	67,800	1.06%

Growth Projection Comparison

The comparison of the annual growth rates of the household and employments forecasts used in the 2008 Nexus Study to those released as part of Plan Bay Area are shown in **Table 6**.

Table 6: Household Forecast Comparison

Forecast Source	Household Annual Growth Rate	Employment Annual Growth Rate
2003 ABAG Forecasts	1.81%	1.54%
2013 Plan Bay Area Forecasts	0.84%	1.06%
Δ in Growth Rate	-0.97%	-0.48%

Both the household and employment annual growth rates from 2003 ABAG forecasts are significantly higher than those of the 2013 Plan Bay Area forecasts. Thus, current projections are indicating a slower build-out of the Tri-Valley area.

TRIP GENERATION COMPARISON

Household Growth

For this study, the growth in households was calculated based on Plan Bay Area forecasts; however, the household data collected for that study was not broken down into single and multi-family categories. To estimate this breakdown, the same ratios of single and multi-family households used in the Nexus Study's start and end years were applied to 2013 Plan Bay Area forecasts. Estimated dwelling unit growth in the Tri-Valley area is shown in **Table 7**.

Table 7: Projected Dwelling Unit Growth, 2010-2040

Land Use Type	2010	2040	Δ in Dwelling Units
Single Family	97,216	117,920	20,704
Multifamily	23,424	37,280	13,856
Total Residential	120,640	155,200	34,560

Employment Growth

Using 2013 Plan Bay Area forecasts, employment growth was classified into Retail, Office, Industrial, and Other land use types. Employee density assumptions from the 2008 Nexus Study were used to convert employment growth into additional building square footage. These conversions are shown in **Table 8** below.

Table 8: Employment Growth Converted to Square Feet of Commercial Building space

Land Use Type	Employee Growth 2010-2040	Employee Density (Sq. Ft/Employee)	Δ in Building Square Footage 2010-2040
Retail	2,910	500	1,455,000
Office	30,120	300	9,036,000
Industrial	2,630	900	2,367,000
Other	32,140	600	19,284,000
Total	67,800		32,142,000

Estimated Trip Generation

The ABAG household and employment growth forecasts were converted into peak hour trips by multiplying the growth in housing units and square footage by the AM and PM peak-hour trip generation rates included in the 2008 Nexus Study. Note that the Nexus Study is based on the Institute of Transportation Engineers (ITE) industry manual, *Trip Generation Manual, 7th Edition*. The current version of the *Trip Generation Manual* is the 9th Edition.

Table 9 shows that 64,870 new peak hour trips are expected to be added to the transportation network between 2010 and 2040 due to new development in the Tri-Valley area.

Table 9: Travel Demand from New Residential and Commercial Development

Land Use Type	Land Use Growth	Trip Generation Rate	New Trips
Residential (dwelling units)			
Single Family	20,704	0.9	18,633
Multi-Family	13,856	0.62	8,591
Total Residential	32,504	-	27,224
Nonresidential (thousand square feet)			
Retail	1,455	1.67	2,430
Office	9,036	1.53	13,825
Industrial	2,367	0.89	2,107
Other	19,284	1	19,284
Total Non-Residential	32,142		37,646
Grand Total			64,870

Nexus Study Comparison

The 2008 Nexus Study, using 2003 forecasts, determined that 98,427 new trips would be added between 2007 and 2030. A comparison of the trip generation increase utilized by the 2008 Nexus Study against the trip generation increase forecast by Plan Bay Area is shown in **Table 10**. This comparison shows that travel demand growth assumed in the 2008 Nexus Study is significantly higher than growth forecast today.

Table 10: Comparison of New Trips Generated

Land Use Type	Nexus Study New Trips, 2007-2030	Plan Bay Area New Trips, 2010-2040
Residential	46,645	27,224
Non-Residential	51,782	37,646
Total	98,427	64,870

As shown in the table, projected growth out to the forecast horizon year has decreased by approximately 34 percent. However, the 2003 forecast was out to 2030, while the Plan Bay Area forecast is out to 2040. Thus, even with a projection ten years further into the future, traffic growth is now projected to be much lower than previously forecast. As a result, traffic congestion is currently projected to be much lower than was forecast and analyzed in the 2008 Nexus Study. The 2008 Nexus Study included an improvement project list that was designed to address the development impacts projected at the time. With a lower growth forecast, it is possible that development would no

longer cause one or more of those impacts. Detailed travel demand modeling and analysis would be required to identify if there would be any change in the mitigations required to address impacts caused by future developments.

FEE PROGRAM PROJECTS

In addition to changes in growth rates, the total unfunded project cost has changed since the latest Nexus Study. Projects have been completed and thus no longer need funding from the fee program, while cost estimates and project definitions have been refined. Project status and current cost estimates, where available, were obtained from the Tri-Valley cities, online search, the previous SEP update, and other available sources. For a number of projects, cost estimates have not been updated, adjusted for current dollars, or current project information was not available. Rough estimates were made to tabulate total unfunded costs for projects not yet constructed.

A comparison of the total unfunded cost is shown in **Table 11**. The 2015 costs shown in the table are approximate and based on rough calculations. A more detailed analysis would be required prior to developing any updated fee maximum estimates. As in the 2008 Nexus Study, the unfunded cost totals were then reduced by 10% to account for the uncertainty of the project cost estimates. Note that the Nexus and updated estimates are listed in 2008 and 2015 dollars, respectively. All numbers were rounded to the nearest million.

Table 11: Unfunded Cost Comparison

	Unfunded Cost (Millions)	
	Nexus Study (2008)	Updated Forecast (2015)
List A	$389	$47
List B	$1,098	$1,307
Total	$1,487	$1,354
Reduced Total	$1,338	$1,219

COMPARISON OF MAXIMUM FEE AMOUNTS

As shown in **Table 11**, the total unfunded project cost has decreased, although not nearly to the degree that projected growth has decreased. The maximum fee amount is a calculation of the total unfunded cost divided by the amount of projected growth. With the unfunded cost only marginally decreasing (by about 9%), and the projected growth significantly decreasing, it is expected that the total cost per new trip would increase. Note that this assumes that a nexus still remains for all of the improvements included in the previous SEP. The total unfunded cost of listed projects was divided by the peak-hour trips to calculate the average cost per peak-hour trip and compared against the 2008 study. This calculation should be considered a rough estimate. A more detailed calculation with current trip generation rates and project costs would be required to calculate a new fee maximum. The roughly estimated unfunded cost per trip is shown in **Table 12**.

Table 12: Maximum Fee Per Trip Calculation

	Nexus Study (2008)	Updated Forecast (2015)
Unfunded Cost (Millions)	$1,338	$1,219
New Trips	98,427	64,870
Cost Per Trip	$13,597	$18,791

As shown in the table, the cost per trip is much higher based on current project status and growth projections. With the actual fees charged only a fraction of the Nexus Study maximum, they would represent an even smaller fraction based on the updated cost per trip calculation. Thus, based on this calculation, the fee program would continue to be collecting revenue that would be far lower than the total cost of the improvement program. It should be noted that the priorities for the SEP update have not changed,

CONCLUSION

This memo identifies that a number of conditions have changed since the completion of the Nexus Study. Growth projections are much lower in recent forecasts than at the time of the Nexus Study. This translates to much lower trip generation from new development. In addition, a number of the projects in the Nexus Study have been completed or had a change in project description or cost estimate. However, due to inflation and updated cost estimates, the total unfunded project has only decreased by 9 percent.

This minor decrease in unfunded cost, paired with a significant decrease in expected new peak hour trips to which the fee will be applied, means that the maximum fee determined in the 2008 Nexus Study would be much higher in an updated calculation. In light of the current fee representing only a small fraction of the maximum amount, it can be safely presumed that the current fee is well below the maximum amount that would be calculated based on current project costs and projected growth.

It must be noted however that with expectations of less growth, it is possible that one or more of the impacts mitigated by current fee program projects would no longer be caused by future growth, or the proposed mitigation would need to be scaled back so as to not exceed the impact caused strictly by future development. New development cannot be charged for mitigations to address deficiencies that are existing and mitigations funded through the fee program must be limited to addressing only the deficiency caused by future development. If development were to no longer cause an impact that is mitigated by a project currently included on the fee program improvement list or a mitigation is greater than necessary to address a deficiency caused by future development, there would no longer be a reasonable relationship between the need for the improvement and future development, and thus no nexus for the fee program. In order to ensure that the nexus remains, a reexamination of projects included in the funding program outlined in the SEP may be warranted to verify that they are all associated with an impact projected to be caused by future development. Given the substantial

difference between the current fee amount and the maximum fee amount, even if one or two projects were no longer associated with mitigating the impact of future development, the fee would still be well under the maximum allowable amount. Therefore, it can be presumed that a nexus would remain for the existing fee level, despite the much lower current growth projections.

Finally, in order to comply with the California Mitigation Fee Act, TVTC must issue a finding every five years that identifies the purpose to which the fee is to be put, that a reasonable relationship between the fee and the purpose for which it is charged still exists, and must identify all sources and amounts of funding anticipated to complete financing in incomplete improvements identified in the fee program. Given the length of time since the previous SEP update, that will be required for this current SEP update. Additionally, once this update is finalized, the next SEP update is quickly approaching and this process will need to begin soon.

EXHIBIT A

CAMBRIDGE SYSTEMATICS

Tri-Valley Transportation Council Nexus Study

Fee Update

final

report

prepared for

Tri-Valley Transportation Council

prepared by

Cambridge Systematics, Inc.

with

Dowling Associates, Inc.

Adopted January 30,2008
Amended February 26, 2008

January 2008

www.camsys.com

final report

Tri-Valley Transportation Council Nexus Study

Fee Update

prepared for

Tri-Valley Transportation Council

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date

January 18, 2008

Adopted January 30,2008
Amended February 26, 2008

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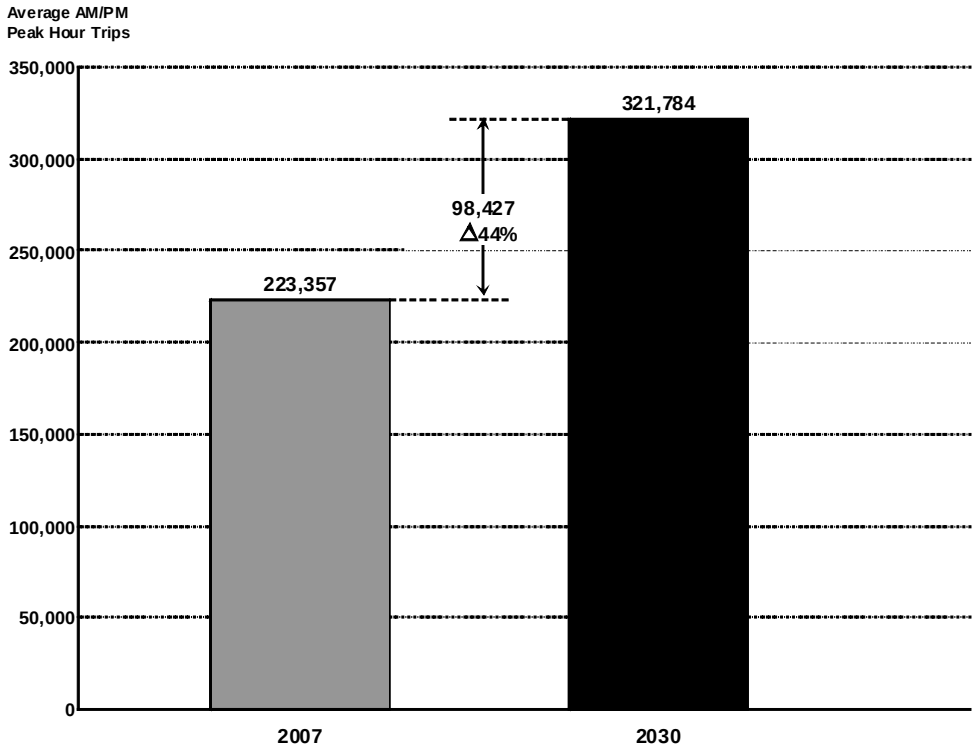
1.0 Summary

New development within the Tri-Valley is forecast to add 57,766 new households and 87,555 additional employees between 2007 and 2030. This growth will produce an increase of just under 100,000 new peak-hour trip-ends (average of AM and PM) or just about a 44 percent increase above the present volume of over 223,000 trip-ends.

Figure 1.1 Increase in Average AM/PM Peak Hour Trips
*2005 and 2030**



Sources: Cambridge Systematics, Inc., and Dowling Associates.

* The current (2005) and projected trips are based on converting ABAG P'03 residential land and employment projection to trips

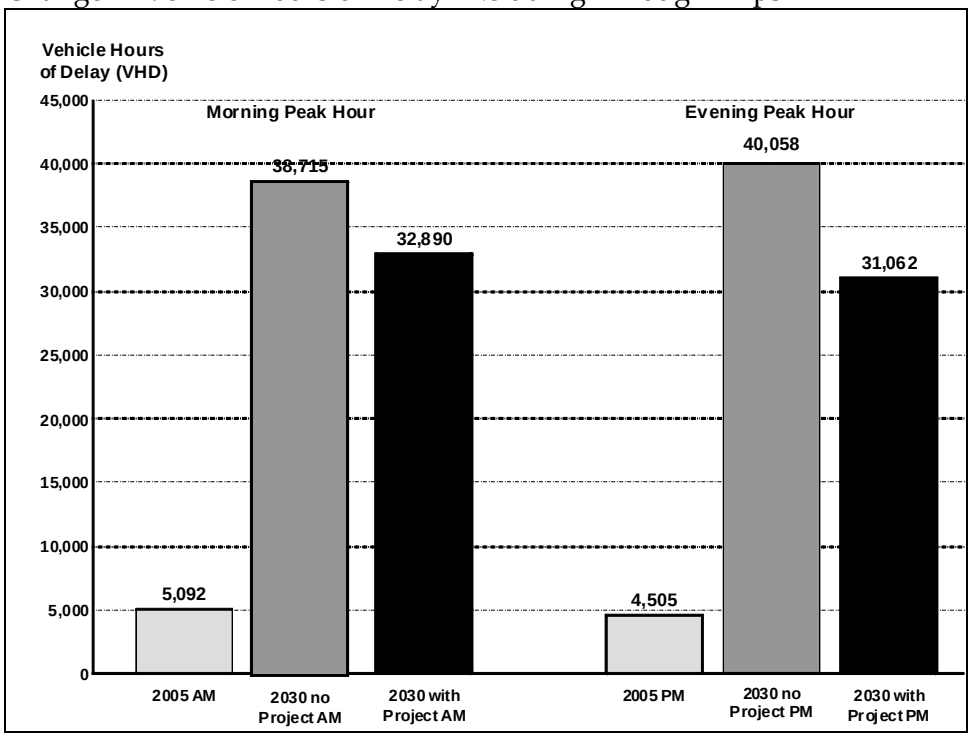
The Tri-Valley Transportation Council (TVTC), therefore, has initiated this update to its existing development impact fee. This update includes seven of the original 11 projects from the first fee program adopted in 1995 (see Table 4.1), which have not been fully funded. Of the estimated $1 billion cost for the seven remaining projects, $389 million remains unfunded. In addition, the update now includes 11 additional projects (see Table 4.2) with a total cost of approximately

$1.3 billion, of which just under $1.1 billion is unfunded. Added together, these 23 projects require roughly $1.5 billion in additional funding.

These cost estimates represent the most extensive engineering analysis available at this time. Nevertheless, as the detailed engineering for each project progresses and actual costs of right-or-way acquisition, environmental clearance, construction materials, etc. become better understood, these costs will change. Nearly universal experience indicates that cost estimates increase as more information becomes available. To account for some uncertainty in the preliminary estimates used to estimate project costs, the TVTC chose to reduce the costs by 10 percent across all projects as a conservative assumption. This reduced the total unfunded cost from $1.5 billion to $1.3 billion.

The analysis of the effects of this growth on roadway congestion shows that, if no further roadway improvements are undertaken, delay is expected to increase from 5,092 vehicle hours of delay (VHD) in 2005 to 40,058 VHD in 2030 or 660 percent in the morning peak hour and 789 percent in the evening peak hour (Figure 1.2). These increases exclude the effects of increases in traffic transiting the Tri-Valley (i.e., through trips with neither an origin nor a destination in the Tri-Valley).

Figure 1.2 Tri-Valley Average Change in Congestion form 2005 to 2030 Change in Vehicle Hours of Delay Excluding Through Trips*



Sources: Cambridge Systematics, Inc., and Dowling Associates.

* The current (2005) and projected vehicle hours of delay (VHD) are estimated using the Contra Costa County Travel Demand Model and exclude through trips with neither an origin nor a destination in the Tri-Valley.

If all of these projects are completed, the number of AM peak hours of delay would decrease 15 percent compared to the No-Build scenario; whereas, the number of PM peak hour of delay would decrease 22 percent. This 22 percent improvement falls well below the 100 percent mitigation, meaning the fee program will not solve existing traffic congestion problems, only a portion of the future problem. Thus new development may be required to fund the full $1.3 billion unfunded balance of these designated transportation improvements to fully mitigate its impact on the regional transportation system within the Tri-Valley.

This $1.3 billion cost is allocated equitably across all types of new development by first dividing the $1.3 billion by the 98,427 average of new AM and PM peak-hour trip-ends, producing a cost per peak-hour trip-end of $13,598. The maximum fee schedule for the five land use types that would fund the full $1.3 billion unfunded balance is shown below (Table 1.1). This maximum fee schedule is derived by multiplying the $13,598 per average peak-hour trip-end by the average peak-hour trip generation rate for each of the five land use types. The TVTC may set fee rates for each land use category at or below the rates shown in Table 1.1.

Table 1.1 2007 Maximum Fee Per Land Use Type

	Average AM & PM Peak-Hour Trips-Ends	Fee (Cost Per Dwelling Unit or Square Feet)
Single family dwelling unit	0.90	$12,238
Multifamily dwelling unit	0.62	$8,430
Square foot of retail	1.67	$22.71
Square foot of office	1.53	$20.80
Square foot of industrial	0.89	$12.10
Other – cost per average AM and PM peak-hour trip-end*	1.00	$13,598

Source: Cambridge Systematics, Inc.

* This fee amount may be applied to land use that does not conform with the five included in this schedule.

This maximum fee schedule shown in the last column would generate sufficient revenues to fund the total unfunded cost of all selected projects. Nevertheless, Tri-Valley jurisdictions are not obligated to apply this fee schedule. For instance, the existing fee schedule, which was adopted in 1995, embodies the judgment of Tri-Valley jurisdictions to set fee rates at approximately two-thirds of the maximum fee rates calculated in the 1995 nexus study. The 1995 fees were reduced by two-thirds to help foster economic growth within the Tri-Valley while providing a regional funding source that could be used to match and help compete for Federal and State transportation grants and funding programs.

2.0 Introduction and Background

The purpose of this study is to provide a single nexus analysis that all local agencies in Tri-Valley subregion can use to update their existing Tri-Valley Transportation Development Fee (TVTDF). In addition, the three Contra Costa County jurisdictions may use this update to fulfill their requirement under the Growth Management Program of the original Measure C Expenditure Plan, which applies only to Contra Costa County jurisdictions.

This report documents the following[1]:

- **Section 2.0 – Introduction and Background**. This section provides a summary of the study's results and explains the background and purpose for the study, including the decisions leading up to this update of the TVTDF.
- **Section 3.0 – Tri-Valley Growth.** Subsection 3.1 presents projected growth in population, employment, and land use based on the Association of Bay Area Governments' (ABAG) Projections 2003 (P'03) forecast of Tri-Valley's growth in population and employment to year 2030. Subsection 3.2 converts the P'03 socioeconomic forecast into trips and summarizes the future travel demand throughout the Tri-Valley. It also presents the results of travel demand modeling, demonstrating to what degree new development within the Tri-Valley will increase congestion (i.e., vehicle hours of delay) in the year 2030.
- **Section 4.0 – Project Descriptions and Cost Estimates.** This section lists the 22 projects that the TVTC has elected to receive funding from the TVTDF, and provides total cost estimates. Detailed descriptions are provided in Appendix A and Appendix B.
- **Section 5.0 – Nexus Findings.** This final section summarizes the relevant statutory findings for the imposition of development impact fees, and demonstrates how the entire unfunded cost of the selected projects may be assigned to new development over the next 23 years (2007 to 2030). It also presents alternative fee schedules that would fund some percentage of the unfunded cost.
- **Appendix A.** This section provides brief descriptions for each of the ongoing projects that were part of the existing fee program, including a cost estimate, a portfolio of likely funding sources, and brief descriptions of its intended benefit.

[1] California Government Code, Sections 66000 to 66025. This code covers the required statutory findings under California's *Mitigation Fee Act*.

- **Appendix B.** This section provides brief descriptions for each new project which have been added with this update, including a cost estimate, a portfolio of likely funding sources, and brief descriptions of its intended benefit.

In November 1988, 55 percent of the voters in Contra Costa County passed Measure C, which authorized a 20-year, one-half-cent sales tax increase designed to fund improvements to the County's transportation system. Measure C had two main elements:

1. The **Expenditure Plan** governs the distribution of sales tax revenues to transportation projects and programs in the County ($740 million); and
2. A **Growth Management Program (GMP)** attempts to preserve the expenditure plan's investments by laying out certain requirements that cities and the County must meet in order to receive their share of Measure C's *Local Street Maintenance and Improvement* funding.

The overall goal of the Growth Management Program called for in Measure C is to achieve a cooperative process for Growth Management on a countywide basis, while maintaining local authority over land use decisions and the establishment of performance standards. The program has several components, which are outlined in the Contra Costa Transportation Authority's (CCTA) implementation documents. A key component of the Growth Management Program requires local jurisdictions to adopt a development mitigation program that ensures that new development pays its fair share of the costs of additional facilities needed to support it.

In 1991, the seven jurisdictions of Alameda County, Contra Costa County, Dublin, Pleasanton, Livermore, Danville, and San Ramon signed a Joint Powers Agreement (JPA) that established the TVTC. The purpose of the JPA was the joint preparation of a Tri-Valley Transportation Plan/Action Plan (TVTC Action Plan) for Routes of Regional Significance (RRS) and cost sharing of recommended improvements. The TVTC Action Plan was prepared and presented to all member jurisdictions in April 1995 and updated in 2000 (see Exhibit A). The TVTC Action Plan marked a common understanding and agreement on the Tri-Valley's transportation concerns and directions for improvements. Among its specific recommendations, the TVTC Action Plan presented 15 specific transportation improvements to be given high priority for funding and implementation.

This Action Plan also recommended the development of a Tri-Valley Transportation Development Fee to allocate a fair share of the costs of needed regional infrastructure to new development. The nexus study for the fee program, completed in 1995, justified allocating the unfunded cost needed to complete all of the 11 projects identified in the TVTC Action Plan to new development. The TVTC, however, recommended scaling back by roughly two-thirds the total amount the fee program would collect from the maximum funding needed.

Nevertheless, the Joint Exercise of Powers Agreement (JEPA) for the Tri-Valley Transportation Development Fee specifies that the fee amounts are to be adjusted automatically on an annual basis to reflect changes in regional construction costs.[2] These annual adjustments in fee amounts have maintained purchasing parity with current construction costs. Since the fee implementation in September 1998, approximately $30 million in fees and interest were collected to fund transportation investments.

In addition, the JEPA calls for a periodic update of the fee program to reflect any significant changes in population growth, project status, and other conditions that would require revisions to the fee program. Since 1995, there have been substantial changes in the funding, planning, and traffic setting in which the Tri-Valley Transportation Development Fee was originally developed. New funding sources have been established, the TVTC Action Plan has been updated, projects have been completed, project schedules and/or funding plans have shifted, traffic patterns have changed, and new regional transportation projects have been identified through various traffic studies. The TVTC responded to these changes by directing the Technical Advisory Committee (TAC) in 2003 to conduct a new fee nexus study to update the fee, and potentially the project list. In 2004, the TVTC decided to update the Fee Nexus Study to incorporate new regional improvement projects.

In November 2006, 70.6 percent of the voters in Contra Costa County passed Measure J, which authorized a 25-year extension to Measure C, a program designed to fund improvements to the County's transportation system first initiated in 1988. The program is an extension of a one-half-cent sales tax increase that is projected to raise $2 billion for improvements through 2034. Expenditure of Measure J funds is implemented through the CCTA's *Transportation Sales Tax Expenditure Plan* (TEP).

[2] The amount of the adjustment is based on the change in the Construction Cost Index (CCI) for the San Francisco Bay Area, as reported annually in the Engineering News Record (ENR).

3.0 Forecast of New Development and Travel Demand

This section consists of two subsections: Subsection 3.1 describes the ABAG Projections '03 forecast for population and employment, and converts these into land use in terms of dwelling units and nonresidential building square feet. In Subsection 3.2, the increase in travel demand from new development is determined from the land use forecasts.

3.1 FORECAST OF NEW DEVELOPMENT

The planning horizon for this analysis is 2030, consistent with current land use and transportation forecasts adopted by TVTC. The nexus analysis uses forecasts of dwelling units and employment to estimate new development demand for transportation improvements. Population forecasts for 2030 are ABAG Projections 2003 (P'03), which were fully vetted by the Tri-Valley jurisdictions. While the slightly more recent Projections 2005 (P'05) is now available, these forecasts had not been fully vetted at the time this study was initiated. After comparing the differences between the P'03 and P'05 projections, the TVTC TAC directed the consultant team to proceed with the fully vetted P'03 version of the CCTA model.

The CCTA travel demand model converts the ABAG household (Table 3.1) and employment (Table 3.2) forecasts into peak hour trips and assigns them to the transportation network.

Table 3.1 Household Forecasts
2007 and 2030

	2007*	2030	2007-2030 Growth	Percent Change
Single family	91,136	129,818	38,682	42%
Multifamily	21,959	41,042	19,083	87%
Total Households	113,095	170,860	57,765	51%

Source: Association of Bay Area Governments Projections, 2003.

* Dwelling units for 2007 were estimated by interpolating between P'03 estimates for 2000 and 2010.

ABAG employment forecasts are converted into square feet of nonresidential building space. The projected number of new residential units and nonresidential square footage is then multiplied by standard trip generation rates to

calculate the total number of traffic trips generated by new development in the Tri-Valley.

Table 3.2 Employment Forecasts
2007 and 2030

Employee Categories	2007*	2030	2007-2030 Growth	Percent Change
Retail	36,806	48,927	12,121	33%
Service	83,608	129,427	45,819	55%
Other	54,076	69,459	15,383	28%
Agricultural	1,483	1,182	-301	-20%
Manufacturing	20,048	30,895	10,847	54%
Trade/Wholesale	10,986	14,371	3,385	31%
Total Employment	207,006	294,261	87,254	42%

Source: Association of Bay Area Governments Projections, 2003.

* Employment for 2007 was estimated by interpolating between P'03 estimates for 2000 and 2010.

The method for converting the six categories of net employment growth (as shown in Table 3.2) into four categories of commercial building square feet (office, retail, industrial, and other) involves two steps. First, the six categories of employment are consolidated into four categories of commercial land use based on an analysis of employment by land use known as the Natelson Report.[3] Second, these consolidated employment forecasts are converted to building square footage using employee densities. The results are shown in Table 3.3.

[3] The Natelson Company, Inc., *Employment Density Study Summary Report*, prepared for the Southern California Association of Governments (SCAG), October 31, 2001. The density factors were derived from a random sample of 2,721 parcels drawn from across five counties (Los Angeles, Orange, Riverside, San Bernardino, and Ventura). Such a study could not be identified for Contra Costa County. The SCAG study's density factors are based on the largest sample of properties and are used in development impact fee studies throughout the State.

Table 3.3 Conversion of Employment Growth to Square Feet of Commercial Building Space
2007 to 2030

Land Use	Employee Growth 2007-2030	Employee Density (Square Feet/Employee)	Building Square Feet 2007-2030
Retail	12,121	500	6,060,500
Office/services	45,819	300	13,745,700
Industrial*	14,232	900	12,808,800
Other	15,383	600	9,229,800

Source: The Natelson Company, Inc., *Employment Density Study Summary Report,* prepared for the Southern California Association of Governments; October 31, 2001, Table 2-A, page 15.

Note: Source data based on random sample of 2,721 developed parcels across five Los Angeles area counties (Los Angeles, Orange, Riverside, San Bernardino, and Ventura). MuniFinancial estimated weighting factors by land use categories used in the survey to calculate average employment densities by major category (commercial, office, and industrial).

*Adjusted to correct for over-sampling of industrial parcels in Ventura County.

The results of this conversion (shown in Table 3.2) are applied in Section 5.0 to calculate an updated fee schedule. As a brief preview, this calculation involves four steps. First, the net increase in commercial square footage is converted into total trip generation from new commercial development. Second, these net new trips are added to the trip generated from new residential growth. Third, this total amount of new trip generation is divided into the total unfunded cost of the improvements described in Section 4.0 to calculate the cost per new trip. Fourth, this cost is used to generate the updated fee schedule.

3.2 TOTAL TRAVEL DEMAND BY LAND USE CATEGORY

Tables 3.1 and 3.3 show forecasts of new development broken out to the number of dwelling units for single and multi-unit residential units and square feet of four types of commercial development. The amount of new travel demand (i.e., trip generation) that this new development will produce is determined by multiplying these net increases in residential units and new commercial building space by corresponding trip generation rates shown in Table 3.4. These trip generation rates are the average of AM and PM peak-hour trip generation rates from the Institute of Traffic Engineers (ITE) *Trip Generation, Seventh Edition*. Table 3.4 and Figure 3.5 shows that all types of new development will increase number of peak-hour trips by approximately 100,000 new peak-hour trips or 44 percent between 2007 and 2030.

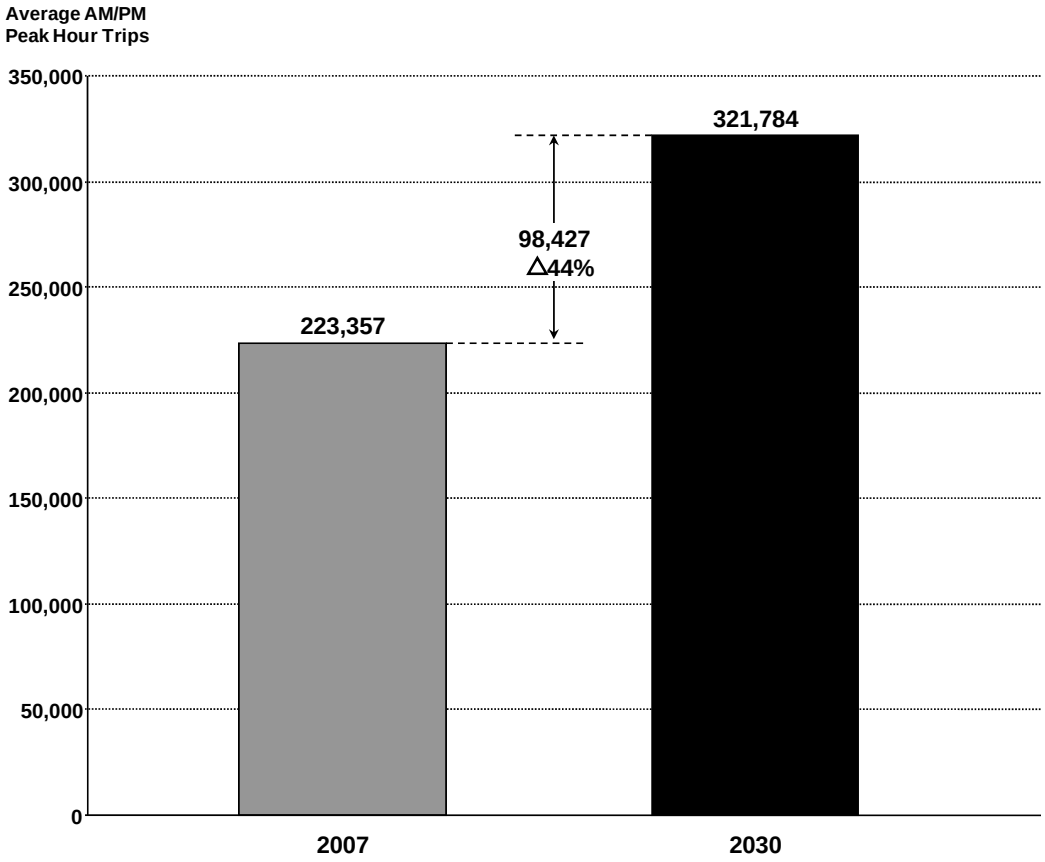
Table 3.4 Travel Demand from New Residential and Commercial Development
2007 to 2030

Land Use	Land Use Growth	Trip Generation Rate*	New Trips*
Residential (dwelling units)			
Single family	38,682	0.90	34,814
Multifamily	19,083	0.62	11,831
Total Residential	57,765		46,645
Nonresidential (thousand square feet)			
Retail	6,060,500	1.67	10,118
Office	13,745,700	1.53	20,962
Industrial	12,808,800	0.89	11,400
Other	9,229,800	1.0	9,230
Total Nonresidential	41,844,800		51,782
Grand Total			98,427

* Average AM and PM daily trips.

The 98,427 increase in new trips does not include any change in the trips that transit Tri-Valley (i.e., through trips or external-external trips). This increase is roughly 31 percent of the 322,500 total trips that have an origin and or destination in Tri-Valley (Figure 3.5).

Figure 3.5 Travel Demand from New Development
Average AM/PM Peak Hour Trip Ends, 2007 to 2030



4.0 Improvement Projects and Cost Estimates

This section identifies the 22 projects that the TVTC has elected to receive funding from the Tri-Valley Transportation Development Fee. The first 11 are projects that were included in the original program adopted in 1995 (Appendix A). The second set of 11 is new projects that are being in included in this update (Appendix B).

4.1 PROJECT SELECTION

The most common approach for selecting transportation projects involves a comprehensive planning process to develop a project list that mitigates the impacts of new development where projects are most feasible, but also may be implemented with reasonable expectations of community support. This approach integrates the planning to accommodate growth with ongoing state, regional, and local planning efforts. This approach has been followed in the preparation of the TVTC Action Plan for Routes of Regional Significance and cost sharing of recommended improvements. The other planning efforts over the past 20-plus years have included (but are not limited to) the following:

- Contra Costa Countywide Transportation Plan;
- Alameda Countywide Transportation Plan;
- Contra Costa County Sales Tax Measures (Measures B, C, and J);
- Tri-Valley Triangle Traffic Study;
- I-680 corridor studies; and
- General plan updates for Tri-Valley jurisdictions, including Alameda and Contra Costs Counties.

As a result of this integrated transportation planning, elected officials have determined that the projects identified in Appendices A and B constitute the most feasible improvements to reduce traffic congestion caused by new development in the Tri-Valley. The travel demand modeling documented in Section 5.0 confirms that these projects do reduce the congestion caused by new development within Tri-Valley, but these reductions do not improve conditions below what they are at present.

4.2 SELECTED PROJECTS AND UNFUNDED COSTS

The 22 selected projects are a combination of 11 of the original projects (often referred to as Exhibit A) funded through the fee program adopted in 1995 and an additional 11 projects (Exhibit B list). Three out of the 22 projects have been completed, and thus do not need additional funds from the current fee update. Such is the case of I-580/I-680 Interchange (southbound to eastbound), I-680/ Alcosta Boulevard Interchange, and I-680 HOV Lanes from SR 84 to Top of Sunol Grade, all under Exhibit A. Tables 4.1 and 4.2 show the total investment cost and unfunded amount of projects described in Appendices A and B, respectively.

Table 4.1 Existing TVTC Projects – Exhibit A
(Millions of 2007 Dollars)

	Project	Total Cost	Unfunded Cost	Comments
A-1	I-580/I-680 Interchange (southbound to eastbound)	–	–	Project completed.
A-2a	Route 84 Expressway I-580 to I-680	$336.57	$221.77	Project study report complete.
A-2b	Isabel Route 84/I-580 Interchange	$180.00	$15.00	Environmental complete.
A-3	I-680 Auxiliary Lanes	$47.00	$38.33	Segments 1 and 3 complete.
A-4	West Dublin/Pleasanton BART Station	–	–	Under construction.
A-5a	I-580 HOV Lane Eastbound	$161.87	$8.00	Project split into phases. Project study report complete.
A-5b	I-580 HOV Lane Westbound	$165.40	$20.00	
A-6	I-680 HOV Lanes, SR 84 to Top of Sunol Grade	–	–	Southbound complete. Northbound not considered for funding.
A-7	I-580/Foothill/San Ramon Road Interchange	$0.81	$0.81	North half complete.
A-8	I-680/Alcosta Interchange	–	–	Project complete.
A-9a	Crow Canyon Road Improvements Phase 1	$15.50	$10.95	Project split into phases.
A-9b	Crow Canyon Road Improvements Phase 2	$32.34	$32.34	
A-10a	Vasco Road Safety Improvements Phase 1	$23.25	$4.15	Project split into phases.
A-10b	Vasco Road Safety Improvements Phase 2	$25.83	$25.83	
A-11	Express Bus/Bus Rapid Transit	$20.36	$12.16	BRT added to scope.
	Total	$1,008.93	$389.34	

Table 4.2 Additional TVTC Projects – Exhibit B
(Millions of 2007 Dollars)

	Project	Total Cost	Unfunded Cost
B-1	I-580/I-680 interchange (westbound to southbound)	$705.00	$700.00
B-2	5th eastbound lane on I-580 from Santa Rita to Vasco Road	$131.30	$131.30
B-3	I-580/First Street interchange modification	$30.30	$4.20
B-4	I-580/Vasco Road interchange modification	$50.50	$14.60
B-5	I-580/Greenville Road interchange modification	$35.35	$7.77
B-6	Jack London Boulevard extension	$27.78	$3.54
B-7	El Charro Road Extension	$18.50	$5.00
B-8	Camino Tassajara widening: East Blackhawk Drive to County line	$49.43	$44.92
B-9	Danville Boulevard/Stone Valley Road I-680 Interchange Improvements	$2.70	$2.60
B-10	I-680 SB HOV lane Gap Closure, Livorna to North Main	$55.00	$36.50
B-11a	I-680 Express Bus/HOV on- and Off-Ramps	$80.00	$47.30
B-11b	I-680 Transit Corridor Improvements	$100.00	$100.00
Total		$1,285.86	$1,097.73

The total investment cost of projects from Exhibits A and B, excluding completed projects, totals approximately $2,295 million, of which amount almost $1,487 million or 65 percent are currently unfunded. Given that many of the project costs have been estimated using only preliminary engineering, the TVTC has reduced the total cost of all 22 projects by 10 percent to account for some degree of uncertainty. This discount reduces the total unfunded cost to $1,338 million (in 2007 dollars).

Appendices A and B provide the descriptions of each project. Each description includes a cost estimate, a portfolio of likely funding sources, and a brief description of its intended benefit.

5.0 Nexus Findings

This section documents a reasonable relationship between increased travel demand from new development on the Tri-Valley regional transportation system, the cost of the improvements needed to accommodate that growth, and an impact fee to fund those investments. Section 5.1 explains the overall approach to establishing a legal nexus. Section 5.2 steps through the findings required by state statutes to demonstrate how the entire unfunded cost of the selected projects can be assigned to new development over the next 23 years (2007 through 2030). Finally, Section 5.3 presents a maximum cost per trip that would fund the unfunded cost.

5.1 OVERALL APPROACH

Impact fees may be calculated using a purely technical method that would fund the cost of facilities required to accommodate growth. The four steps followed in any development impact fee study include the following:

1. Prepare growth projections;
2. Identify facility standards;
3. Determine the amount and cost of facilities required to accommodate new development based on facility standards and growth projections; and
4. Calculate the public facilities fee by allocating the total cost of facilities per unit of development.

As stated in Section 4.1, the final set of improvements was determined through the planning efforts of the CCTA; the Tri-Valley jurisdictions; and other stakeholders (including the Tri-Valley Business Council, developers, and other private- and public-sector participants). TVTC directed the consultants to conduct the nexus study and calculate a maximum fee based on the list of projects identified in Section 4.0 (and described in Appendices A and B) to the greatest extent technically defensible under the *Mitigation Fee Act*. Consistent with the TVTC's directions, the full cost of funding these improvements is used to calculate the maximum fee rates the TVTC could apply to all new residential and nonresidential development in the Tri-Valley between 2007 and 2030. Since the final list of projects was developed through a long inclusive process with stakeholders and policy-makers at the table, the projects represent the most feasible capacity enhancements to Tri-Valley's transportation system.

5.2 MITIGATION FEE ACT FINDINGS

Development impact fees are one-time fees typically paid when a building permit is issued and imposed on development projects by local agencies responsible for regulating land use (cities and counties). To guide the widespread imposition of public facilities fees, the State Legislature adopted the Mitigation Fee Act (Act) with Assembly Bill 1600 in 1987 and subsequent amendments. The Act, contained in California Government Code Sections 66000 through 66025, establishes requirements on local agencies for the imposition and administration of fee programs. The Act requires local agencies to document five findings when adopting a fee.

The five statutory findings required for adoption of the TVTC impact updated fee have already been adopted when the first TVTC fee was adopted in 1995. They are presented here and supported by the Nexus Analysis section (Section 5.0) of this report. All statutory references below are to the Act. This sample framework for the Mitigation Fee Act findings is only to provide local agencies with guidance, and is not a substitute for legal advice. Local agencies should customize the findings for their jurisdiction and consult with their legal counsel prior to adoption of the updated TVTC impact fee.

Purpose of Fee

For the first finding, the local agency must identify the purpose of the fee (Section 66001(a)(1)). The TVTC policy, as expressed through the TVTC Action Plan, is that new development shall contribute for mitigation of their impacts on the Routes of Regional Significance, and that the cost sharing of recommended improvements will be implemented through the Tri-Valley Transportation Development Fee (TVTDF) regional impact fee program. This is administered by the seven jurisdictions of Alameda County, Contra Costa County, Dublin, Pleasanton, Livermore, Danville, and San Ramon, which all signed a joint powers authority (JPA). The fee advances a legitimate public interest by enabling the TVTC to fund improvements to transportation infrastructure required to accommodate new development.

This finding is documented by the analysis of the projected increase in travel over the next 23 years generated by the new development that is projected to be occupied in the Tri-Valley. This growth in new residents and employees is projected to increase cumulative average daily delay on the Tri-Valley regional roadways by over six and one-half fold (660 percent) in the morning peak and almost eight fold (789 percent) in the evening peak. This increase in congestion excludes any effects from more through traffic, (i.e., trips the transit the Tri-Valley but neither start nor end there). Table 5.1 shows the current average daily vehicle hours of delay (VHD) and the projected increase by the year 2030 (see Figure 5.1).

Table 5.1 Projected Increase in Congestion Related to New Development*
Vehicle Hours of Delay, 2007 to 2030

	2007 Current	2030	Change 2007-2030
AM peak	5,092	38,715	660%
PM peak	4,505	40,058	789%

* Through traffic (external-external trips) was removed and its effects of VHD have been excluded.

Use of Fee Revenues

For the second finding, the local agency must identify the use to which the fee is to be put. If the use is financing public facilities, the facilities shall be identified. That identification may, but need not, be made by reference to a capital improvement plan, as specified in Section 65403 or 66002, may be made in applicable general or specific plan requirements, or may be made in other public documents that identify the public facilities for which the fee is charged (Section 66001(a)(2)). The Tri-Valley Transportation Development Fee will fund expanded facilities on the Routes of Regional Significance to serve new development. These facilities include the following:

- Roadway widening;
- Roadway extension;
- Traffic signal coordination and other traffic improvements;
- Freeway interchanges and related freeway improvements;
- Safety improvements needed to mitigate the higher volume of traffic generated by new development on a major arterial or other regional facility; and
- Improvements required for regional express bus and rail transit.

The TVTC has restricted spending fee revenues to capital projects that expand capacity on the Routes of Regional Significance to serve new development or mitigate its impact of the safety of the facility. Costs for planned traffic facilities are identified in Section 4.0 of this report. Costs funded by the Tri-Valley Transportation Development Fee may include project administration and management, design and engineering, right-of-way acquisition, and construction. More detailed descriptions of planned facilities, including their specific location, if known at this time, are shown in Appendices A and B attached to this report, the TVTC Action Plan, and other documents. The seven agencies implementing the Tri-Valley Transportation Development Fee may use fee revenues for the purposes of expanding capacity and mitigating the impacts of more congestion on the Routes of Regional Significance to accommodate new development as designated in the Strategic Expenditure Plan.

Benefit Relationship

For the third finding, the local agency must determine how there is a reasonable relationship or nexus between the fee's use and the type of development project on which the fee is imposed (Section 66001(a)(3)). In other words, the objective this nexus analysis is to show how the improvements will mitigate the impact of new development on a facility standard. The facility standard determines new development's need to provide additional capacity in order to maintain existing levels of service (LOS) as measured by systemwide delay on regional transportation facilities. Thus, the current LOS provides a benchmark that is used to compare the existing conditions (2007 Base Year LOS) on the transportation system with two future year scenarios (2030).[4]

Both future scenarios include all of the travel associated with new development within the Tri-Valley, but do not include the new travel associated through trips (i.e., trips that have origins and destinations outside the Tri-Valley. The first scenario (i.e., Future No-Build) is based on a year 2030 transportation network that will carry all of the locally produced or attracted new trips, but will only include improvements that are expected to be funded under at the LOS for the financially-constrained Regional Transportation Plan (RTP) without the proposed Tri-Valley Transportation Development Fee projects (No-Build Scenario).

The second scenario (i.e., Future Build) is based on a year 2030 transportation network that includes all of the additional improvements that are expected to be funded with the updated Tri-Valley Transportation Development Fee. These three comparisons must show that: 1) the *Base Year* conditions are better than the *Future No-Build* conditions; 2) the *Future Build* conditions are better than the *Future No-Build*; and 3) the *Future Build* conditions are not better than the *Base Year* conditions. These comparisons ensure that new development does not fund infrastructure needed to serve existing development. These comparisons also demonstrate a nexus between the impacts of new development and their share of the funding for the TVTC Action Plan projects.

This nexus may be demonstrated at a systemwide level. The systemwide nexus is measured using the aggregate regional peak-hour average weekday vehicle hours of delay on all the significant roadways (includes freeways, expressways arterials, and major collectors) in the Tri-Valley on the 2005 *Base Year* networks and the two 2030 *No-Build* and *Build* networks. The aggregate vehicle hours of delay provides a reasonable systemwide measure of the impact of new development on congestion and mobility, and is sufficient as the measure of nexus.

The CCTA travel demand model is the certified model being used to establish a technical nexus between the proposed projects and the impacts of new development on congestion (measured as recurrent delay). The model is based on the

[4] The 2005 and 2030 year benchmarks were chosen, because these calculations are based on the CCTA travel demand model that has only these years available.

spatial interrelationships among economic factors, housing and population factors, land use patterns, and the transportation system. The model generates 2030 forecasts for small geographic areas, including the traffic analysis zones (TAZ) used in the transportation modeling process. The CCTA travel demand model complies with Federal mandates that transportation plans consider the long-range effects of the interaction between land uses and the transportation system.

According to the CCTA travel demand model, between 2005 and 2030, if no projects are undertaken, the number of AM peak hours of delay is expected to increase 660 percent from 5,092 to 38,715 hours, while the number of PM peak hours of delay is expected to escalate 789 percent from 4,505 to 40,058 hours. If the projects are undertaken, the number of AM peak hours of delay would decrease 15 percent compared to the No-Build scenario; whereas, the number of PM peak hour of delay would decrease 22 percent. This modest improvement demonstrates that the funding of the designated new transportation improvements (i.e., the construction of projects shown in Tables 4.1 and 4.2) by new development only partially mitigates their contribution to future congestion.

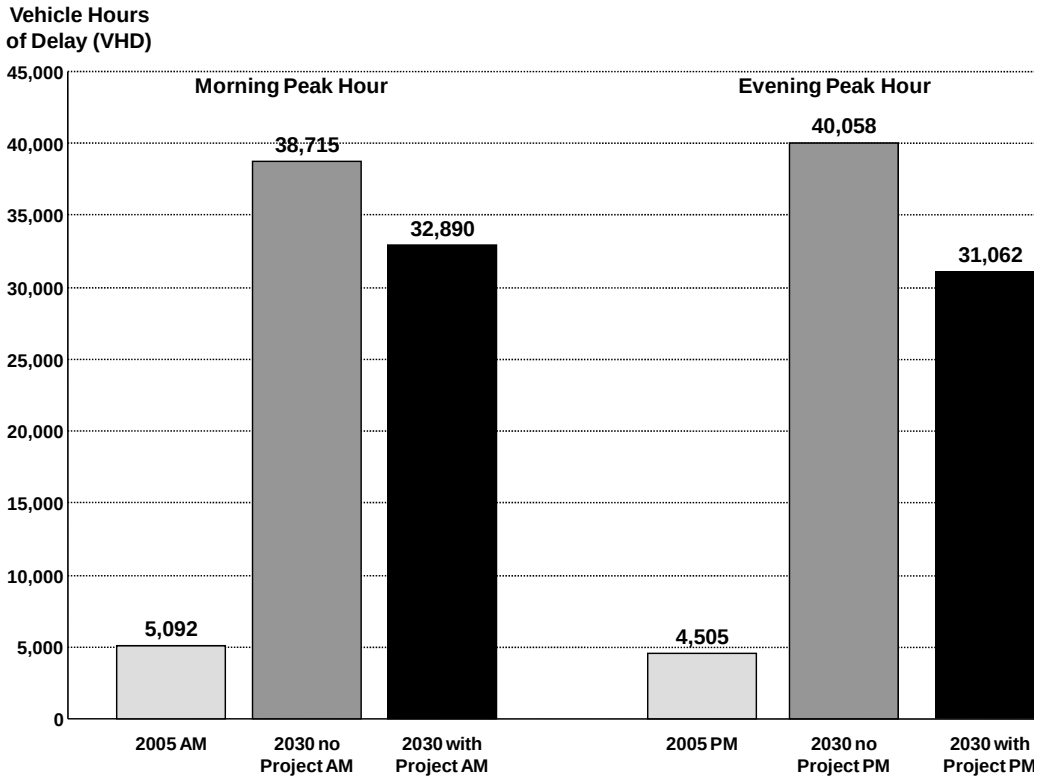
Table 5.2 and Figure 5.1 show the comparison between the *Future Build* and *Future No-Build* scenarios.

Table 5.2 Build vs. No-Build Scenario
*Vehicle Hours of Delay, 2005 to 2030**

		2030		Difference	
Hours of Delay	2005	No-Build	Build	2005 – 2030 No-Build	Built vs. No Built
AM Peak	5,092	38,715	32,890	660%	-15%
PM Peak	4,505	40,058	31,062	789%	-22%

* The through trips have been excluded from these figures and, therefore, their affects on delay have been removed.

Figure 5.1 Tri-Valley Average Change in Congestion from 2005 to 2030
*Change in Vehicle Hours of Delay Excluding Through Trips**



Sources: Cambridge Systematics, Inc., and Dowling Associates.

* The current (2005) and projected vehicle hours of delay (VHD) are estimated using the Contra Costa County Travel Demand Model and exclude through trips with neither an origin nor a destination in the Tri-Valley.

This analysis has determined that the planned projects identified in this report will expand the capacity of the Routes of Regional Significance to accommodate the increased trips generated by new development. Thus, there is a reasonable relationship between the use of fee revenues and the residential and nonresidential types of new development that will pay the fee.

Burden Relationship

For the fourth finding the local agency must determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is imposed (Section 66001(a)(4)). New dwelling units and building square footage are indicators of the demand for transportation improvements needed to accommodate growth. As additional dwelling units and building square footage are created, the occupants of these structures generate additional vehicle trips and place additional burdens on the transportation system.

The need for the Tri-Valley Transportation Development Fee is based on the CCTA transportation model projections of growth that show an increase in vehicle hours of delay on the Routes of Regional Significance, primarily as a result of new development, even with planned improvements to that system. The model estimated impacts from new development based on trip generation rates that varied by land use category, providing a reasonable relationship between the type of development and the need for improvements.

The trip generation rates applied in this nexus study are an average of AM and PM peak-hour vehicle trips rates from the ITE to estimate travel demand by type of land use. These were the same rates used in the initial 1994 TVTCDF calculation. Vehicle trips can be calculated in a consistent manner across land use categories based on population and employment estimates by land use category. This enables the impact of development to be distinguished between land use categories, a key requirement of the Mitigation Fee Act. This method is preferred to the most common alternative using vehicle miles traveled (VMT). VMT, on the other hand, is available from transportation models only for a limited number of *production* and *attraction* categories: home-work, home-school, home-college, home-other, and nonhome.

Table 5.3 shows the calculation of travel demand factors by land use category based on the adjustments described above.

Table 5.3 Trip Generation Characteristics by Land Use Type
Average AM/PM Peak Hour

Land Use	Gross Trip Rate	Percentage of Capture Trips (Pass by Trips)	Net Trip Rate
Single Family Household	0.90	0%	0.90
Multifamily Household	0.62	0%	0.62
Retail (1,000 sq ft)*	2.39	30%	1.67
Office (1,000 sq ft)	1.53	0%	1.53
Industrial (1,000 sq ft)	0.89	0%	0.89
Other (1,000 sq ft)	1.00	0%	1.00

Source: Cambridge Systematics, Inc., with data from the ITE Traffic Generator Manual and Minnesota Department of Transportation.

* Institute of Traffic Engineers has estimated that 30 percent of trips to and from retail land use are intermediate stops on a longer trip made of other purposes.

Proportionality

For the fifth finding, the local agency must determine how there is a reasonable relationship between the amount of the fee and the cost of the public facility, or portion of the public facility attributable to the development on which the fee is imposed (Section 66001(b)). This reasonable relationship between the Tri-Valley

Transportation Development Fee for a specific development project and the cost of the facilities attributable to that project is based on the estimated vehicle trips the project will add to the Routes of Regional Significance. The total fee for a specific residential development is based on the number and type of new dwelling units multiplied by the trip generation rate for the applicable residential land use category. The fee for a specific nonresidential development is based in a similar manner on the amount of building square footage by land use category. Larger projects generate more vehicle trips and pay a higher fee than smaller projects of the same land use category. Thus, the fee schedule ensures a reasonable relationship between the Tri-Valley Transportation Development Fee for a specific development project and the cost of the transportation improvements attributable to the project.

5.3 MAXIMUM FEES BY TYPE OF LAND USE

The following steps describe how the fees are calculated for each of the six different types of land uses:

1. Section 4.0 documents the investment cost for projects proposed and not yet built or under construction (described in Appendices A and B) totals $2,295 million, of which $1,487 million remains unfunded from other sources. This unfunded amount has been reduced by 10 percent to $1,338 million to account for some uncertainty in the preliminary engineering used to estimate project costs. The amount corresponds to the cost that new development is expected to cover to mitigate future congestion.
2. Forecast peak-hour trips generated by new development per type of land use using an average of AM and PM peak-hour vehicle trip rates from the ITE. According to estimates shown in Table 3.4, a total of 98,427 new average AM and PM peak-hour trips-ends will be generated between 2007 and 2030.
3. Divided the 98,427 new peak-hour trips by the total unfunded cost of $1,338 million. This produces an average cost per peak-hour trip of $13,598.

$$\frac{\$1,338,363,000}{98,427} = \$13,598$$

4. This cost per average AM and PM trip-end amount is then multiplied by the trip generation rates for each of the six land use types, which produces a maximum fee for each land use. For, example the equation used to calculate the fee for a single family home is:

$\$13,598 \times 0.90 = \$12,238$ per single family home

Where: 0.90 is the average of AM and PM peak-hour trips generated from a single family dwelling unit.

The fee for a multifamily dwelling unit is:

$\$13,598 \times 0.62 = \$8,430$

Where: 0.62 is the average of AM and PM peak-hour trips generated from a multifamily dwelling unit.

The fee per square foot of retail space is:

$\$13{,}598 \times 1.67 = \$22.71$ per thousand square feet of retail development

Where: 1.67 is the average of AM and PM peak-hour trips generated from a square foot of retail development.

Table 5.4 presents the results of these calculations for each of the six land use types. Note that the trip generation rates for two residential land use types are expressed as average AM and PM peak-hour trip-ends per dwelling unit, while the trip generation rates for the four commercial land use types are expressed as average AM and PM peak-hour trip-ends per square foot. The "other" commercial land use applies a rate of one average AM and PM trip-end, so the corresponding fee amount is the cost per average AM and PM trip-end calculated above. This fee may be applied to any commercial land use that does not conform to the three types specified in Table 5.4.

Table 5.4 2007 Maximum Fee Rate Per Land Use Type

	Average AM & PM Peak Hour Trips-Ends*	Fee (Fee Rate per Dwelling Unit or Square Feet)
Single family (units)	0.90	$12,238
Multifamily (units)	0.62	$8,430
Retail (sq ft)	1.67	$22.71
Office (sq ft)	1.53	$20.80
Industrial (sq ft)	0.89	$12.10
Other (trip)	1.00	$13,598

Source: Cambridge Systematics, Inc.

* TVTC and the Institute of Traffic Engineers *Trip Generation, Seventh Edition.*

The fees shown in the last column would generate sufficient revenues to fund the total unfunded cost of all selected projects. Nevertheless, Tri-Valley jurisdictions are not obligated to apply this fee schedule. The existing fee schedule embodies the judgment of Tri-Valley jurisdictions to reduce the maximum fee amounts determined in the first nexus analysis by roughly two-thirds. This type of adjustment may be applied to the maximum fee schedule shown in Table 5.4.

5.4 NEXT STEPS

This nexus report documents the technical findings needed to adopt a fee schedule to fund the projects listed in Tables 4.1 and 4.2. The next step will be for the

TVTC to adopt a fee schedule they believe will be the most appropriate for their needs. If the final fees adopted by the TVTC were below the maximums calculated in Subsection 5.5, the resulting revenue shortfall will require the TVTC to take one or both of the two following actions:

1. **Increase funding from other sources to fill shortfalls in specific projects.** These may include Federal earmarks, state funding, local general fund; development agreements that include direct funding, dedication of right-of-way; or in-kind construction, assessment districts, tolling, environmental mitigation through CEQA, and value capture techniques.
2. **Full funding for only selected projects.** The TVTC has used this practice by prioritizing funding through the Strategic Expenditure Plan (SEP) to complete a subset of the projects identified in the first impact fee program adopted in 1995. If applied to this update of the fee program, the TVTC may need to rank the list of projects accordingly through an update to the SEP.

Regardless of what final fee schedule is adopted, the implementation of the project will require the TVTC to set priorities for which projects are funded first. This may be best accomplished through an update to the Strategic Expenditure Plan (SEP).

A. Existing TVTC Projects

The following projects were included in the 1995 Tri-Valley Action Plan for Routes of Regional Significance, and the original fee nexus study for the Tri-Valley Transportation Development Fee, adopted in 1998. These projects continue to be a priority for the Tri-Valley. Project scopes, cost estimates, and status have been updated based on the most recent data available.

Table A.1 Projects Adopted for Fee Program in 1998

	Project	Total Cost	Unfunded Cost	Comments
A-1	I-580/I-680 Interchange (southbound to eastbound)	–	–	Project completed
A-2a	Route 84 Expressway I-580 to I-680	$336.57	$221.77	Project study report complete
A-2b	Isabel Route 84/I-580 Interchange	$180.00	$15.00	Environmental complete
A-3	I-680 Auxiliary Lanes	$47.00	$30.00	Segments 1 and 3 complete. Cost shown is for Segment 2
A-4	West Dublin/Pleasanton BART Station	–	–	Under construction
A-5a	I-580 HOV Lane Eastbound	$161.87	$8.00	Project split into phases, project study report complete
A-5b	I-580 HOV Lane Westbound	$165.40	$20.00	
A-6	I-680 HOV Lanes, SR 84 to Top of Sunol Grade	–	–	Southbound complete, northbound not considered for funding
A-7	I-580/Foothill/San Ramon Road Interchange	$0.81	$0.81	North half complete
A-8	I-680/Alcosta Interchange	–	–	Project complete
A-9a	Crow Canyon Road Improvements Phase 1	$15.50	$10.95	Project split into phases
A-9b	Crow Canyon Road Improvements Phase 2	$32.34	$32.34	
A-10a	Vasco Road Safety Improvements Phase 1	$23.25	$4.15	Project split into phases
A-10b	Vasco Road Safety Improvements Phase 2	$25.83	$25.83	
A-11	Express Bus/Bus Rapid Transit	$20.36	$12.16	BRT added to scope

The pages below provide details about each project including scope, benefit, cost, and funding.

Project No. A-1, I-580/I-680 Interchange (Southbound to Eastbound)

Involved Agencies: Caltrans and the Alameda County Transportation Authority.

Project Type: Freeway-freeway interchange modifications.

Project Scope: The project constructed the southbound to eastbound flyover, a northbound to eastbound direct connector, southbound on and off hook ramps, and a northbound on ramp.

Need/Purpose: This project was needed to improve safety and reduce congestion on southbound and northbound I-680 near I-580, and mitigate the impacts of local and regional growth in housing and employment. This project was approved by the voters of Alameda County as a portion of the Measure B sales tax program.

Current Status: This project has been completed.

Project funding and cost: Most of the project was funded by Measure B. TVTC initially appropriated $5.6 million in TVTDF match funds, including approximately $4.2 million in funds provided to the project to fulfill its funding needs and $1.4 million in reimbursements to the Cities of Dublin and Pleasanton for prior contributions.

Project No. A-2a, Route 84 Expressway I-580 to I-680

Involved Agencies: Caltrans, Alameda County Transportation Improvement Authority, City of Livermore, City of Pleasanton, and Alameda County.

Project Type: Expressway.

Project Scope: This project will be widen and reconstruct Route 84 as an expressway in several stages using a variety of funding sources. The ultimate configuration is expected to consist of six lanes from I-580 to Stanley Boulevard and four lanes from Stanley Boulevard to I-680. A TVTC-funded project study report was completed in 2003. A Caltrans SHOPP-funded project is under construction to realign Route 84 to expressway standards between Ruby Hill Drive and south of Pigeon Pass. Other near-term projects will relocate utilities between Airway Boulevard and Jack London Boulevard, and widen and utility relocation between Jack London Boulevard and Ruby Hill Drive. Subsequent stages include realignment, relocation, and widening between Pigeon Pass and I-680, ramp improvements at the Route 84/I-680 interchange, and construction of a southbound auxiliary lane on I-680 from Route 84 to Andrade Road.

Need/Purpose: This project is needed to improve safety and reduce congestion on Route 84, I-580, and I-680 between Livermore and Sunol, and mitigate the impacts of local and regional growth in housing and employment. The project also will improve access to regional routes for portions of Livermore and Pleasanton. The existing two-lane roadway between Livermore and I-680 is operating at capacity at certain locations during the peak periods. This project is identified in the TVTC Strategic Expenditure Plan, and the Alameda Countywide

Transportation Plan. Portions of the project are included in the voter-approved Alameda County Measure B sales tax program. The Tri-Valley Triangle study, completed in 2007, included this project as an important part of the proposed regional transportation network for the Tri-Valley. This project will reduce regional traffic volumes from local Pleasanton roadways.

Current Status: A project study report was completed in 2003. A Caltrans SHOPP-funded project is under construction to realign Route 84 to expressway standards between Ruby Hill Drive and south of Pigeon Pass. Other near-term projects will relocate utilities between Airway Boulevard and Jack London Boulevard, and widen and utility relocation between Jack London Boulevard and Ruby Hill Drive. Subsequent stages include realignment, relocation, and widening between Pigeon Pass and I-680, ramp improvements at the Route 84/I-680 interchange, and construction of a southbound auxiliary lane on I-680 from Route 84 to Andrade Road.

Cost Estimates and Funding (2006 dollars): The total cost for this project is estimated at $336.57 million.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
TVTDF	$4.80		
Measure B	$80.00		
SHOPP	$30.00		
Total	$114.80	$336.57	$221.77

Project No. A-2b, State Route 84/I-580 Interchange

Involved Agencies: City of Livermore, Caltrans, Alameda County Transportation Improvement Authority, and Alameda County Congestion Management Agency.

Project Type: New freeway-expressway interchange.

Project Scope: This project will construct a new partial cloverleaf interchange on the extension of Isabel Avenue (State Route 84) and I-580. This project will be built in two phases. Initially a four-lane overcrossing will be constructed. The ultimate project would widen Isabel Avenue and the I-580 overcrossing to six lanes. The project also includes removal of the Portola Avenue Interchange, construction of a new overcrossing, and extension of Portola Avenue north of I-580 to Isabel Avenue.

Need/Purpose: This project is needed to improve access between I-580 and State Route 84, and mitigate the impacts of local and regional growth in housing and employment. It will reduce regional traffic volume from local Livermore

roadways. The Tri-Valley Triangle study, completed in 2007, included this project as an important part of the proposed regional transportation network for the Tri-Valley. This project also is included in the TVTC Strategic Expenditure Plan, the City of Livermore General Plan, and the expenditure plan for the State's CMIA program.

Current Status: The environmental assessment has been completed and certified. Right-of-way acquisition and design is underway. Construction is scheduled to begin in 2009 and be completed by 1012.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2010)	Funding Shortfall (Millions, 2006)
Federal	$11.30		
Measure B	$25.10		
I-580 Corridor	$15.00		
Dev. R/W contribution	$19.30		
Livermore TIF	$7.30		
Bike/Ped Grant	$1.00		
CMIA	$68.00		
STIP	$18.00		
Total	$165.00	$180.00	$15.00

Project No. A-3, I-680 Auxiliary Lanes Project – Segment 2

Involved Agencies: City of San Ramon, Town of Danville, and Contra Costa Transportation Authority.

Project Type: Freeway

Project Scope: The I-680 Auxiliary Lanes Project Segment 2 is from the Sycamore Valley Road interchange in the Town of Danville to the Crow Canyon Road interchange in the City of San Ramon on I-680. Segment 2 will add two auxiliary lanes, one each, to both northbound and southbound direction of I-680.

Need/Purpose: Auxiliary lanes are lanes that run along the freeway from the on-ramp of one interchange to the off-ramp of the next interchange, but do not continue through the interchange area.

The purpose of the I-680 Auxiliary Lanes Project is to improve the overall freeway performance and enhance motorist's safety by relieving congestion due to merging and weaving, and mitigate the impacts of local and regional growth in housing and employment. In addition, the project will reduce congestion by eliminating backups that occur when cars merge on and off the freeway between interchanges. Construction will reduce friction, conflicts, capacity constraints,

and congestion on the on and off ramps; reduce average travel times (as much as 10 percent) and increase average travel speeds (as much as 4 percent) for the peak traffic period; reduce vehicle hours of delay during peak traffic (as much as 24 percent); and reduce the duration of peak traffic periods (by as much as 20 percent). This project was identified in TVTC Strategic Expenditure Plan, Measure C Strategic Plan, and the General Plans of the City of San Ramon and Town of Danville.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Measure C	$17.00		
Total	$17.00	$47.00	$30.00

Current Status: Segments 1 and 3 were completed in April 2007 and provide auxiliary lanes from Diablo Road to Sycamore Valley (Danville) and Crow Canyon Road to Bollinger Canyon Road (San Ramon). Segment 2 construction will complete the entire project. Construction is expected to start in 2011 and be complete in 2013.

Project No. A-4, West Dublin/Pleasanton BART Station

Involved Agencies: BART, City of Dublin, and City of Pleasanton.

Project Type: Rail Transit.

Project Scope: This project is the construction of the West Dublin-Pleasanton BART station and related transit improvements. The project is a joint public and private venture to build a station on the active BART line in the median of I-580. The related transit improvements, such as patron parking garages and kiss-ride and bus drop-offs, will be located on both the north (Dublin) and south (Pleasanton) sides of the freeway on property owned by BART.

Need/Purpose: The construction of the West Dublin-Pleasanton BART station will address existing demand within the west section of the Tri-Valley for BART service. This project was identified in TVTC Strategic Expenditure Plan, BART's plan for system expansion, West Dublin Specific Plan, and the City of Pleasanton General Plan.

Current Status: This project is under construction and is expected to be completed in 2010.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
TVTC	$4.00		
Other	$54.00		
Total	$58.00	$58.00	–

Project No. A-5a, I-580 HOV Lane Eastbound

Involved Agencies: Caltrans, Alameda County Congestion Management Agency, Alameda County Transportation Improvement Authority, City of Livermore, City of Dublin, City of Pleasanton, and Alameda County.

Project Type: Freeway.

Project Scope: This project will construct about 10 miles of HOV lanes on I-580 from west of Hacienda Boulevard to east of Greenville Road. After it is completed, this freeway segment will have a total of four mixed-flow lanes and one HOV lane in each direction. The project will be completed in two stages. The first stage is eastbound.

Current Status: A PSR has been completed. Environmental clearance for the eastbound project is expected by the end of 2007. Design is nearly complete. Construction is expected to begin in late 2008, and be completed in 2011.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2010)	Funding Shortfall (Millions, 2006)
TCRP	$25.00		
RM2	$6.00		
STIP	$17.67		
CMIA	$72.20		
SHOPP	$27.00		
Fed	$6.00		
Total	$153.87	$161.87	$8.00

Need/Purpose: This project is needed to increase overall person-trip capacity in the I-580 corridor to help improve safety, reduce traffic congestion, and mitigate the impacts of local and regional growth in housing and employment. This project will reduce eastbound traffic congestion and delay, decrease travel times, reduce accident rates, encourage use of HOVs, and help attain air quality goals. This project is identified in the TVTC Strategic Expenditure Plan, Alameda County Transportation Plan, and the City of Livermore General Plan. The

Tri-Valley Triangle study, completed in 2007, included this project as an important part of the proposed regional transportation network for the Tri-Valley.

Project No. A-5b, I-580 HOV Lane Westbound

Involved Agencies: Caltrans, Alameda County Congestion Management Agency, Alameda County Transportation Improvement Authority, City of Livermore, City of Dublin, City of Pleasanton, and Alameda County.

Project Type: Freeway.

Project Scope: This project will construct about 10 miles of HOV lanes on I-580 from west of Hacienda Boulevard to east of Greenville Road. After it is completed, this freeway segment will have a total of four mixed-flow lanes and one HOV lane in each direction. The HOV project will be completed in two stages. The second stage is westbound. A direct bus-only connection from the HOV lane to Dublin-Pleasanton BART is included with the westbound project.

Need/Purpose: This project is needed to increase overall person-trip capacity in the I-580 corridor to help improve safety, reduce traffic congestion, and mitigate the impacts of local and regional growth in housing and employment. This project will reduce westbound traffic congestion and delay, decrease travel times, reduce accident rates, encourage use of HOVs, and help attain air quality goals. This project is identified in the TVTC Strategic Expenditure Plan, Alameda County Transportation Plan, and the City of Livermore General Plan. The Tri-Valley Triangle study, completed in 2007, included this project as an important part of the proposed regional transportation network for the Tri-Valley.

Current Status: A PSR has been completed. Environmental studies have begun. Construction is expected to begin in 2012 and be completed in 2014.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2013)	Funding Shortfall (Millions, 2006)
RM2	$34.10		
CMIA	$101.70		
Fed	$9.60		
Total	$145.40	$165.40	$20.00

Project No. A-6, I-680 HOV Lanes, SR 84 to Top of Sunol Grade

Involved Agencies: Caltrans, Alameda County Congestion Management Agency, and City of Pleasanton.

Project Type: Freeway.

Project Scope: Construct approximately 3.5 miles of HOV lanes on I-680 from State Route 84 to the top of Sunol Grade.

Need/Purpose: This project is identified in the TVTC Strategic Expenditure Plan and the Alameda Countywide Transportation Plan. The Tri-Valley Triangle study, completed in 2007, included this project as an important part of the proposed regional transportation network for the Tri-Valley. However, the northbound project was a low priority.

Current Status: Southbound interim HOV project is completed. Ultimate southbound HOV/HOT lane is under design.

Project Funding and Cost: It is anticipated that this project will be funded by sources other than the TVTDF.

Project No. A-7, I-580/Foothill/San Ramon Road Interchange Modifications

Involved Agencies: City of Dublin, City of Pleasanton, and Caltrans.

Project Type: Freeway/Arterial Interchange Modification,

Project Scope: To enhance safety and improve traffic operation at the interchange, the design of the existing four quadrant cloverleaf interchange will be modified, replacing the westbound and eastbound off loops with diagonal ramps. The two remaining off-ramps would be signalized at their intersections with the local street. In addition, the eastbound diagonal off-ramp will be widened to two lanes, and a 700-foot eastbound auxiliary lane on I-580 will be constructed.

Need/Purpose: The project is needed to ensure adequate access to and from the West Dublin-Pleasanton BART station, and mitigate the impacts of local and regional growth in housing and employment. In addition, the Pleasanton side of the freeway experiences safety issues due to off-ramp traffic weaving and merging onto Foothill Road.

This project is identified in the TVTC Strategic Expenditure Plan and in the General Plans of the City of Dublin and the City of Pleasanton.

Current Status: The improvements on the north side of I-580 (Dublin side) have been completed. The Pleasanton side to the south has not been improved.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Total	$0.00	$0.81	$0.81

Project No. A-8, I-680/Alcosta Boulevard Interchange

Involved Agencies: Caltrans and City of San Ramon.

Project Type: Freeway/Arterial Interchange Modification**.**

Project Scope: Reconstructed the southbound off ramp and added a new on-ramp at the I-680/Alcosta Boulevard interchange to improve operations at the

interchange. This project closed the southbound off-ramp and built new on- and off-ramps north of Alcosta Boulevard.

Need/Purpose: This project was needed to eliminate traffic congestion in the vicinity of the interchange, and mitigate the impacts of local and regional growth in housing and employment.

Current Status: This project has been completed.

Cost Estimates and Funding: This project cost approximately $12 million and was funded by various sources, including $1.6 million in TVTDF allocations.

Project No. A-9a, Crow Canyon Road Improvements Phase 1

Involved Agencies: Alameda County.

Project Type: Arterial Road Improvement.

Project Scope: This safety improvement project includes roadway realignment, shoulder widening, retaining wall systems, and guardrail modifications in the vicinity of Mile Marker 2.15.

Need/Purpose: This project will increase safety for motorists traveling along this major arterial roadway between Castro Valley residents in Alameda County and San Ramon residents in Contra Costa County.

The realignment of various curves, shoulder widening, and retaining wall systems will facilitate traffic operations and reduce congestion for residents traveling between Alameda and Contra Costa Counties. Roadway improvements will reduce traffic collisions and, therefore, improve traffic flow along this roadway. The modification of this tight curve (Mile Marker 2.15) will reduce the high number of collisions, including fatalities along this congested roadway.

Current Status: Preliminary Engineering and Environmental Studies.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
STIP	$0.50		
CMA TIP	$0.45		
Prop 1-B	$3.00		
Local Alameda County	$0.60		
Total	$4.55	$15.50	$10.95

Project No. A-9b, Crow Canyon Road Improvements Phase 2

Involved Agencies: Alameda County.

Project Type: Arterial Road Improvement.

Project Scope: This safety improvement project includes roadway realignment, shoulder widening, retaining wall systems, two-way left turn lane as needed, and guardrail modifications.

Need/Purpose: This project will increase safety for motorists traveling along this major arterial roadway between Castro Valley residents in Alameda County and San Ramon residents in Contra Costa County. The realignment of various curves, shoulder widening, and retaining wall systems will facilitate traffic operations and reduce congestion for residents traveling between Alameda and Contra Costa Counties. Roadway improvements will reduce traffic collisions and, therefore, improve traffic flow along this roadway.

Current Status: Not started.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Total	$0	$32.34	$32.34

Project No. A-10a, Vasco Road Safety Improvements Phase 1

Involved Agencies: Alameda County.

Project Type: Arterial Road Improvement.

Project Scope: This project includes roadway realignment, shoulder widening, and installation of truck and bus climbing lanes and median barriers. As a result of a number of traffic collision fatalities that had occurred along this roadway, the installation of median barriers had been added to this project. This phase of the project will straighten the alignment of Vasco Road at about 1.8 miles north of the Livermore city limits to about 1.6 miles south of the Alameda/Contra Costa county line.

Need/Purpose: This project will increase safety for motorists traveling along this roadway. The realignment of Vasco Road, shoulder widening, and barrier installations will improve traffic operations and reduce congestion for residents traveling between Alameda and Contra Costa Counties. Roadway improvements will reduce traffic collisions and, therefore, improve traffic flow along this roadway. The installation of median barriers will eliminate cross-over-type collisions that resulted in fatalities in the past. The realignment of tight curves will facilitate Tri-Delta bus services between Alameda and Contra Costa Counties.

Current Status: The utility relocation phase of this project has been awarded in June 2007 and expected for completion by end of December 2007. Construction of the project will be awarded by May 2008.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Measure B	$1.50		
STIP	$4.60		
TCRP	$6.50		
Local Alameda County	$2.81		
STP/CMAQ	$3.90		
Prop 1-B	$6.00		
Fed demo	$0.80		
Total	$26.11	$30.26	$4.15

Project No. A-10b, Vasco Road Safety Improvements Phase 2

Involved Agencies: Alameda County.

Project Type: Arterial Road Improvement.

Project Scope: This phase of the Vasco Road project includes roadway realignment, shoulder widening, and installation of median barriers. This phase of the project will install median barriers along Vasco Road within Alameda County on portions of the roadway not covered by Phase 1. In addition, this phase will include shoulder widening and curve modifications, as needed.

Need/Purpose: This phase of the Vasco Road project will increase safety for motorists traveling along this roadway. The realignment of Vasco Road, shoulder widening, and barrier installations will facilitate traffic operations and reduce congestion for residents traveling between Alameda and Contra Costa Counties. Roadway improvements will reduce traffic collisions and, therefore, improve traffic flow along this roadway. Contra Costa County is working towards the installation of median barriers in the Contra Costa County portion of Vasco Road. This Phase II of Vasco Road will provide continuous median barrier protection between Contra Costa County and Phase I of the Vasco Road project. The installation of median barriers will eliminate cross-over-type collisions that resulted in fatalities in the past.

Current Status: Preliminary Engineering.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Total	$0	$25.83	$25.83

Project No. A-11, Express Bus/Bus Rapid Transit

Involved Agencies: LAVTA, City of Livermore, City of Dublin, and City of Pleasanton.

Project Type: Bus Transit.

Project Scope: Develop express bus/bus rapid transit service along I-580 corridor. Project may be completed in stages. First stage is to develop bus rapid transit along No. 10 route between Lawrence Livermore Lab and Dublin-Pleasanton BART. Future stages of express bus may be implemented after I-580 HOV lanes have been completed. Improvements include stop upgrades, passenger information systems, new rolling stock, roadway, intersection, and signalization modifications to construct queue jump lanes and provide transit priority at key intersections.

Need/Purpose: Express bus/bus rapid transit will provide the Tri-Valley with a flexible alternative to heavy rail or auto facilities. Flexibility is a benefit, allowing for changes in the access of successful employment centers. As development in and beyond the Tri-Valley continues, congestion and commute times will grow and frustrated commuters will continue to seek out alternate ways to get to work. Express bus/bus rapid transit can transport riders efficiently to job sites; and they can link people to fixed transit lines, such as BART and the Altamont Commuter Express.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Measure B	$0.30		
FTA	$4.90		
STIP	$2.00		
Local	$1.00		
Total	$8.20	$20.36	$12.16

Current Status: Initial bus rapid transit improvements along the No. 10 route are expected to be completed in 2010.

B. Additional TVTC Projects

The following projects in Table B.1 are being considered for Tri-Valley Transportation Development Fee funding, along with the projects shown in Table A.1. The Table B.1 projects were selected because they are important transportation projects to help address the impacts of growth within the Tri-Valley. While some of these projects are more sub-regional than regional in nature (e.g. Projects B-6 and B-7, they have been included such that a local jurisdiction may elect to utilize its 20 percent local share funds (as provided for in the TVTC JEPA) to implement these projects. Project scopes, cost estimates, and status have been developed based on the most recent data available.

Table B.1 Projects Proposed To Be Added To Fee Program in 2007

	Project	Total Cost	Unfunded Cost
B-1	I-580/I-680 interchange (westbound to southbound)	$705.00	$700.00
B-2	5th eastbound lane on I-580 from Santa Rita to Vasco Road	$131.30	$131.30
B-3	I-580/First Street interchange modification	$30.30	$4.20
B-4	I-580/Vasco Road interchange modification	$50.50	$14.60
B-5	I-580/Greenville Road interchange modification	$35.35	$7.77
B-6	Jack London Boulevard extension	$27.78	$3.54
B-7	El Charro Road Extension	$18.50	$5.00
B-8	Camino Tassajara widening: East Blackhawk Drive to County line	$49.43	$44.92
B-9	Danville Boulevard/Stone Valley Road I-680 Interchange Improvements	$2.70	$2.60
B-10	I-680 SB HOV lane Gap Closure, North Main to Livorna	$55.00	$36.50
B-11a	I-680 Express Bus/HOV On- and Off-Ramps	$80.00	$47.30
B-11b	I-680 Transit Corridor Improvements	$100.00	$100.00

The pages below provide details about each project, including scope, benefit, cost, and funding.

Project No. B-1, I-580/I-680 Interchange (Westbound to Southbound)

Involved Agencies: Caltrans, Alameda County Congestion Management Agency, Alameda County, City of Pleasanton, and City of Dublin.

Project Type: Freeway-freeway interchange improvements.

Project Scope: The project is located at the I-580/I-680 Interchange in Alameda County. The proposed project limits are from 1700 LF east of the Hacienda Drive Overcrossing (PM 18.50) to 2000 LF west of the San Ramon Road Overcrossing (PM 21.81) along I-580, and from the Amador Valley Boulevard Undercrossing (PM 20.73) to 3400 LF south of the Stoneridge Drive Overcrossing (PM 19.94) along I-680.

Three project alternatives have been identified as follows:

- **Alternative 1.** Provides a mixed-flow lane direct connection from westbound I-580 to southbound I-680, and a combined westbound I-580 to southbound I-680 and northbound I-680 to eastbound I-580 HOV lane direct connection. Construct an express bus lane from the East Dublin/Pleasanton BART station to eastbound I-580.
- **Alternative 2.** Provides a combined mixed-flow lane and HOV lane direct connection from westbound I-580 to southbound I-680 and a northbound I-680 to eastbound I-580 HOV lane direct connection. Construct an express bus lane from the East Dublin/Pleasanton BART station to eastbound I-580.
- **Alternative 3.** Provides a mixed-flow lane direct connection from northbound I-680 to westbound I-580, and removes the northbound I-680 to westbound I-580 loop ramp connection. Construct an express bus lane from the East Dublin/Pleasanton BART station to eastbound I-580. Alternative 3 provides a potentially fundable early phase to planned ultimate improvements to the I-580/I-680 I/C within the foreseeable future.

Need/Purpose: The purpose of the modification to the I-580/I-680 Interchange is the following:

- Improve capacity, operations, and safety on westbound I-580 between the Hacienda Drive Interchange and the I-580/I-680 interchange in the Tri-Valley area;
- Meet increasing transportation demand and enhance modal interrelationships in the corridor, which is the only major transportation corridor providing a commute route between San Francisco, Oakland, San Jose (via I-680) and the Tri-Valley (Dublin, Pleasanton, and Livermore), and growing Central Valley areas (Tracy, Stockton, and the I-5 Corridor); and
- Enhance both mixed-flow and HOV system connectivity between I-580 and I-680.

Regional connectivity and people carrying capacity are very important to the movement of passengers, goods, and freight. Some local access may be removed as part of the project in need of maintaining that regional connectivity. Specifically, current freeway agreements call for the elimination of Stoneridge Drive and I-580 connections due to the close proximity of the connections to the I-580/I-680 interchange. In addition, the movement of northbound and southbound I-680 to San Ramon Road/Foothill Road may be removed in

Alternative 3 in order to fit the proposed connections into existing and planned constraints, including pedestrian access between the new West Dublin/ Pleasanton BART station and the adjacent parking garage.

I-580 currently experiences serious congestion while carrying substantial traffic volumes through the project area during peak hours. Long-range projections indicate an increase in person trips along this freeway section associated with the continuing development within the project corridor and in the Central Valley. Travel demands and urban growth projections indicate that, if no improvements are made, unacceptable levels of service will extend for longer periods of time during peak travel periods. The No-Build alternative would continue to extend the periods of unacceptable delays and congestion, as well as perpetuate existing safety issues.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
RM2	$5.00		
Total	$5.00	$705.00	$700.00

As traffic volumes increase, per forecasted projections, traffic issues will continue to worsen and become intolerable within the foreseeable timeframe. In addition, it is critical to reduce the number of accidents that take place in the project location due to the weaving problems associated with interchange spacing. Therefore, there is a critical need to decrease existing and projected freeway congestion by improving the people-carrying capacity, as well as meeting the increasing transportation demands of route I-580 and the I-580/I-680 interchange.

Current Status: Preparation of a project study report is in progress.

Project No. B-2, Fifth Eastbound Lane on I-580 Between Santa Rita and Vasco Road

Involved Agencies: Caltrans, Alameda County Congestion Management Agency, Alameda County, City of Pleasanton, City of Dublin, and City of Livermore.

Project Type: Freeway

Project Scope: The project would construct a fifth eastbound lane on I-580 between Santa Rita Road and Vasco Road, eliminating the lane drop at Santa Rita Road. This project may be constructed in stages. Completion of eastbound auxiliary lanes between Fallon Road and Vasco Road may be an initial stage.

Need/Purpose: This project is needed to improve safety and reduce congestion on eastbound I-580 between I-680 and Vasco Road, and help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley. The existing main line lane drop on eastbound I-580 at Santa Rita Road is a bot-

tleneck that causes significant peak-hour congestion, and results in level of service "F" conditions during the PM peak hour, with queuing that often extends back to I-680 and beyond. The Tri-Valley Triangle Study, completed in 2007, included this project as an important part of the proposed regional transportation network for the Tri-Valley. This project will reduce regional traffic volumes from local roads in Pleasanton, Dublin, and Livermore.

Current Status: The auxiliary lane components of this project between Fallon Road and Isabel Avenue and between First Street and Vasco Road are funded and will be constructed in conjunction with the I-580 eastbound HOV lane project. The cost and funding data shown below is for the remaining components. The remaining components of the project have not begun.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Total	$0.00	$131.30	$131.30

Project No. B-3, I-580/First Street Interchange Modification

Involved Agencies: City of Livermore and Caltrans.

Project Type: Freeway-arterial interchange modification.

Project Scope: This project will modify the I-580/First Street interchange, including widening the overcrossing to provide six lanes, and reconstructing the ramps to achieve a partial cloverleaf interchange design. The project would also construct segments of auxiliary lanes in the vicinity of the interchange.

Need/Purpose: This project is needed to reduce anticipated congestion at the I-580/First Street interchange, and help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley. This project is included in the Alameda Countywide Transportation Plan and the City of Livermore General Plan.

Current Status: A project study report has been completed.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Livermore TIF	$26.10		
Total	$26.10	$30.30	$4.20

Local funding provided through the City of Livermore Traffic Impact Fee program. Funding shortfall represents the proportion of project cost related to forecasted regional traffic using the interchange.

Project No. B-4, I-580/Vasco Road Interchange Modification

Involved Agencies: City of Livermore, Caltrans.

Project Type: Freeway-arterial interchange modification.

Project Scope: This project will modify the I-580/Vasco Road interchange, including widening the overcrossing to provide eight lanes, and reconstructing the ramps to achieve a modified partial cloverleaf interchange design. The project would also construct segments of auxiliary lanes in the vicinity of the interchange.

Need/Purpose: This project is needed to reduce existing and future congestion at the I-580/Vasco Road interchange, and help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley. This project would eliminate weaving and merging required under the current design that causes queuing on both I-580 and on Vasco Road. This project is included in the Alameda Countywide Transportation Plan and the City of Livermore General Plan.

Current Status: A PSR has been completed. A programmatic environmental impact report for right-of-way protection has been completed. Right-of-way acquisition is underway.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Livermore TIF	$35.90		
Total	$35.90	$50.50	$14.60

Local funding provided through the City of Livermore Traffic Impact Fee program. Funding shortfall represents the proportion of project cost related to forecast regional traffic using the interchange.

Project No. B-5, I-580/Greenville Road Interchange Modification

Involved Agencies: City of Livermore, Caltrans.

Project Type: Freeway-arterial interchange modification.

Project Scope: This project will modify the I-580/Greenville Road interchange, including widening the undercrossing to provide six lanes, and reconstructing the ramps to achieve a modified partial cloverleaf interchange design. The project would also construct segments of auxiliary lanes in the vicinity of the interchange.

Need/Purpose: This project is needed to reduce existing and future congestion at the I-580/Greenville Road interchange, and help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley. This

project is included in the Alameda Countywide Transportation Plan and the City of Livermore General Plan.

Current Status: A project study report has been completed. A programmatic environmental impact report for right-of-way protection has been completed. Right-of-way acquisition is underway.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Livermore TIF	$27.58		
Total	$27.58	$35.35	$7.77

Local funding provided through the City of Livermore Traffic Impact Fee program. Funding shortfall represents the proportion of project cost related to forecast regional traffic using the interchange.

Project No. B-6, Jack London Boulevard Extension

Involved Agencies: City of Livermore.

Project Type: Arterial extension.

Project Scope: This project will extend Jack London Boulevard to El Charro Road as a four-lane arterial roadway. The project will be constructed in stages. The initial stage will be a two-lane extension. Future stages will relocate a portion of the roadway away from the Livermore Airport to its ultimate alignment on lands currently being mined for aggregate, after the quarry operations have been completed.

Need/Purpose: This project is needed to improve access to I-580 and Route 84 from the El Charro Specific Plan area, and to provide a parallel freeway reliever route south of I-580. This project will reduce congestion on I-580 between Route 84 and El Charro Road, and help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley. This project is included in the City of Livermore General Plan.

Current Status: An environmental impact report has been completed. Design and right-of-way acquisition is underway. Construction of the two-lane extension is scheduled to begin in 2008 and be completed in 2009.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Livermore TIF	$24.24		
Total	$24.24	$27.78	$3.54

Local funding provided through the City of Livermore Traffic Impact Fee program. Funding shortfall represents the proportion of project cost related to forecast regional traffic using the interchange.

Project No. B-7, El Charro Road Extension

Involved Agencies: City of Pleasanton.

Project Type: Arterial extension.

Project Scope: This project will extend El Charro Road to Stanley Boulevard as a four-lane arterial roadway.

Need/Purpose: The City of Pleasanton is linked to the City of Livermore by I-580, Stanley Boulevard, and Vineyard Avenue. These primary east-west corridors have a connecting north-south corridor in State Route 84, which runs along Livermore's western boundary, but do not have a similar connection. The purpose of this project would be to provide a link between I-580 and Stanley Boulevard to allow greater movement between the east-west corridors. This project is identified in the 1996 General Plan as a necessary circulation element to maintain the safe and efficient movement of goods and services in and around the City of Pleasanton. Currently, any connection between I-580 and Stanley Boulevard must use Santa Rita Road through Pleasanton, which is very congestion in the peak hours. The construction of this arterial will relieve congestion along Santa Rita Road, and provide greater mobility between the two Livermore/Pleasanton east-west connecting roadways.

Current Status: This roadway currently is a private roadway that extends from Busch Road to I-580. There are development plans approved to construct the northern segment of this roadway (between I-580 and Stoneridge Drive/Jack London Boulevard). The remaining roadway will continue to serve private access only.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Pleasanton TIF	$13.50		
Total	$13.50	$18.50	$5.00

Construction of the northern segment of El Charro Road is anticipated to be constructed in 2008 to 2009. The segment between Stoneridge Drive and Stanley Boulevard is dependent upon the construction timeline of the East Pleasanton Specific Plan developers. The East Side Specific Plan will be completed in 2008 to 2009. It is anticipated that the project will be constructed with the first stages of the East Side Specific Plan development.

Project No. B-8, Camino Tassajara Widening, East Blackhawk Drive to County Line

Involved Agencies: Contra Costa County.

Project Type: Arterial widening.

Project Scope: This project will widen Camino Tassajara from two to four lanes from 1,500 feet east of Blackhawk Drive to Windemere Parkway; and widen Camino Tassajara from two to six lanes from Windemere Parkway to the Contra Costa/Alameda county line.

Need/Purpose: This project will increase capacity on Camino Tassajara, and will help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley.

Current Status: Not started.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
SCC D. JEPA	$3.97		
SCC SUB-REG JEPA	$0.44		
Tass JEPA	$0.10		
Total	$4.51	$49.43	$44.92

Project No. B-9, Danville Boulevard/Stone Valley Road, I-680 Interchange Improvements

Involved Agencies: Caltrans and Contra Costa County.

Project Type: Freeway-Arterial interchange modification.

Project Scope: Widen Stone Valley Road, including the bridge over San Ramon Creek to improve access to and from the ramps to I-680. Signalize both northbound and southbound ramp intersections. Modify the Stone Valley Road/Danville Boulevard intersection to provide left-turn channelization westbound to southbound and southbound to eastbound.

Need/Purpose: The capacity of these intersections needs to be improved and upgraded to handle the projected traffic movements. This project will increase capacity and provide enhanced traffic circulation. This project will help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley.

Current Status: Not started.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Local	$0.10		
Total	$0.10	$2.70	$2.60

Project No. B-10, I-680 SB HOV Lanes, North Main to Livorna

Involved Agencies: Caltrans and Contra Costa Transportation Authority.

Project Type: Freeway,

Project Scope: Close the HOV lane gap along I-680 between North Main Street and Livorna Road in the southbound direction.

Need/Purpose: Closing this gap will provide a continuous HOV lane from the Benicia-Martinez Bridge to the Contra Costa/Alameda County line. Project is necessary to encourage carpooling and provide the necessary infrastructure for express buses in the corridor.

Current Status: A PSR is currently being completed by Caltrans. Construction is planned for 2010 to 2012 timeframe.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
RM2	$14.00		
Measure J	$4.50		
Total	$18.50	$55.00	$36.50

Project No. -11a, I-680/Norris Canyon Express Bus/Carpool On- and Off-Ramps

Involved Agencies: City of San Ramon and Contra Costa Transportation Authority.

Project Type: Freeway/Transit.

Project Scope: The project is one component of a multiple planned I-680 corridor improvements. The project will improve transit/carpool/vanpool accessibility to existing transit center located in the San Ramon Valley. The project will construct HOV/express bus on- and off-ramps at Norris Canyon Road.

Need/Purpose: The HOV project will deliver the following needed improvements to help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley:

- Improved access for express bus service, carpools, and vanpools traveling to and from the San Ramon Valley;
- Improve accessibility to regional transit network;
- Provide linkage to adjoining HOV lanes;
- Flexibility to service out-of-corridor locations; and
- Reduce traffic conflicts by decreasing the amount of weaving by HOVs entering or exiting the freeway.

Current Status: A project study report is underway and is expected to be completed by July 2008. Construction is expected to begin in 2013.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Measure J	$32.70		
Total	$32.70	$80.00	$47.30

Project No. B-11b, I-680 Transit Corridor Improvements

Involved Agencies: City of San Ramon, Town of Danville, Contra Costa County, Central Contra Costa Transit Authority, and Contra Costa Transportation Authority.

Project Type: Freeway/Transit.

Project Scope: The project will provide improvements to address congestion and/or increase people throughput along the I-680 corridor. Improvements could include additional express bus service on I-680, necessary infrastructure to encourage use of transit and reduce transit travel time, and expansion of park-and-ride lots.

Need/Purpose: The project will help mitigate the impacts of local and regional growth in housing and employment within the Tri-Valley by providing an alternative mode of transportation; improved access for express bus service, carpools, and vanpools traveling to and from the San Ramon Valley; and improved accessibility to regional transit network.

Current Status: Not started.

Project Funding and Cost:

Sources	Funding (Millions, 2006)	Cost (Millions, 2006)	Funding Shortfall (Millions, 2006)
Total	0	$100.00	$100.00