

FINAL REPORT

LAMORINDA ACTION PLAN UPDATE



Prepared for the
Lamorinda Program
Management Committee

Prepared by
DKS Associates
TRANSPORTATION SOLUTIONS

Adopted December 7, 2009

Lamorinda Action Plan Update

Approved for Circulation by the:

Lamorinda Program Management Committee

Prepared by:

DKS Associates

TRANSPORTATION SOLUTIONS

1000 Broadway, Suite 450

Oakland, CA 94607

(510) 763-2061

December 7, 2009

TABLE OF CONTENTS

- 1. Introduction..... 1
 - 1.1 The Action Plan 1
 - 1.2 2008 Action Plan Update 2
 - 1.3 Outline of the Document..... 3
- 2. Review of Visions, Goals, Policies and Service Objectives 5
 - 2.1 Statements of Vision, Goals and Policies 5
 - 2.2 Multimodal Transportation Service Objectives (MTSOs)..... 5
- 3. Existing Transportation Conditions 7
 - 3.1 Routes of Regional Significance..... 7
 - 3.1.1 State Route 24 8
 - 3.1.2 Pleasant Hill Road..... 10
 - 3.1.3 Camino Pablo / San Pablo Dam Road 10
 - 3.2 Multi-Modal Transportation Service Objectives 10
 - 3.3 Transit Service 10
 - 3.3.1 BART 10
 - 3.3.2 County Connection and AC Transit Bus Service 12
 - 3.3.3 Paratransit 14
- 4. Overall Growth Rates and Future Travel Patterns 15
 - 4.1 Population Forecasts 15
 - 4.2 Employment Forecasts..... 16
 - 4.3 Traffic Forecasts 17
 - 4.4 Forecasts of MTSO Values for 2030 18
- 5. Actions for Routes of Regional Significance..... 19
 - 5.1 Actions 19
 - 5.2 Preliminary Analysis Results of Actions 22
 - 5.3 Gateway Constraint Policy 23
 - 5.4 Gateway Policies for Specific Routes..... 23
 - 5.5 Traffic Management Strategies..... 25
- 6. Financial Plan..... 27
 - 6.1 Overview of the Financial Plan..... 27
 - 6.2 Subregional Transportation Mitigation Program (STMP)..... 28
- 7. Procedures for Notification, Review, and Monitoring..... 29
 - 7.1 Notification Regarding Development Applications and Environmental Documents 29
 - 7.2 Review of General Plan Amendments 30
 - 7.3 Action Plan Monitoring and Review 31
- Appendix 1 Technical Memorandum- Analysis of MTSOs for the Lamorinda Action Plan 34
- Appendix 2: Technical Memorandum - Gateway Constraint Methodology 39

LIST OF FIGURES

Figure 1: Lamorinda Routes of Regional Significance..... 7
Figure 2: 1990 AM Peak Period Origin-Destination Summary..... 8
Figure 3: 2000 and 2030 AM Peak Period Origin-Destination Summary..... 9
Figure 4: BART System Map 11
Figure 5: Average Annual Weekday Exits at Orinda and Lafayette BART stations..... 12
Figure 6: County Connection System Map (Lamorinda area)..... 13
Figure 7: Annual Ridership for County Connection Lamorinda Bus Routes..... 13
Figure 8: Annual System Wide County Connection Paratransit Ridership..... 14
Figure 9: Households by Area, 2007 to 2030 16
Figure 10: Employment by Area, 2007 to 2030 17
Figure 11: Locations of Lamorinda Gateways..... 24
Figure 12: Action Plan Review Process for Lamorinda GPAs and Projects 32

LIST OF TABLES

Table 1: Status of SR-24 (Caldecott Tunnel to I-680) MTSOs 11
Table 2: Demographic Forecast 15
Table 3: Population Forecast 15
Table 4: Employment Forecast 16
Table 5: Traffic Forecasts for Select Routes of Regional Significance..... 17
Table 6: Assessment of MTSO Values for 2004, 2007 and 2030 18
Table 7: Actions for State Route 24..... 20
Table 8: Actions for Pleasant Hill Road 21
Table 9: Actions for Camino Pablo/San Pablo Dam Road..... 22
Table 10: Examples of Developments Meeting the Traffic Impact Analysis Threshold . 30

The preparation of this report has been financed through a grant from the U.S. Department of Transportation and the Federal Highway Administration. Content of this report does not necessarily reflect the official views or policy of the U.S. Department of Transportation.

1. INTRODUCTION

The 2008 Lamorinda Action Plan Update assesses regional transportation issues within the Lamorinda area and outlines a recommended package of vision statements, goals, policies, objectives, and actions for addressing those issues. The study area includes Moraga, Lafayette, Orinda, and portions of unincorporated Contra Costa. In addition to serving as a guide for transportation planning through 2030, the Plan also fulfills one of several requirements under the Measures J Growth Management Program that local jurisdictions participate in a multi-jurisdictional, cooperative planning process, which includes the preparation of Action Plans for Routes of Regional Significance.

The recommendations in this Plan and its counterparts in the other subareas of Contra Costa (West, Central, East County, and the Tri-Valley) will be carried forward into the 2008 Update to the Countywide Comprehensive Transportation Plan (CTP) prepared by the Contra Costa Transportation Authority (CCTA). The Lamorinda Action Plan, combined with the one for the Tri-Valley (which includes the Contra Cost jurisdictions of Danville, San Ramon, and Contra Costa County), will be forwarded through the Southwest Area Transportation Committee (SWAT) to CCTA, for inclusion in the 2008 CTP Update.

The Lamorinda Program Management Committee (LPMC) is comprised of one elected official from each of the three Lamorinda jurisdictions, and serves as the policy oversight board for the planning and implementation of Measure C/J projects and programs. A Technical Advisory Committee (the LPMC-TAC), comprised of staff from each locality, provides technical input to the LPMC.

1.1 The Action Plan

In 1988, Contra Costa County voters approved Measure C, a one-half percent local sales tax that generated \$1 billion (2008 dollars) in funding for transportation projects and programs over 20 years. Measure C also created the Contra Costa Transportation Authority (CCTA), with a board of 11 elected officials and 3 ex-officio members to guide the expenditure of the sales tax proceeds in accordance with the voter-approved expenditure plan. Recently, Measure J was passed by the voters, extending the sales tax for 25 years through 2034, and generating an additional \$2 billion (2008 dollars).

Both Measures C and J include an innovative Growth Management Program (GMP) that encourages local jurisdictions to participate in a cooperative, multi-jurisdictional planning process, and among other things, establish flexible, multimodal transportation service standards for Regional Routes. The CCTA allocates 18 percent of the sales tax revenue it receives to local jurisdictions that are found to be in compliance with the Growth Management Program. Under Measure J, an additional 5 percent of total sales-tax revenues are available to local jurisdictions for Transportation for Livable Communities (TLC) projects, subject also to GMP compliance.

As part of the cooperative planning process envisioned under Measure C/J, “Action Plans for Routes of Regional Significance” are to be developed by the Regional Transportation Planning Committees (RTPC) with input from the local jurisdictions. The LPMC serves as a sub-group to the SWAT committee. Under Measures C/J, SWAT is the designated RTPC that reports to CCTA on policy matters relating transportation issues within both Lamorinda and the Tri-Valley.

The overall objective of the Action Plans is to give local jurisdictions an opportunity to cooperatively set goals, objectives, and actions to mitigate the cumulative impacts of growth on the regional transportation system. To be found in compliance with the CCTA’s GMP, local jurisdictions should participate in the development of the Action Plans, and also be willing to implement the actions, programs, projects, and measures identified within the Plans.

1.2 2008 Action Plan Update

In 1995, the LPMC developed and adopted the first Action Plan for Routes of Regional Significance. While this document included area-wide actions for Lamorinda, its primary focus was on the State Route 24/BART corridor, which at that time was the only regional route identified by the LPMC. Subsequently, both Pleasant Hill Road and Camino Pablo were designated, which lead to the preparation of Action Plans for those routes in 1998. The Action Plan for Camino Pablo was prepared jointly with the West County RTPC (called WCCTAC), and included the San Pablo Dam Road-Camino Pablo Corridor that connects West County to Orinda. The Pleasant Hill Road Action Plan was prepared by the City of Lafayette, and approved by LPMC in 1998. The Lamorinda Action Plan was last updated in 2000 to incorporate the new plans for Pleasant Hill Road and the San Pablo Dam Road-Camino Pablo Corridor, along with other changes regarding the SR-24/BART corridor.

The last update to the Lamorinda Action Plan was incorporated into CCTA’s 2000 CTP Update. In 2004, CCTA updated its Countywide Plan again, with the major focus on developing a new expenditure plan for the Measure J sales tax extension. Since the last Action Plan update in 2000, new demographic data has become available, the travel forecasts have been updated, Measure J was passed in Contra Costa, and statewide Proposition 1B, the \$19.9 billion bond act for statewide transportation improvements, was approved. Also, MTC updated its Regional Transportation Plan in 2001 and 2005. These and other events have triggered the need to undertake a comprehensive update to the Lamorinda Action Plan to reflect these changes in traffic, finance, and policy.

During the course of the 2008 Update, the LPMC reviewed and updated several major elements of the Action Plan including the Statements of Vision, Goals and Policies; Routes of Regional Significance; Multimodal Transportation Service Objectives; Actions; the Subregional Transportation Impact Fee; and Development Review Procedures. These elements of the Action Plan are defined as follows:

Statements of Vision, Goals and Policies of an Action Plan help guide its overall direction. Decisions regarding investments, program development, and development approvals are based on these policies.

Routes of Regional Significance are roadways that:

1. Connect two or more “regions” of Contra Costa County;
2. Cross County boundaries;
3. Carry a significant amount of through-traffic; and
4. Provide access to a regional highway or transit facility (e.g., a BART station or freeway interchange) that serves regional mobility and connect multiple jurisdictions.

The Authority may designate a Regional Route that meets one or more of these criteria. Regional Routes are exempt from Measure C level-of-service standards. Instead, these routes are assigned a flexible, multi-modal measure of effectiveness established by the RTPC in the Action Plan.

Multimodal Transportation Service Objectives (MTSOs) are quantifiable measures of effectiveness that include a target date for attaining the objective. MTSOs may include, for example, average peak-hour speeds, peak-period congestion duration, roadway level of service, transit loading, or transit service frequency. MTSOs can also represent targets for system performance such as transit ridership, mode shares, or average vehicle occupancy.

Actions are the specific steps (actions, measures, projects, and programs) that the local jurisdictions have agreed to implement to achieve the transportation goals, objectives, and policies set forth in the Action Plan. The party responsible for carrying out the actions is identified as either the local jurisdictions, the RTPC, or other affected parties. Actions may involve implementing specific projects at the local level, or they may call for regional cooperation among the local jurisdictions and adjoining RTPCs.

Subregional Transportation Mitigation Program (STMP) is the subregional fee or other mitigations program required under Measure C/J, and designed to mitigate the impacts of new developments on the regional transportation system. Lamorinda implements its STMP through a subarea developer fee that is overseen by the Lamorinda Fee and Financing Authority (LFFA), a Joint Exercise of Powers Authority (JEPA) comprised of elected officials from each jurisdiction within Lamorinda.

Development Review Procedures The CCTA Growth Management *Implementation Documents* include a requirement that each Action Plan establish a procedure for inter-jurisdictional notification regarding the traffic impacts of new development. As described further in Chapter 7, the CCTA also requires local participation in a General Plan Amendment (GPA) review procedure. This 2008 Update carries forward and refines these development review procedures, which were included in the previous Action Plans.

1.3 Outline of the Document

This introductory section (**Chapter 1**) to the Plan presents a brief history of the Action Plan concept and its relevance to transportation planning in Lamorinda.

Chapter 2 of this document describes the review of statements of vision, goals and policies that was undertaken and presents a revised set of statements to guide the 2008 Action Plan Update.

The chapter also identifies the Multimodal Transportation Service Objectives (MTSOs) that have been specified for each Route of Regional Significance.

Chapter 3 provides a description of the existing transportation conditions in Lamorinda. This chapter identifies the Routes of Regional Significance and the updated MTSOs. An assessment of the MTSOs from 2006 and 2007 monitoring is used to indicate the current status of Lamorinda with respect to the Action Plan.

A forecast of future population, employment and transportation conditions is presented in **Chapter 4** for the year 2030. In this chapter an assessment of the MTSOs for the Routes of Regional Significances is provided for the 2030 forecast for a baseline condition that assumes that only currently funded transportation improvements are in place.

Chapter 5 of the report defines the key elements of the 2008 Action Plan Update. This includes an updated description of actions defined by the Action Plan Update and intended to achieve the MTSOs for the Routes of Regional Significance. The actions include actions specifically designed to follow policies and meet goals on individual Routes of Regional Significance. For each action, the agency or agencies responsible for implementing the action is identified.

The financial plan for meeting the needs of the Action Plan is presented in **Chapter 6**. This includes a brief description of the existing funding sources that support the Action Plan elements and the Subregional Traffic Impact Fee Program designed to implement “regional significant projects” in the Action Plan.

Chapter 7 provides guidance on implementation of the Action Plan, including the procedures for circulation of environmental documents and review of General Plan Amendments (GPAs). The chapter also includes the process for monitoring and review of the Action Plan.

.

2. REVIEW OF VISIONS, GOALS, POLICIES AND SERVICE OBJECTIVES

2.1 Statements of Vision, Goals and Policies

..... The vision, goals, and policies for the 2008 Action Plan Update are as follows:

1. Preserve and enhance the semi-rural character of the community.
2. Pursue actions to meet or sustain service objectives that will reduce reliance on single-occupant automobile travel.
3. Support actions that help achieve environmental goals, through participation in countywide, regional, and statewide transportation improvement plans.
4. Avoid the addition of roadway capacity for single-occupant vehicles.
5. Enhance mobility by providing alternative travel options.
6. Actions should not lead to an increase in the use of BART parking in Lamorinda by people driving into the area from outside communities.
7. Pursue actions to improve safety of travelers by all modes.
8. Coordinate local land use planning and regional transportation planning.
9. Encourage through-trips and interregional travel to stay on freeways and discourage diversion of these trips to arterial and local streets as a mechanism for ensuring intraregional mobility.
10. Maintain capacity constraints at selected gateways with the intent of preserving and improving mobility on regional routes within Lamorinda.
11. Efficiency improvements, such as signal timing and other operational improvements, especially those that help side street traffic and buses, are important, but not at the risk of compromising pedestrian and bicycle safety.
12. Increase the transit ridership within Lamorinda by at least 10 percent by 2018.
13. Increase the average vehicle occupancy on Camino Pablo/San Pablo Dam Road and on Pleasant Hill Road/Taylor Boulevard to at least 1.3 during the peak commute hours by 2018.

2.2 Multimodal Transportation Service Objectives (MTSOs)

The MTSOs . of the 2008 Action Plan Update are as follows:

SR-24

1. Maintain a Delay Index (DI) of 2.0 (2.5 after 2030) or lower on the SR 24 corridor between I-680 and the Caldecott Tunnel during peak periods in the peak commute direction including freeway on-ramps.¹ The DI is a ratio of peak period travel time to

¹ Monitoring or modeling of Delay Index should be for the portion of a corridor inside any points of capacity constraint imposed by either a gateway constraint policy or traffic management strategies designed to limit the flow of vehicles into the corridor.

off-peak period travel time. A Delay Index of 1.0 would indicate that the traffic moves at free-flow speed unconstrained by congestion and not exceeding the posted speed limit.

As congestion increases and the average speed decreases, the Delay Index rises. A Delay Index of 2.0 indicates that the trip would take twice as long during the peak hours as during the uncongested off-peak.

2. Maintain a Delay Index (DI) of 1.5 or less for all but the six most congested hours of the day.
3. Maintain an hourly average loading factor (ratio of passengers to seats) of 1.5 or less approaching Lafayette Station westbound and Orinda Station eastbound during each and every hour of service. An hourly averaging loading factor of 1.5 indicates that the number of passengers served during the hour is fifty percent greater than the number of seats available during that hour.

Pleasant Hill Road

1. Establish CCCTA bus service on Pleasant Hill Road and/or Taylor Boulevard that has a composite frequency of at least two buses per hour during peak commute and school times (6:30 AM – 9:30 AM and 3:30 PM – 6:30 PM) and direct connection to the Lafayette BART station.
2. Maintain school bus service on Pleasant Hill Road and Taylor Boulevard.
3. Maintain a maximum wait time for drivers on side streets wishing to access Pleasant Hill Road or Taylor Boulevard of one signal cycle or less.
4. Maintain peak hour peak direction delay index of 2.0 or lower.

San Pablo Dam Road / Camino Pablo

1. Maintain peak hour peak direction delay index of 2.0 or lower.
2. The maximum wait time for drivers on side streets wishing to access San Pablo Dam Road or Camino Pablo should be no greater than one signal cycle.

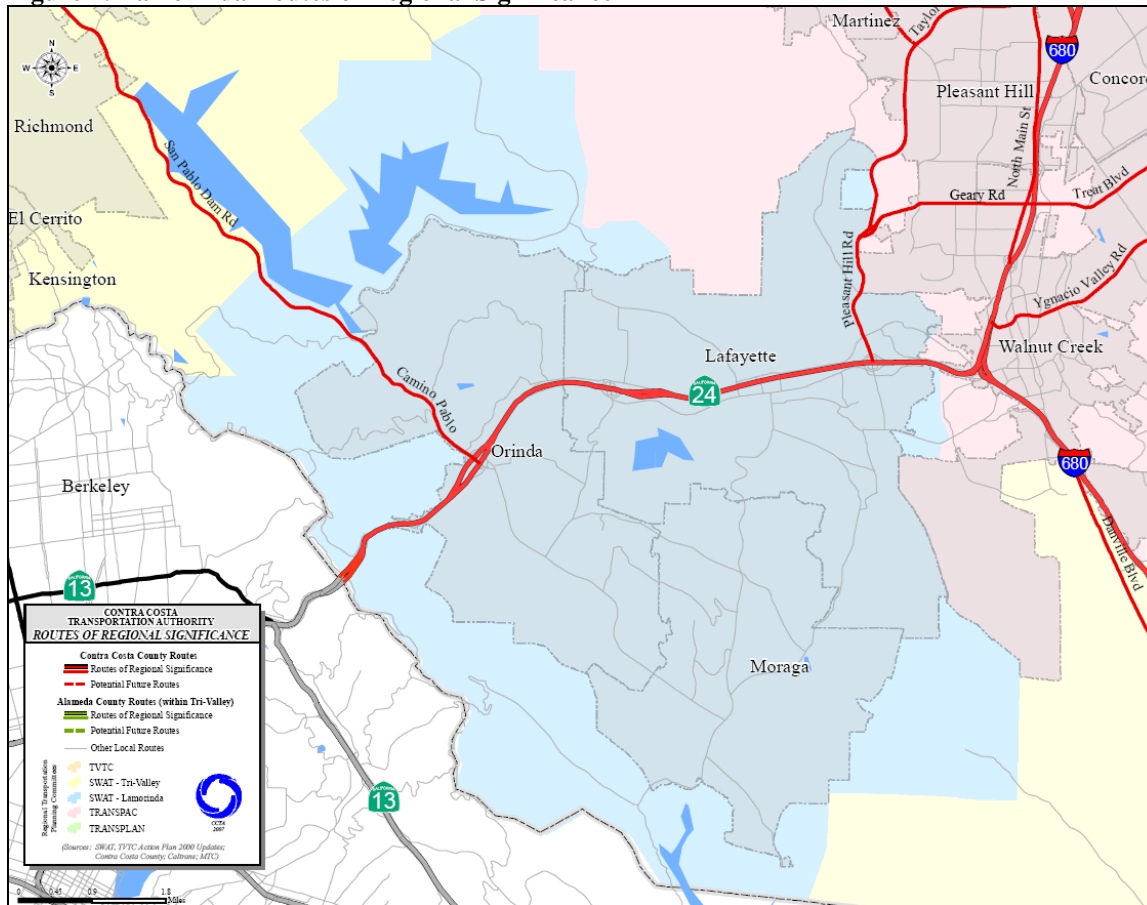
3. EXISTING TRANSPORTATION CONDITIONS

This section describes the existing transportation conditions in Lamorinda including the major roadways and transit services.

3.1 Routes of Regional Significance

Access to and from the Lamorinda area is provided mainly by State Route 24 as shown in Figure 1. Two arterials – Pleasant Hill Road and Camino Pablo/San Pablo Dam Road – also provide regional access. Together, these three roadways make up what are known as the Routes of Regional Significance.

Figure 1: Lamorinda Routes of Regional Significance



Last updated in 1998, the Routes of Regional Significance are roadways that meet one or more of the following criteria:

1. Connect two or more “regions” of Contra Costa County;
2. Cross County boundaries;
3. Carry a significant amount of through-traffic; and

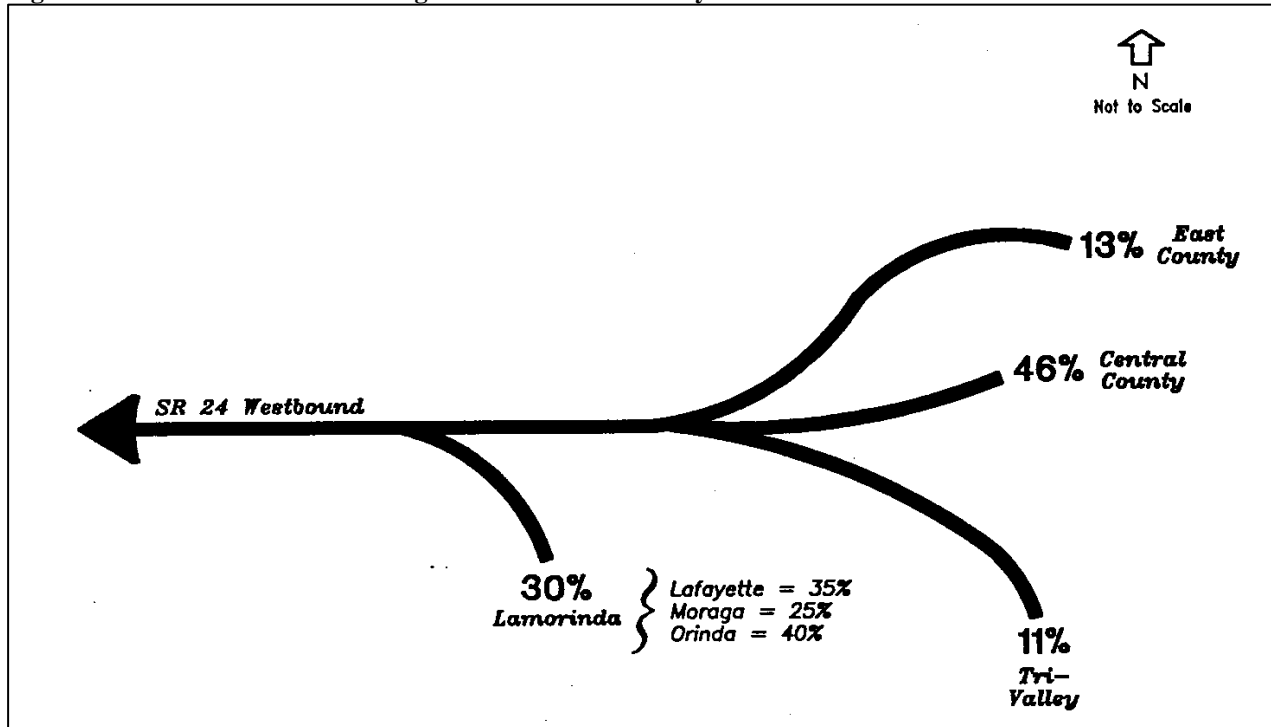
4. Provide access to a regional highway or transit facility (e.g., a BART station or freeway interchange).

3.1.1 State Route 24

State Route 24 (SR-24) is a major freeway connection between Central Contra Costa County, the Lamorinda area, and Alameda County, and carries between an average of 162,000 and 188,000 vehicles per day (2006 Caltrans ADT). The freeway runs from the I-680 interchange in the City of Walnut Creek to the Caldecott Tunnel, and traverses the Lamorinda communities in Contra Costa County. Within this segment, there are generally four travel lanes in each direction with no high-occupancy vehicle (HOV) lanes. To access Lamorinda, there are seven interchanges between I-680 and the Caldecott tunnel and they are located at Pleasant Hill Road, Deer Hill Road, Acalanes Road/El Nido Ranch Road, St. Stephens Drive, Camino Pablo, Gateway Boulevard, and Fish Ranch Road. BART runs within the center median of the SR 24 right-of-way.

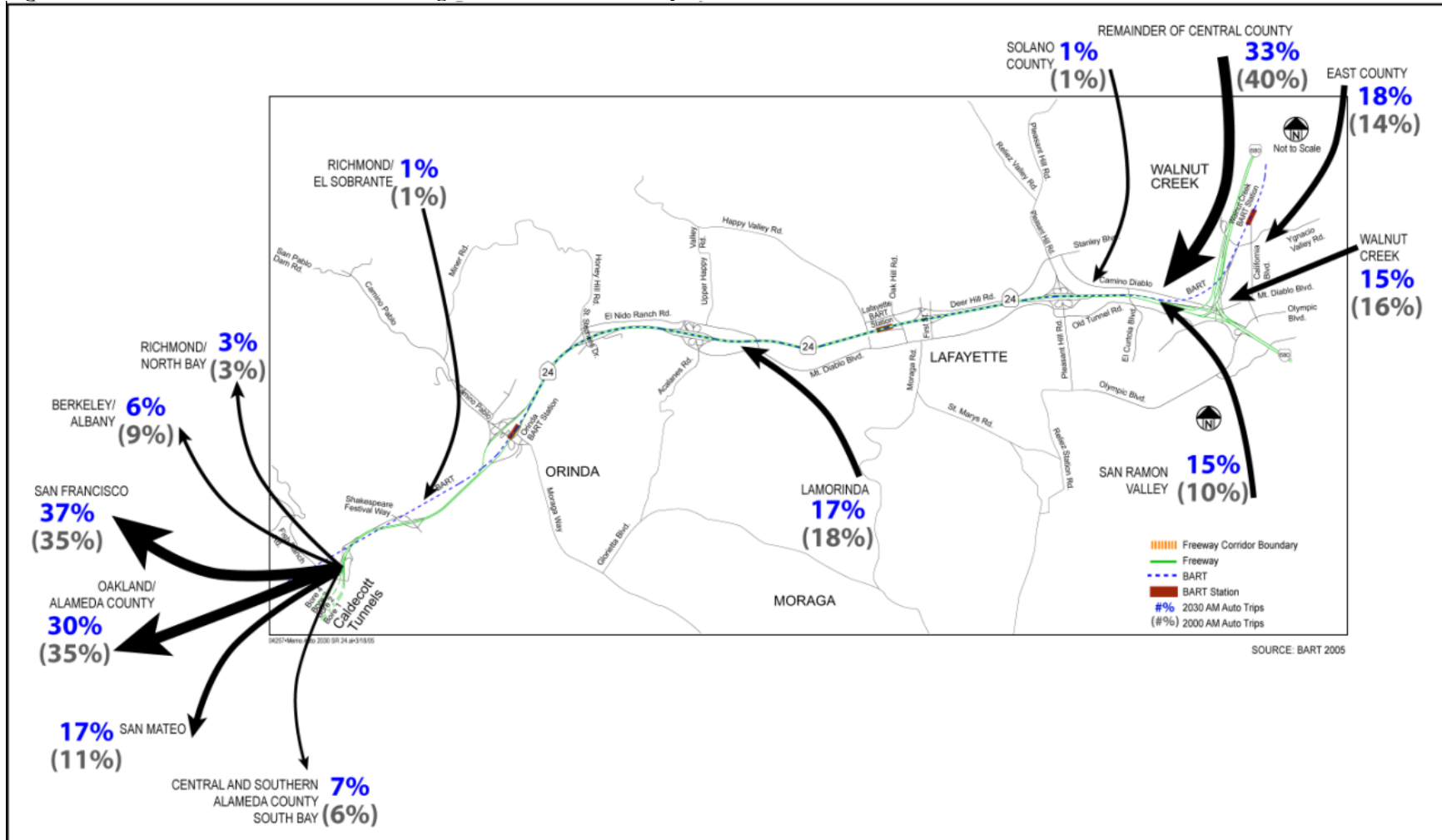
Since 1990, travel patterns have changed dramatically on SR-24. As shown in Figure 2, Lamorinda contributed 30 percent of all westbound AM peak period traffic in 1990. By 2000, that number had dropped to 17 percent, as shown in Figure 3, as substantial growth has occurred in Central County and East County leading to an increase in congestion intensity and duration along SR 24.

Figure 2: 1990 AM Peak Period Origin-Destination Summary



Source: 1995 Action Plan (1990 Central County CMP Model)

Figure 3: 2000 and 2030 AM Peak Period Origin-Destination Summary



Source: 2004 SR-24 Transit Capacity Study (Caltrans FREQ model – Caldecott Improvement Project EA/EIR)

3.1.2 Pleasant Hill Road

Connecting the City of Pleasant Hill to Lafayette, Pleasant Hill Road is a major four-lane, north-south arterial that intersects with SR-24 roughly 1.5 miles west of I-680. Two schools, Springhill Elementary and Acalanes High School, are served by the roadway. There is currently no transit service offered on Pleasant Hill Road north of Stanley Boulevard. Prior to the reconstruction of the I-680 / SR-24 interchange, Pleasant Hill Road carried significant through traffic that bypassed the congested interchange. Once the project was completed, traffic volumes and congestion dropped off but have recently been on the increase once again.

3.1.3 Camino Pablo / San Pablo Dam Road

Camino Pablo is a major arterial that begins just south of SR-24 in downtown Orinda and runs north serving Orinda Village and turning into San Pablo Dam Road at the Bear Creek Road intersection. The roadway serves the SR-24 interchange as well as the Orinda BART station, and ultimately connects to Richmond and I-80 in western Contra Costa County. AC Transit Route 74 operates along this corridor.

3.2 Monitoring Multimodal Transportation Service Objectives for Previous Action Plans

A description of the MTSOs and the target values for each were provided in Section 2. The values of the MTSOs established by the 1995 and 1998 Action Plans for the Lamorinda Routes of Regional Significance were monitored in 2004 and 2007. Table 1 summarizes the results of the monitoring. Most of these were met during the most recent monitoring effort in 2007 with the exception of the PM peak period DI on SR 24, the transit ridership along the SR 24 corridor, and the AM peak period DI on Pleasant Hill Road. Increasing traffic volumes and slower than expected transit ridership growth are the main causes for the MTSOs not being met.

3.3 Transit Service

Transit service in Lamorinda is provided by the San Francisco Bay Area Rapid Transit District (BART), and County Connection. In general, transit ridership has been slowly recovering after a decline during the years following the economic downturn of 2000-2001. Both BART and County Connection are experiencing ridership increases since 2003 and 2005, respectively.²

3.3.1 BART

BART service to Lamorinda is provided at the Orinda and Lafayette BART stations. The stations can be accessed through on-site park-and-ride lots and through several County Connection bus routes. A map showing the BART system is presented in Figure 4. Ridership, shown as average annual weekday exits at the two local BART stations, is shown in Figure 5.

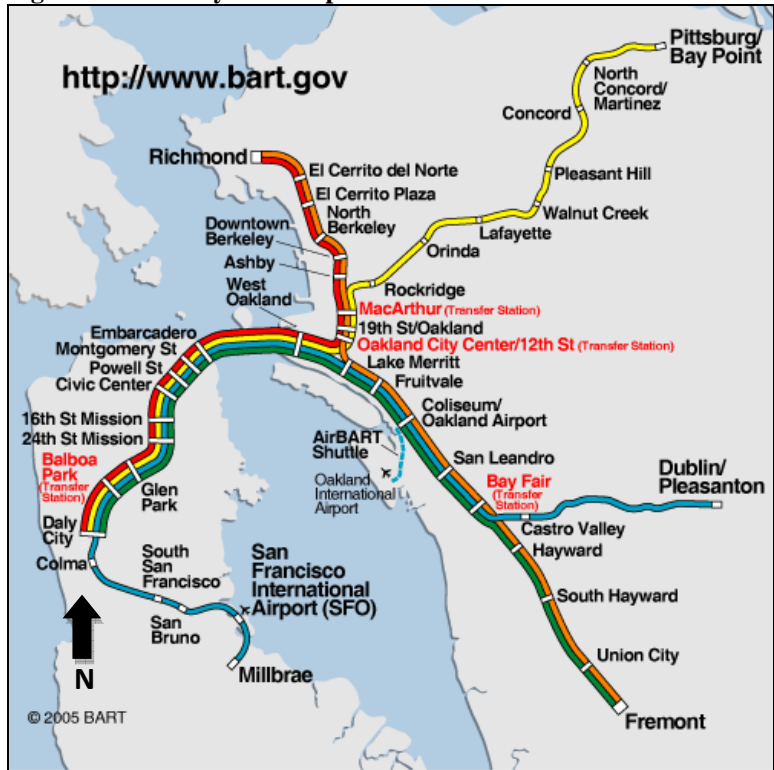
² Based upon data up to FY 2006-07

Table 1: Status of SR-24 (Caldecott Tunnel to I-680) MTSOs

Route	MTSO	2004 Monitoring Report	2007 Monitoring Report
SR-24 Caldecott Tunnel to I-680	Maintain a delay index of 2.0 or better during peak period/peak direction (including freeway on-ramps)	AM: 2.0 PM: 1.5	AM: 1.9 <i>PM: 2.0</i>
	+10% daily ridership on public transit systems (BART) to and from Lamorinda	<i>4,650 (-16%)</i> (1998-2003)	<i>5,942 (+7%)</i> (1998-2007)
Pleasant Hill Road Taylor Road to SR-24	Maintain a delay index of 2.0 or better during peak period/peak direction	AM: 1.6 PM: 1.7	<i>AM: 2.3</i> PM: 1.9
Camino Pablo / San Pablo Dam Road I-80 to SR-24	Delay index no greater than 2.0	AM: 1.3 PM: 1.5	AM: 1.7 PM: 1.3
	Increase average transit ridership as much as possible with initial goal of achieving a 10% increase to 3,000 average weekday daily riders	<i>6.4%</i> (1998-2004)	<i>-45%</i> (1998-2007) ¹

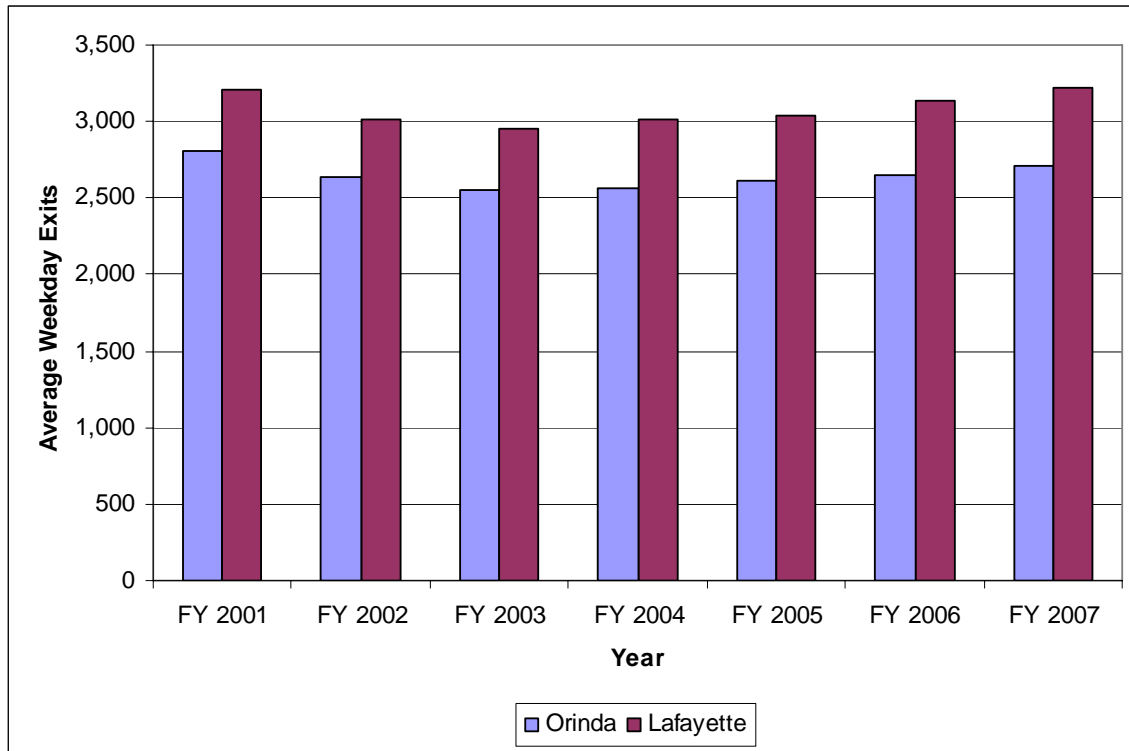
1. CCCTA Route 950 discontinued. Route 74 data provided by AC Transit, 2007

Figure 4: BART System Map



Source: <http://www.bart.gov>, September 2007

Figure 5: Average Annual Weekday Exits at Orinda and Lafayette BART stations



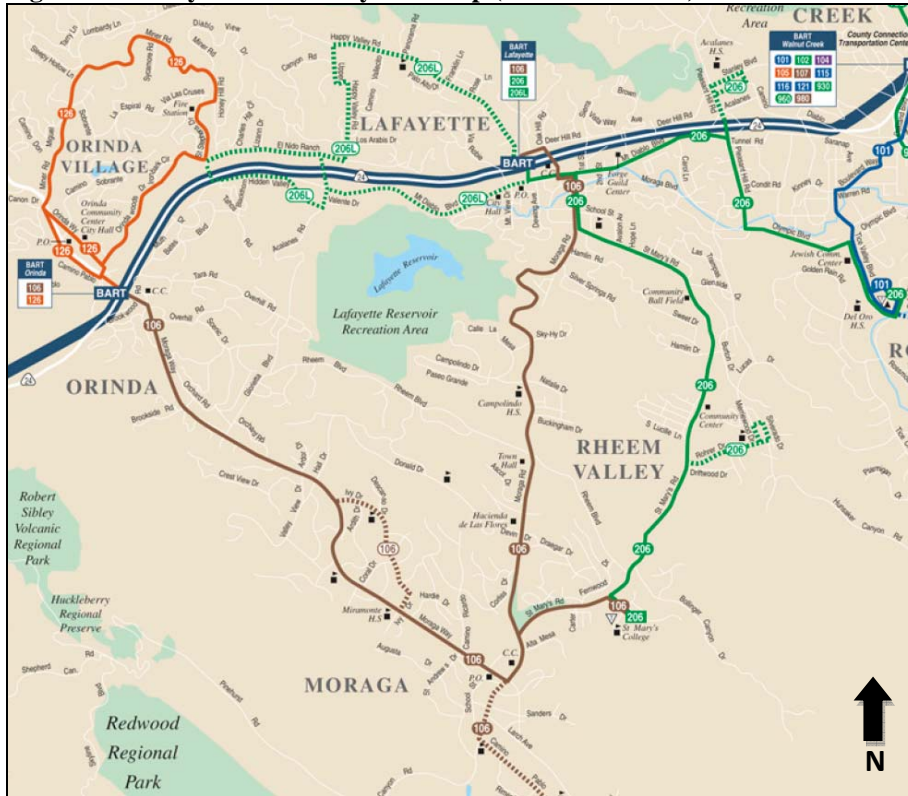
Source: BART 2007 Ridership Report

3.3.2 County Connection and AC Transit Bus Service

The Central Contra Costa Transit Authority (CCCTA), or County Connection, serves the Lamorinda area including both the Orinda and Lafayette BART stations. The bus routes currently serving this area are 106, 126, and 206. Figure 6 presents these routes on a map. Ridership on the Lamorinda area routes has been increasing since FY 2005 as shown in Figure 7.

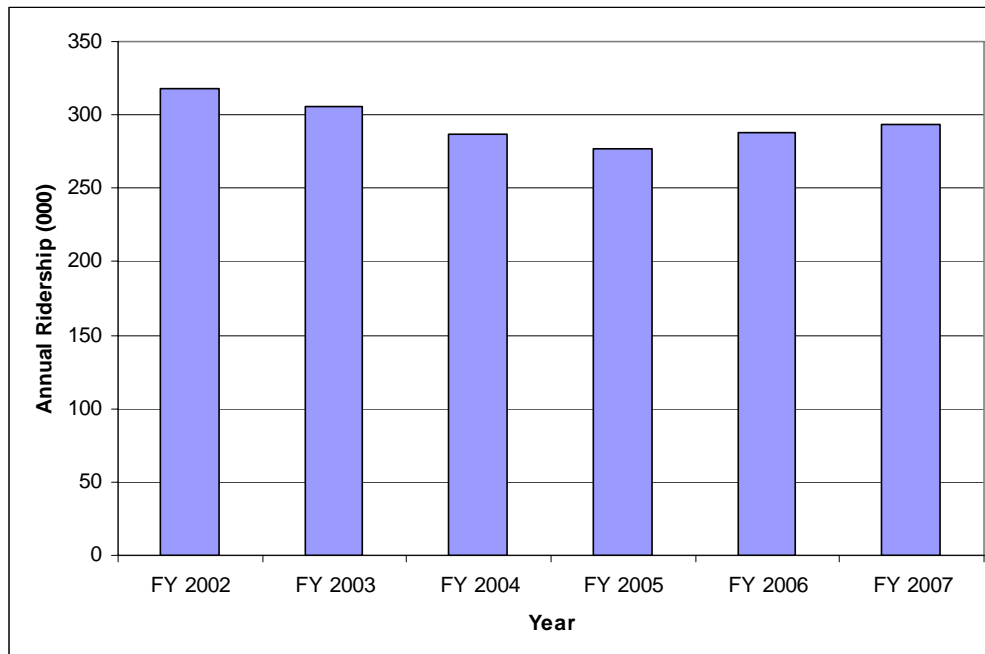
Also serving the Lamorinda area is AC Transit Route 74. Route 74 serves the Orinda BART station and Richmond via Camino Pablo / San Pablo Dam Road. Average daily ridership is approximately 1,500 passengers per day (AC Transit, August 2007).

Figure 6: County Connection System Map (Lamorinda area)



Source: <http://www.cccta.org>, September 2007

Figure 7: Annual Ridership for County Connection Lamorinda Bus Routes

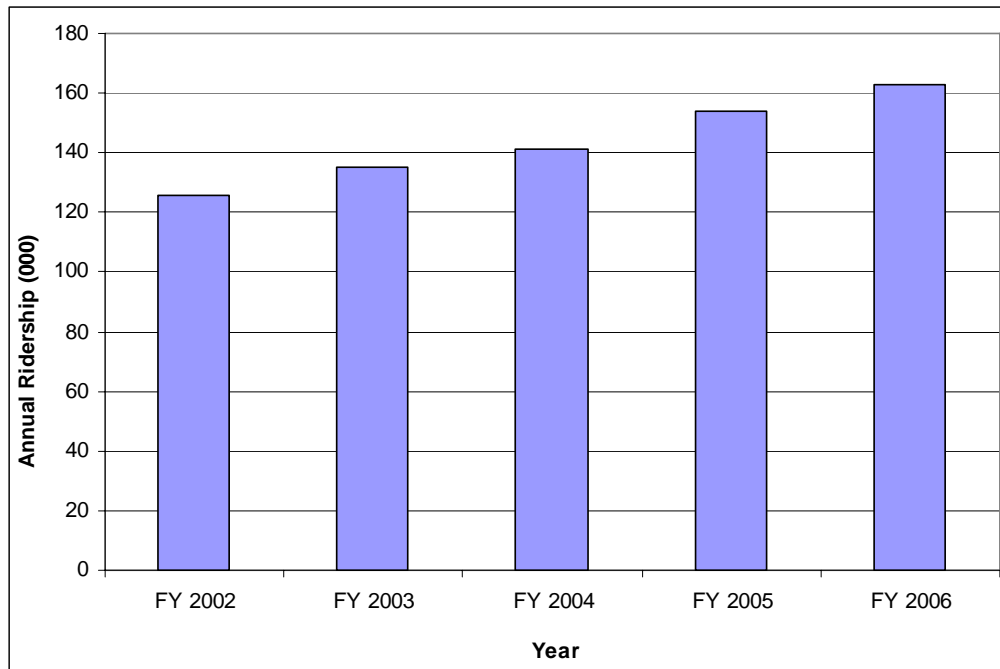


Source: County Connection, August 2007

3.3.3 Paratransit

Paratransit services are provided by County Connection. Ridership on paratransit, shown in Figure 8, has been steadily rising, mirroring a trend found throughout the Bay Area. With population forecasts showing a large increase in the senior (age 62 and over) demographic, the rising demand for paratransit is a trend that is expected to continue. In addition, the Lamorinda Spirit Van offers transportation for seniors in the Lamorinda area. The program is an alliance between public and private organizations in Moraga, Orinda and Lafayette. The program carries roughly 200 passengers per month.

Figure 8: Annual System Wide County Connection Paratransit Ridership



Source: 2006 MTC Statistical Summary of Bay Area Transit Operators.

4. OVERALL GROWTH RATES AND FUTURE TRAVEL PATTERNS

Forecasts for future population and employment levels in Lamorinda were derived from the Contra Costa Transportation Authority (CCTA) countywide travel model. Model forecasts are based on the Association of Bay Area Governments (ABAG) Projections 2005³, and the 2006 CCTA Land Use Information System (LUIS '06). Provided in the model are forecasts for the year 2000, 2010, 2020, and 2030. Current year 2007 estimates are derived through straight-line interpolation between 2000 and 2010.

4.1 Population Forecasts

Population forecasts, including demographics, households, and employment are shown in Tables 2 and 3. By 2030, the total Lamorinda population is forecast to grow 12 percent from today. Seniors (age 62 and over) are to make up most of that growth, increasing by 74 percent. The forecasts were developed based upon ABAG's Projections 2005, and were subject to extensive review by the local jurisdictions. The forecasts reflect that by 2030, the percentage of people who are over the age of 62 and still in the work force will have dramatically increased. This trend applies not only for Lamorinda, but also for the remainder of Contra Costa.

The total number of employees, or jobs, in Lamorinda is expected to grow at a slower rate than the number of employed residents. Since there are currently fewer employees than employed residents, the net out-commuting travel pattern that exists today will likely continue.

Table 2: Demographic Forecast

	2007	2010	2020	2030	Net Growth 2007-2030	Percent Growth
Senior (Age 62+)	13,100	13,900	18,300	22,800	9,700	74%
Adult (Non-Senior)	37,100	37,700	35,800	34,000	-3,100	-8%
Non-working Young	11,900	11,000	11,600	12,300	400	3%
Total Population	62,000	62,500	65,800	69,100	7,100	11%

Source: CCTA Travel Demand Model, Projections 2005

Table 3: Population Forecast

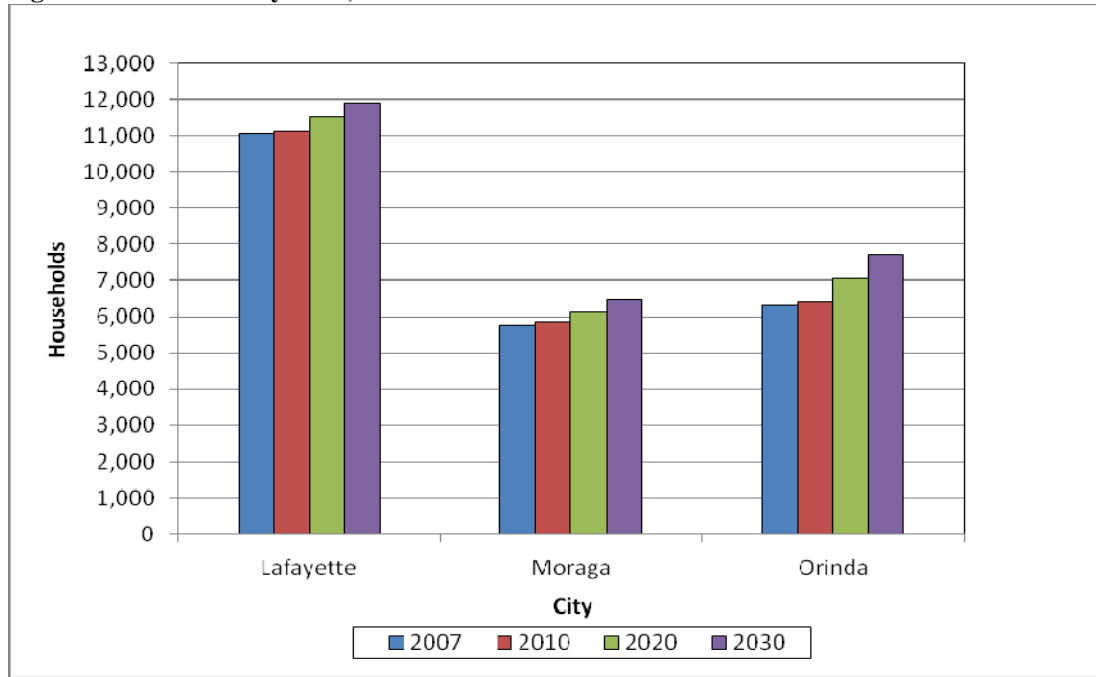
	2007	2010	2020	2030	Net Growth 2007-2030	Percent Growth
Total Population	62,000	62,500	65,800	69,100	7,100	11%
Total Households	23,100	23,400	24,800	26,100	3,000	13%
Total Employed Residents	29,700	29,900	33,100	36,300	6,600	22%
Total Employees	20,000	20,300	21,400	22,400	2,400	12%

Source: CCTA Travel Demand Model, Projections 2005

³ Near the completion of the Action Plan Update, ABAG released Projections 2007, but the projects had not been reviewed by CCTA or the local jurisdictions. A new set of ABAG forecast (Projections 2009) will be used in the next round of Action Plan updates.

Of the total household growth, a little less than half (about 1400 households) is expected to occur in Orinda as shown in Figure 9. The cities of Lafayette and Moraga are forecast to absorb 800 new households each.

Figure 9: Households by Area, 2007 to 2030



Source: CCTA Travel Demand Model, Projections 2005

4.2 Employment Forecasts

Total employment is forecast to grow 12 percent in Lamorinda by 2030 as shown in Table 4. Most of this growth is to occur in the service sector which will account for over 50 percent of the total employment growth.

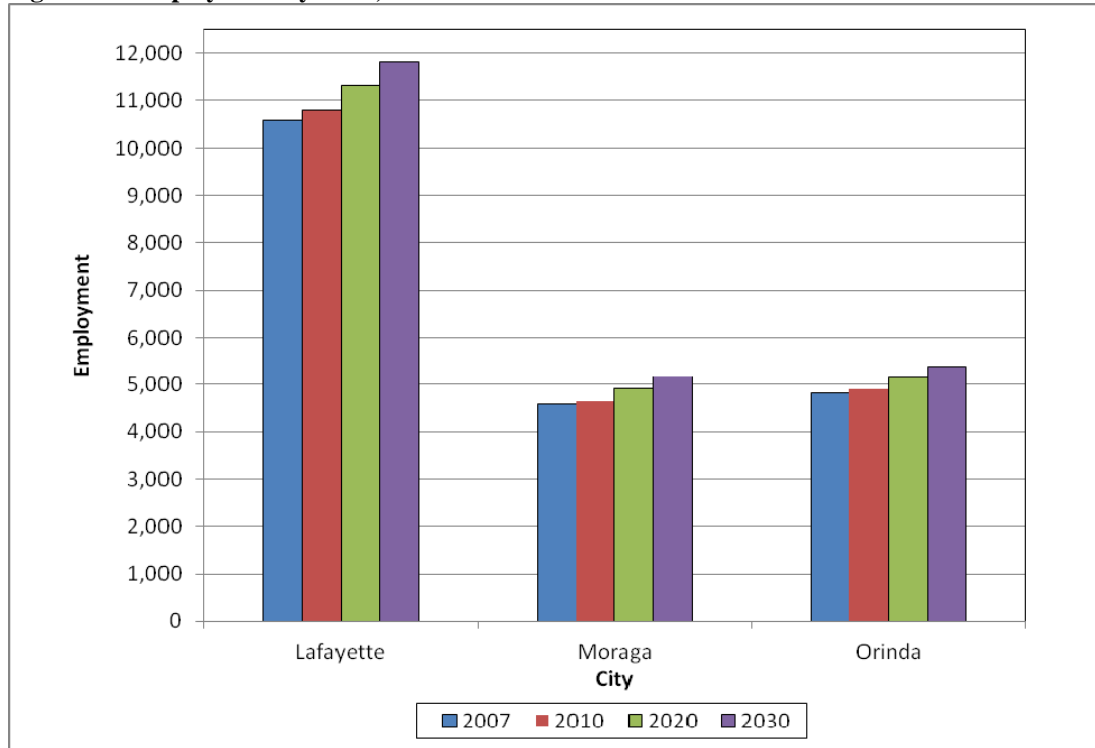
Table 4: Employment Forecast

	2007	2010	2020	2030	Net Growth 2007-2030	Percent Growth
Retail	4,700	4,700	5,000	5,200	500	11%
Service	7,300	7,300	8,000	8,500	1,200	16%
Manufacturing	800	900	1,000	1,200	400	50%
Agricultural	340	330	300	280	-60	-18%
Wholesale	1000	850	780	690	-310	-31%
Other	6,000	6,200	6,400	6,600	600	10%
Total Employment	20,000	20,300	21,400	22,400	2,400	12%

Source: CCTA Travel Demand Model, Projections 2005

Distribution of employment growth is not expected to be even, with most of the growth occurring in Lafayette (about 1250 jobs). Moraga and Orinda are forecast to added just fewer than 600 jobs each as shown in Figure 10.

Figure 10: Employment by Area, 2007 to 2030



Source: CCTA Travel Demand Model, Projections 2005

4.3 Traffic Forecasts

Travel forecasts were developed using the CCTA model system. The travel behavior represented by the CCTA model, which is consistent with the regional model used by MTC, is used to represent the growth in travel in each subregion. Forecasts are used to pivot off of existing travel patterns as reflected in traffic counts and transit ridership counts. These counts capture any unique travel characteristics of the travelers in any particular subregion. As shown in Table 5, traffic demand is expected to grow significantly on Lamorinda area freeways and arterials.

Table 5: Traffic Forecasts for Select Routes of Regional Significance

Road Name	2000 AM Peak Volume Peak Direction	2000 - 2030 AM Peak Volume % Growth
SR-24 (east to west) ¹		
SR-24 west of I-680 interchange (east of Pleasant Hill Road)	8,200	23%
SR-24 east of Oak Hill Road	6,900	18%
SR-24 west of Acalanes Road	8,750	28%
SR-24 west of Moraga Way	9,200	28%
SR-24 at Caldecott Tunnel	8,850	26%
Pleasant Hill Road at Deer Hill Rd ²	1,950	30%
Camino Pablo at Miner Road ³	990	21%

Notes: 1. AM peak direction westbound 2. AM peak direction southbound 3. AM peak direction southbound
Source: CCTA Travel Demand Model, Projections 2005.

4.4 Forecasts of MTSO Values for 2030

An assessment of travel forecasts for 2030 indicated that the programmed regional and local projects would not lead to achievement of the Multimodal Transportation Service Objectives in the Lamorinda Area. The results of the analysis are illustrated in Table 6. More regional trips will be made though Lamorinda than the Routes of Regional Significance will be able to accommodate and still achieve the MTSO values. The routes that will be most significantly affected are SR 24 and Pleasant Hill Road.

Table 6: Assessment of MTSO Values for 2004, 2007 and 2030

Lamorinda Action Plan - Evaluation of Previous and Current MTSOs				
Route	MTSO	2004 Monitoring Report	2007 Monitoring Report	2030 Baseline
SR-24 Caldecott Tunnel to I-680	Maintain a delay index of 2.0 or better during peak period/peak direction (including freeway on-ramps) (2.5 after 2030)	AM: 2.0 PM: 1.5	AM: 1.9 PM: 2.0	AM: 3.5 PM: 4.8
	+10% daily ridership on public transit systems (BART)	4,650(-16%) (1998-2003)	5,942(+7%) (1998-2007)	9,448(+59%) (2007-2030)
Pleasant Hill Road Taylor Road to SR-24	Maintain a delay index of 2.0 or better during peak period/peak direction	AM: 1.6 PM: 1.7	AM: 2.3 PM: 1.9	AM: 5.3 PM: 4.0
Camino Pablo / San Pablo Dam Road I-80 to SR-24	Maintain a delay index of 2.0 or better during peak period/peak direction	AM: 1.3 PM: 1.5	AM: 1.7 PM: 1.3	AM: 2.1 PM: 1.6
	Increase average ridership as much as possible with initial goal of achieving a 10% increase to 3,000 average weekday daily riders	+6.4% (1998-2004)	-45% ¹ (1998-2007)	+2.8% (2007-2030)

Notes

1. Route 950 discontinued. Route 74 data provided by AC Transit, 2007

5. ACTIONS FOR ROUTES OF REGIONAL SIGNIFICANCE

To address future traffic and congestion issues, the LPMC has identified a set of actions that are intended to result in achievement of the Action Plan vision, policies, and goals identified in Section 2.1. The actions represent a combination of specific projects, programs, measures, and mitigations that the Lamorinda jurisdictions have agreed to carry out as part of the Action Plan implementation. Although the actions are designed to achieve the thirteen statements of vision, policies, and goals of LPMC, there is not a one-to-one correspondence between the actions and the statements. Most of the actions apply a broad set of the thirteen statements and each of the statements would be addressed through a broad set of the actions.

5.1 Actions

Tables 7 through 10 lists the actions that the Lamorinda jurisdictions have agreed to carry out with support from CCTA to implement the Lamorinda Action Plan. Each table identifies actions that were carried forward from the previous Lamorinda Action Plan and new actions that are to be added in this update. The actions in this Lamorinda Action Plan Update reflect an orientation toward maintaining a safe travel environment, a reasonable level of service for travel within the area and a high quality of life for Lamorinda residents consistent with the stated vision, goals, and policies identified in Section 2.1 of this document. The actions are designed to achieve the the MTSOs identified in Section 2.2 through demand management, traffic system management and the support of transit and other alternative modes of transportation. The actions are designed to provide safe opportunities for walking and bicycling particularly for school trips and for access to BART and bus services. There is also no direct one-to-one correspondence between the actions and the MTSOs. The MTSOs define the overall standard of performance that is desired for the Routes of Regional Significance, and the composite set of actions are designed to ensure that the standards are met for the routes.

Table 7 identifies the actions that apply to all three of the Routes of Regional Significance. These actions are generally oriented to addressing travel needs and congestion throughout the subregion and are actions that would require the joint effort of all of the Lamorinda jurisdictions. The actions in this table are sorted into five categories:

- Transit
- Travel Demand Management
- Pedestrian and Bicycle Facilities and Safety
- Traffic Management
- Regional Coordination and Action Plan Implementation

.....

Table 7: Actions for All Lamorinda Routes of Regional Significance*

Transit	
1	Support and seek additional funding for expanding transit service, including service between Lamorinda BART stations and adjacent communities in Central County, service on Pleasant Hill Road, service to Bishop Ranch and the Tri-Valley area, and service through the Caldecott Tunnel.
2	Support BART and CCCTA strategies that enhance transit ridership and reduce single-occupant vehicle trips and encourage casual carpools for one-way BART ridership.
3	Support bus headway reductions on routes providing service to the Bay Point/Colma BART line and reinstatement of direct service to important employment centers such as Pleasanton and Bishop Ranch.
4	Support and seek funding for augmentation and expansion of school bus service in Lamorinda
5	Support augmentation and expansion of, and seek funding for, subscription bus service (flex van) to BART stations and high volume ridership locations such as St. Mary's College, to provide additional transit opportunities.
6	Support expansion of BART seat capacity through the corridor and parking capacity east of Lamorinda
7	Seek funds to build and operate park and ride lots and associated BART shuttles in Lamorinda to encourage carpooling and transit ridership while reducing commute loads
8	Develop a Lamorinda Transit Plan to identify future community transit needs and to address the changing needs of the senior population
9	Support transit service that links Lamorinda bus service more directly to communities to the north and east of Lafayette
Travel Demand Management	
10	Encourage expanded Travel Demand Management (TDM) programs to increase the use of alternative modes of transportation and increase overall vehicle occupancy. Promote TDM activities including ridesharing, casual carpooling and BART pool using resources such as the SWAT TDM program and RIDES for Bay Area Commuters.
11	Support Transportation Demand Management (TDM) programs at colleges and high schools
12	Implement the Spare the Air Program
13	Seek funding to construct park-and-ride lots along primary arterial roads approaching SR 24 throughout Lamorinda.
14	Support programs and projects that encourage students to take alternative modes of transportation to school to reduce demand on the roadway and increase vehicle occupancy rates
15	Support a collaborative effort with the Acalanes Union High School District to promote and increase ridesharing and use of transit for travel to and from the high schools in Lamorinda
16	Promote alternative work opportunities including employer pre-tax benefit programs, compressed work-week schedules, flex schedules and tele-work
17	In cooperation with Lamorinda jurisdictions, develop TDM plans and provide consultations to improve mobility and decreased parking demand for new development and redevelopment
18	Encourage "green" commuting including ZEV and NEV vehicles, clean fuel infrastructure and car sharing
Pedestrian and Bicycle Facilities and Safety	
19	Evaluate and seek opportunities to improve and/or build walkways/bikeway facilities between the Lamorinda BART stations and adjacent land uses and communities as outlined on the map included in the Action Plan.
20	Support the development of regional bicycle facilities
21	Seek funding to provide bicycle parking infrastructure at employment sites and activity centers throughout Lamorinda
Traffic Management	
22	Support operational improvements that increase throughput on I-80 to reduce diversion of traffic through Lamorinda on alternative routes
23	Support multi-modal safety actions that encourage safe speeds with particular emphasis on access to schools
Regional Coordination and Action Plan Implementation	
24	Pursue financial incentives to implement sound growth control strategies and support strengthening of growth management policies
25	Participate in the Regional Transportation Mitigation Program (RTMP)

26	Support continuation and expansion of Measures C and J return-to-source funds for road maintenance
27	Monitor and evaluate the MTSOs for all Routes of Regional Significance every four years
28	Establish reciprocity agreements with jurisdictions outside of Lamorinda to mitigate the downstream impacts of proposed new development projects or General Plan Amendments that could adversely affect ability to achieve the MTSOs

***Responsible parties: the Lamorinda jurisdictions of Orinda, Lafayette, and Moraga for all actions except the monitoring of MTSO values which is the responsibility of CCTA.**

The actions specifically oriented to SR 24 are listed in Table 8, but most of the actions in Table 7 also apply to SR 24. The actions in Table 8 are also the responsibility of all of the Lamorinda jurisdictions.

Table 8: Actions for State Route 24*

1	Seek funding for an auxiliary lane on eastbound SR 24 Gateway on-ramp to Brookwood and continue completion of improvements to eastbound Brookwood off-ramp subject to specific design criteria.
2	Support efforts of Caltrans and the California Highway Patrol to implement an incident management program on SR-24.
3	Support the Caldecott Tunnel Fourth Bore
4	Support HOV and transit improvements in the I-680 corridor to reduce single occupant automobile use on SR 24

***Responsible parties: the Lamorinda jurisdictions of Orinda, Lafayette, and Moraga**

Actions specifically oriented to Pleasant Hill Road are listed in Table 9. They would be the responsibility of the City of Lafayette, but may require the cooperation of the other Lamorinda jurisdictions as well as the cooperation of the TRANSPAC: the Central County RPTC.

Table 9: Actions for Pleasant Hill Road*

1	Monitor and evaluate traffic speed and other safety issues on an annual basis
2	Protect adjacent residential streets through the installation of traffic calming measures
3	Provide increased enforcement of the existing speed limit
4	If the CCCTA cannot increase service to Acalanes School, evaluate the feasibility of augmenting the existing school bus program to add the high school as funding permits
5	Support added person trip capacity on regional freeways that could divert traffic from Pleasant Hill Road
6	Support development of HOV lane programs on all freeways and regional routes where feasible
7	Support the provision of public transit service in the Pleasant Hill Road / Taylor Boulevard Corridor with connections to BART and other CCCTA services in Lafayette
8	Support the provision of Park and Ride lots north of Lafayette's segment of Pleasant Hill Road
9	Support school start times on Pleasant Hill Road that reduce peak commute loads on the roadway
10	Investigate appropriate mechanisms, including maintaining existing roadway lanes and widths and restrictive signal timing, to discourage use of Pleasant Hill Road as a substitute for freeway travel
11	Support pedestrian and bicycle safety improvements around schools, trailheads, and at intersections and along the bikeway network
12	Work with TRANSPAC to develop a traffic management program to encourage delay in order to discourage use of westbound/southbound traffic using Pleasant Hill Road to bypass the I-680 SR 24 interchange

***Responsible party: the City of Lafayette.**

Table 10 lists the actions specifically oriented to Camino Pablo/San Pablo Dam Road. They would be the responsibility of the City of Orinda, but may require the cooperation of the other Lamorinda jurisdictions as well as the cooperation of the WCCTAC: the West County RPTC.

Table 10: Actions for Camino Pablo/San Pablo Dam Road*

1	Seek grant(s) to study 1) access from side streets and 2) intersection configurations in the residential and commercial portions on San Pablo Dam Road and make recommendations for improvements
2	Seek Measure C funding of HOV facility needs for San Pablo Dam Road and Camino Pablo. Study to look at need for, feasibility, and cost of installing additional park and ride lots and HOV bypass lanes at critical congestion points in the corridor
3	Maintain and improve Lamorinda school bus program service to Wagner Ranch School
4	Local jurisdictions to work with the transit agencies to resolve transit stop access and amenity needs as identified by the transit agencies
5	Improve and/or add sidewalks and/or pedestrian pathways along San Pablo Dam Road
6	Install, where appropriate, bicycle lanes as part of any future roadway improvements to the corridor
7	Prepare letters of support to Caltrans, ACCMA, CCTA, and MTC for continued improvement of high occupancy vehicle and transit capacity in the I-80 corridor to reduce traffic pressure on San Pablo Dam Road and Camino Pablo
8	Minimize number of new street and driveway access points to the extent that is feasible on San Pablo Dam Road
9	Work with AC Transit, BART, County Connection, WestCAT, and MTC to explore feasibility of service re-organization in San Pablo Dam Road and Camino Pablo corridor and develop recommendations to increase frequency and connectivity of bus service for people traveling between City of Richmond, San Pablo, El Sobrante and Orinda. Request annual reports from transit operators to WCCTAC and SWAT on their activities related to this action. Seek additional funds for public transit
10	Support pedestrian and bicycle improvements along Camino Pablo, including BART access, to encourage alternative transportation modes, increase transit ridership, and reduce auto demand
11	Investigate appropriate mechanisms, including maintaining existing roadway lanes and widths and restrictive signal timing, to discourage use of San Pablo Dam Road and Camino Pablo as a substitute for freeway travel

*Responsible parties: the City of Orinda.

5.2 Preliminary Analysis Results of Actions

While the set of actions identified in Tables 7 through 10 are intended to work toward achievement of the MTSOs by 2030, the modeling results show that this may not be the case. In fact, model runs indicates that some of the MTSOs will be exceeded by 2030, even with full implementation of the Action Plan. In that regard, it is important to note that the CCTA's GMP does not measure a local jurisdiction's compliance with the GMP on whether or not all of the MTSOs have been achieved. GMP compliance is determined by asking, through the biennial GMP Checklist, whether each jurisdiction has carried out the actions assigned to it in the adopted Action Plan. Compliance with the GMP could become an issue, however, when a local jurisdiction fails to carry out the actions for which it is responsible.

Every few years, the CCTA will monitor the Routes of Regional Significance to assess whether the MTSOs are being met. If that monitoring effort shows that an MTSO exceedance has occurred, then the LPMC may wish to re-visit its adopted Action Plan, and determine whether revisions are necessary. Such revisions could include, for example, adding new actions, or changing the MTSOs. The CCTA's Growth Management *Implementation Documents* state that the RTPCs "should avoid watering down MTSOs during the revision process," however, changes to the MTSOs are still an option for the LPMC. A preferred outcome would be to reach consensus for the Lamorinda jurisdictions to increase their local commitments to actions needed to achieve the MTSOs.⁴

To help address the issue of through traffic on Lamorinda's Regional Routes, the following two new policies have been adopted for inclusion in the Lamorinda Action Plan: Gateway Constraints, and Traffic Management. The combination of these new policies has the potential to limit through traffic during any given hour to a level that could potentially be accommodated within the limits of the MTSOs.

5.3 Gateway Constraint Policy

A key policy of this Action Plan for Lamorinda, is to adopt a "gateway constraint" policy that controls peak-hour, peak-direction vehicle flows on major roadways leading into Lamorinda. The policy as stated in Section 2.1 reads as follows: "Maintain capacity constraints at selected gateways with the intent of preserving and improving mobility on regional routes within Lamorinda." Such a policy sets maximum lane widths for SR 24 inbound gateways, and similarly, identifies limits on the number of lanes for arterials such as Pleasant Hill Road and Camino Pablo.

The evaluation in this Action Plan Update indicates that a Gateway Constraint policy could be beneficial to Lamorinda residents, because such a policy would reserve some room on the regional system, so that access to the system will be maintained for traffic that has an origin and/or destination in Lamorinda. Furthermore, the modeling analysis indicates that a Gateway Constraint policy may be the key to achieving the MTSOs for Lamorinda.

The south county jurisdictions of SWAT (Danville, San Ramon, and Contra Costa County) have a Gateway Constraint policy that has been in place since 1995, when the first Tri-Valley Transportation Plan/Action Plan was adopted. The policy has been successfully implemented through the TVTC, whose Contra Costa jurisdictions fall under the purview of SWAT as the designated RTPC under Measure C/J.

5.4 Gateway Policies for Specific Routes

The location of Lamorinda gateways are identified in Figure 11. Each of the gateways is addressed below.

⁴ Contra Costa Transportation Authority, Growth Management Program Implementation Documents, Draft Implementation Guide, Public Review Draft, October 18, 2007, p. 35.

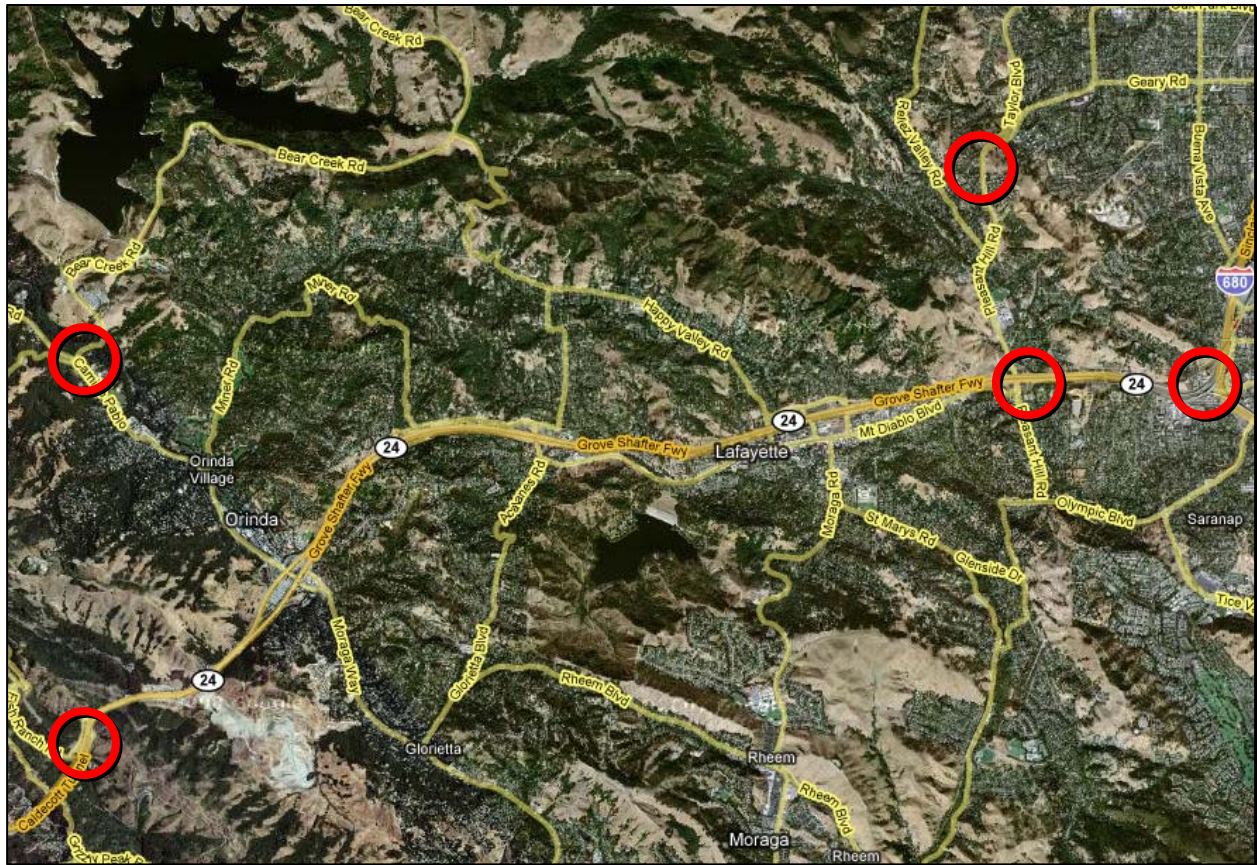


Figure 11: Locations of Lamorinda Gateways

SR-24: The four-lane Caldecott Tunnel, eastbound, and the four-lane cross section of SR 24 westbound, just west of the Pleasant Hill Road off-ramp represent gateway constraints. Eastbound, the SR 24 gateway capacity is currently limited by the Caldecott Tunnel. . The Caldecott Tunnel currently has three tunnels, each with two lanes. The center tunnel is reversible and is operated in the peak direction: westbound in the morning and eastbound in the evening. This method of operation provides four lanes of capacity in the peak direction. Because of the combination of factors at the entrances to the tunnel, the practical capacity in the peak direction is limited to about 8000 to 8400 vehicles per hour. Although a two-lane, fourth bore is planned for the Caldecott Tunnel, only the capacity of the off-peak direction would be increased for which only one tunnel (two lanes) is currently available.

The capacity constraint for westbound traffic occurs at the east end of SR 24 results from northbound and southbound congestion on I-680 during the morning peak producing stop-and-go conditions before the exit ramps to SR 24. A second constraint exists westbound on SR 24 at the Pleasant Hill Road exit where an auxiliary lane ends. Six lanes of westbound traffic enter SR 24 from the east end: three from southbound I-680, two from northbound I-680 and one from Mt. Diablo Boulevard in Walnut Creek. These six lanes merge to five lanes for a short segment, but only four lanes continue past the Pleasant Hill Road exit. The effective westbound capacity constraint at that point is about 8400 to 8800 vehicles per hour.

Pleasant Hill Road: The two southbound through lanes on Pleasant Hill Road–Taylor Boulevard are proposed as a gateway constraint. The location and other details of the of the gateway constraint are to be defined in a traffic management plan developed jointly with TRANSPAC (see Action 12 in Table 9). Pleasant Hill Road is two lanes in each direction from its merge with Taylor Boulevard south to SR 24 with additional turn lanes at most intersections. The first signalized intersection south of the Pleasant Hill Road-Taylor Boulevard merge is at the “T” intersection with Rancho View Drive. Other major intersections are at Green Valley Road, Reliez Valley Road, Spring Hill Road and Stanley Road/Deer Hill Road. Each of these signalized intersections has left- and right-turn lanes on Pleasant Hill Road.

The capacity constraints on arterials providing access to the Lamorinda area are determined by the number of lanes and the timing of signals at intersections near the entry point. On Pleasant Hill Road southbound during the AM peak period, capacity is determined primarily by the timing of signals at the four major intersections and how much green time is given to Pleasant Hill Road. While the gateway policy addresses physical characteristics at key intersections, the timing of signals can also act as a metering point, as discussed below in the Traffic Management strategy section.

Camino Pablo/San Pablo Dam Road: The Gateway Constraint policy for Camino Pablo is subject to discussion by LPMC.

Camino Pablo/San Pablo Dam Road is one lane in each direction with left turn lanes at most major intersections from the Orinda border south to Miner Road. It is two lanes in each direction with left and right turn lanes from Miner Road to SR 24. The southbound gateway capacity for the road is set primarily by the signals along the two-lane section of the road at Wildcat Canyon/Bear Creek Road, Miner Road and El Toyonal/Orinda Way. A gateway policy could be adopted for this roadway, however, it lends itself more to traffic management strategies, as described further below.

5.5 Traffic Management Strategies

While a Gateway Constraint policy could limit the volume of traffic entering Lamorinda during peak hours, it would not fully address the operational issues of how to manage the flow of traffic through the gateways. For that reason, Traffic Management Strategies are also proposed to further address the issue of peak hour traffic entering Lamorinda during the peak period. Traffic Management Strategies include single point metering (metering traffic through a signalized intersection) and signal timing coordination. For example, to encourage through commuters to use I-680 rather than Pleasant Hill Road, one possible traffic management strategy would be to meter the through-traffic flow on southbound Pleasant Hill Road in the AM peak period, while maintaining accessibility for Lamorinda residents who wish to enter Pleasant Hill Road via cross-streets within Lamorinda. A similar strategy could be appropriate for Camino Pablo/San Pablo Dam Road. Before implementing a traffic management strategy to restrict the flow of entering vehicles on either of these two arterial, turning-movement traffic counts should be conducted at intersections along the corridor before and after any point that might be considered

as the constraining point to determine intersection level of service and the amount of traffic that might be diverted by the constraint. In addition turning-movement counts and travel-time runs should be conducted in the corridor after implementation to determine whether the traffic management strategy is having the desired effect and without unnecessarily large negative impacts in terms of queues at the metering signals.

The traffic management strategy of single point metering and signal timing coordination is not without precedent. In the East County and Central County subareas, the Railroad Avenue/Kirker Pass Road/Ygnacio Valley Road corridor functions as a major travel route for commuters coming from East to Central County in the westbound AM peak period. The Central County Action Plan proposed that to address this heavy commute traffic, a Traffic Management Program (TMP) should be jointly prepared by the TRANSPAC and TRANSPLAN RTPCs. In 2001, the TMP was developed and subsequently implemented throughout the corridor, with single point metering at agreed-upon locations in Pittsburg, Concord and Walnut Creek. The TMP serves to meter through traffic along the corridor, while allowing cross-street traffic full access.

Local success of gateway constraint and traffic management strategies to maintain downstream roadway capacity for Lamorinda is dependent on maintaining local control of decisions and signal operations. Gateway constraints and traffic management strategies considered for specific routes within Lamorinda shall be determined only by a vote of locally elected officials at locally, noticed public hearing.

6. FINANCIAL PLAN

6.1 Overview of the Financial Plan

The projects and programs affecting Lamorinda receive funding from a variety of sources. Many of the projects and programs designed to address needs within an individual community are funded by the general revenues of the jurisdiction (city or county) in which the project is being implemented or through development impact fees specific to the jurisdiction. Larger projects of a more regional nature generally receive funding from a variety of funding sources designed to address subarea or regional issues. These include revenue from the county sales tax measures for Contra Costa County (Measures C and J).

Measure C in Contra Costa County was passed in 1988 and provided a half-cent sales tax for transportation through March 31, 2009. Measure J was passed in 2004 and extends the half-cent sales tax through 2034. Measure C is provided roughly \$70 million to \$80 million per year and Measure J will provide roughly \$2 billion over the 25-year period. Some of the key Lamorinda projects that will be funded by Measures C and J are the following:

- Caldecott Tunnel Fourth Bore
- BART East County Rail Extension
- I-680 HOV Lane Gap Closure and Transit Corridor Improvements
- BART Parking, Access and Other Improvements
- Local Street Maintenance and Improvements
- Major Street Traffic Flow, Safety and Capacity Improvements
- Transportation for Livable Communities Grants
- Pedestrian, Bicycle and Trail Facilities
- Bus Services
- Transportation for Seniors and People with Disabilities
- Commute Alternatives
- Congestion Management, Transportation Planning Facilities and Services
- Safe Transportation for Children

Additional regional funds are provided by the following federal, state and regional sources:

- Federal Surface Transportation Funds – SAFETE-LU
- State Transportation Development Act (TDA)/State Transit Assistance (STA) Revenues
- State Transportation Improvement Program (STIP) Funds
- State Corridor Management Improvement Account (Prop 1B)
- State Environmental Enhancement and Mitigation
- STDA, Article 3 – Bicycle and Pedestrian Funds
- Bridge Toll Revenues
- Regional Measure 2 Bridge Toll Revenues for Specific Projects and Programs

- AB 1107 half-cent sales tax revenues for transit (BART and AC Transit)
- Transportation Fund for Clean Air - Vehicle Registration Fees for Clean Air Programs

The traffic growth that is expected on the Regional Routes will be mitigated in part through a set of projects and programs as identified in this Plan. Funding for these projects and programs through existing sources, however, will not be sufficient to fully fund all of the identified needs. Since the first plan was adopted in 1995, the LPMC has looked to new development to defray the costs of mitigating the impacts it creates. The LPMC's Subregional Transportation Mitigation Program generates additional revenue to mitigate the impacts of new development in Lamorinda. Developer funding of projects to mitigate the impacts of new development that occurs outside of Lamorinda, is subject to the establishment of reciprocity agreements between the LPMC and the upstream jurisdiction where that new development occurs. The Central County RTMP (TRANSPAC) considers use of such reciprocity agreements for projects that generate in excess of 100 net peak hour vehicle trips.

6.2 Subregional Transportation Mitigation Program (STMP)

In August 1994, the Lamorinda Project Management Committee (LPMC) adopted the *Lamorinda Transportation Improvement Program (LTIP)* as its blueprint for transportation planning through the year 2010. According to the statutory requirements of Measure C, the LPMC must adopt a subregional traffic mitigation program to ensure that new growth is paying its share of the costs associated with that growth. The CCTA established April 15, 1998 as the deadline by which all Contra Costa County jurisdictions must adopt a fee in order to remain in compliance with the Growth Management Program and continue receiving return to source funds from CCTA.

The LTIP is the result of the Lamorinda Traffic Study completed in late 1994. It identified roughly 37 improvements to regional roadways and transit facilities and total approximately \$17.7 million (1998 dollars). The LPMC then created the Lamorinda Transportation Impact Fee (LTIF) as a mechanism to charge new development to mitigate the traffic impacts it creates. The LTIF identified seven projects for use of the funds. A fee structure for new development was established based on the expected impact of the new development and the cost to mitigate the impact. Since its adoption, the funds of the LTIF have been used for some of the project identified. This update to the Lamorinda Action Plan made adjustments to the estimated costs for the remaining projects to reflect rising construction costs. No new projects have been added nor has a re-evaluation of the needs for new and past projects occurred, but a reassessment of the project list and fee structure will be considered after the completion of the Action Plan and the actions adopted as part of the Plan will be considered.

7. PROCEDURES FOR NOTIFICATION, REVIEW, AND MONITORING

This Chapter provides guidance on implementation of the Action Plan, including the procedures for circulation of environmental documents and review of General Plan Amendments (GPAs). The chapter also includes the process for monitoring and review of the Action Plan.

7.1 Notification Regarding Development Applications and Environmental Documents

As part of the Growth Management Program, local cities and towns are required to notify neighboring jurisdictions regarding proposed projects and general plan amendments. By agreement among the three cities within Lamorinda, the following notification procedures shall be followed:

- For any General Plan Amendment, the lead jurisdictions shall notify the Lamorinda jurisdictions staff and the designated staff person for LPMC as soon as the General Plan Amendment application is deemed complete.
- For any proposed project that generates more than 10 and less than 50 net new peak hour vehicle trips, the lead jurisdictions shall notify the planning directors of the other Lamorinda jurisdictions as soon as the development application is deemed complete. No additional actions are required, unless the proposed development is subject to CEQA, in which case the CEQA-related notification procedures apply as outlined below.
- For proposed projects that would generate 50 or more net new peak hour vehicle trips, the Lamorinda jurisdictions agree to the following procedure:
 1. The Lead Agency shall notify the planning directors of the other Lamorinda jurisdictions and the designated staff liaisons for LPMC;
 2. Following receipt of notification, any Lamorinda jurisdiction may request, and the sponsoring jurisdiction shall agree too, an informational meeting to discuss the application.
- If the project generates more than 100 net peak hour vehicle trips, the LPMC staff person shall in turn notify the designated staff person for SWAT, who may in turn notify other jurisdictions within SWAT, and adjacent RTPCs as appropriate so that affected jurisdictions may comment on proposed projects and subsequent environmental documentation⁵.

When the above-mentioned development projects and GPAs involve the CEQA process, notification shall occur at the following two junctures:

⁵ Conversely, as required under Authority Resolution 93-02-G, the other RTPCs will notify SWAT of proposed projects and general plan amendments that exceed 100 peak hour vehicle trips.

- a. Upon issuance of a Notice of Intent to Issue a Negative Declaration or a Notice of Preparation for EIR/EIS; and
- b. Upon completion of a Negative Declaration or draft EIR/EIS (Notice of Completion).

In each case, the neighboring communities are to be provided an opportunity to review and comment on the environmental documents. The Lamorinda subarea has made the policy more stringent than the established CCTA notification policy by setting the threshold for circulation below 100 net new peak hour vehicle trips. The threshold for net new peak hour vehicle trips is the threshold total number of vehicle trips projected to enter and leave the project site, during the AM or the PM peak hour (whichever is greater), not including bypass vehicle trips, and exempting vehicle trips that are currently generated by the site if it is under an existing use. Table 11 contains examples of the types of developments that generate 50 or more new peak hour vehicle trips⁶.

Table 11: Examples of Developments Meeting the 50 Net Peak Hour Trip Threshold

Land Use	Size ^{1,2}	AM trips	PM trips
Single Family	50 DU	38	51
Condominium (Low Rise)	64 DU	44	50
Apartments	80 DU	41	50
Hotel	85 DU	48	50
Fast Food Restaurant	1.0 KSF	53	35
Shopping Center	14 KSF	14	53
General Office	32 KSF	50	48

1. DU = Dwelling Units

2. KSF = 1,000 Square Feet

Source: ITE Trip Generation, 7th Edition, 2003

The process is intended to reflect the spirit of the cooperative multi-jurisdictional planning process as outlined in Measure J (2004). Furthermore, it is the intent of the Lamorinda jurisdictions to diligently notify one another regarding proposed projects and general plan amendments, irrespective of whether such notification is legally required under CEQA.

Figure 12 illustrates the notification procedure outlined above, as well as the procedure for review of General Plan Amendments, as discussed in the following section.

7.2 Review of General Plan Amendments

Existing general plans were used as the basis for the modeled land use assumptions developed for the Action Plan. General plan amendments (GPAs) other than those assumed in the land use assumptions could reduce the effectiveness of the Action Plan. A process has been defined to address GPAs and their impact on the Action Plan.

⁶ These trip generation rates are only a guide and may need to be adjusted to fit the specific type of project proposed.

In addition to the notification procedures outlined in Section 7.1 above, GPAs whose implementation would either generate new traffic or result in a change in traffic patterns may, at the request of an LPMC member jurisdiction, be subject to review by LPMC. During that review process, the lead jurisdiction must demonstrate to the satisfaction of the LPMC that the proposed GPA does not adversely affect the Lamorinda jurisdiction's ability to meet the MTSOs or to implement the agree-upon actions in the Action Plan. If the LPMC reaches consensus that the proposed GPA is acceptable "as is," then the GPA sponsor may approve the GPA without consequence.

If the proposed GPA is found to adversely affect ability to meet the MTSOs or implement the Action Plan, then the LPMC and the lead jurisdiction shall engage in discussions to further analyze the affects of the proposed GPA, and to determine whether the GPA can be modified to mitigate its impact on the transportation system relative to the MTSOs and actions. Alternatively, the LPMC may consider and adopt modifications to its Action Plan to accommodate the proposed GPA. Subsequently, the LPMC and the GPA sponsor must reach agreement on amendments to the proposed GPA and/or Action Plan to mitigate the impact on the MTSOs and actions. (Note: If the GPA is a voter-approved initiative, it cannot be modified and modifications to the action plan in response to the GPA would be the appropriate response.) The discussions shall follow the cooperative multi-jurisdictional planning process envisioned by Measure C and J, and shall fulfill the requirements of the GPA review procedure stipulated in CCTA Resolution 95-06-G. LPMC shall serve as the primary committee that would evaluate the impact of the proposed GPA on the Lamorinda Action Plan.

If consensus on any of the above conditions cannot be reached at LPMC, then LPMC shall notify SWAT, who in turn would notify the Authority regarding a potential growth management compliance issue that could invoke the Authority's conflict resolution procedure.

In certain cases, the MTSOs, as forecast, may exceed their prescribed thresholds under growth already included in the adopted general plans. This event alone will not result in a local jurisdiction being found out of compliance with the Measure J Growth Management Plan. However, any GPAs that are proposed must not adversely affect the policies or MTSOs of the Action Plan. In the case of MTSOs that already exceed the thresholds, the GPA must not make it worse.

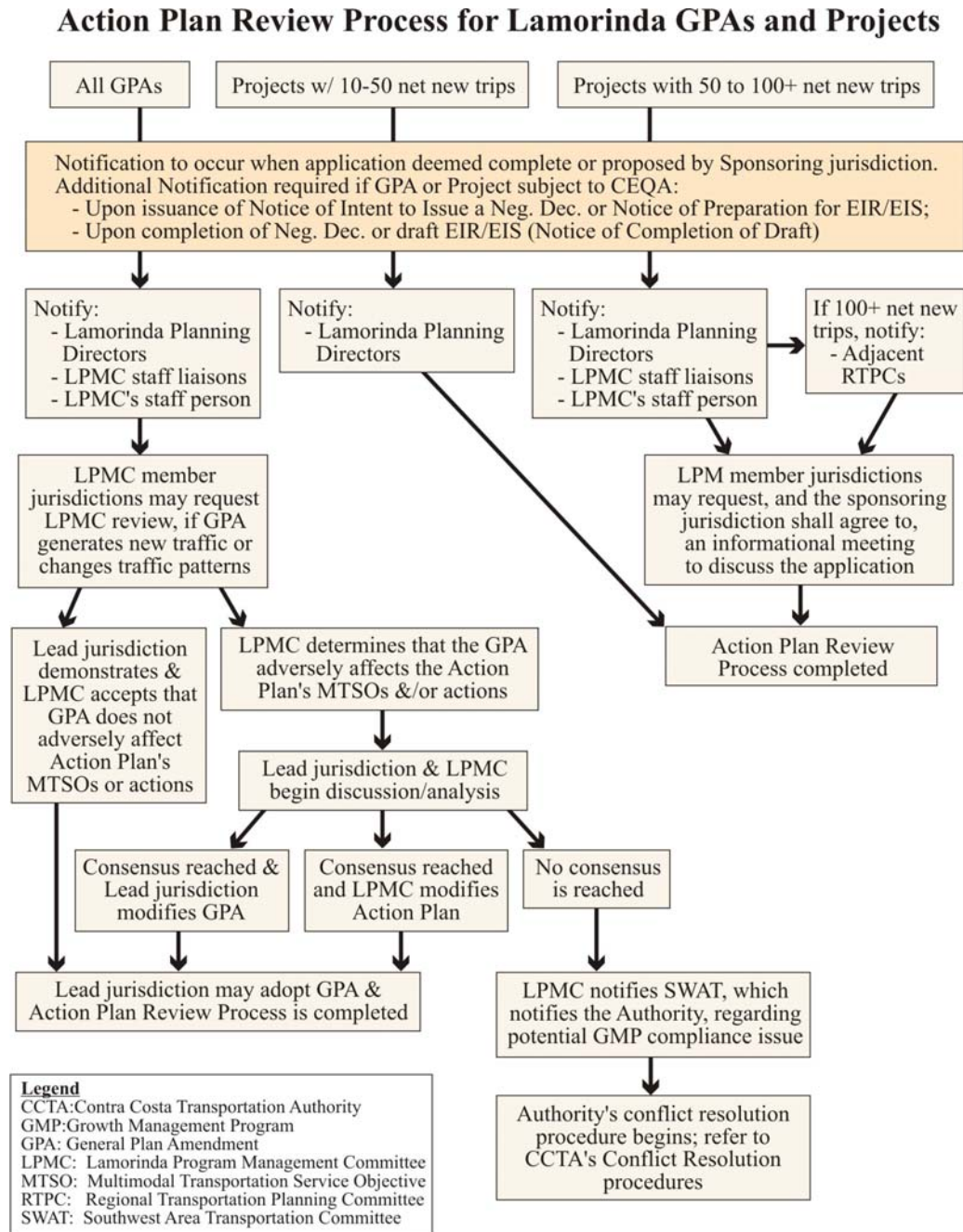
7.3 Action Plan Monitoring and Review

The Action Plans are to be monitored to determine whether or not the MTSOs are being met. If it is determined through the monitoring process that the MTSOs are not being met, the Action Plans may require modification and/or an update. The following steps are envisioned for Action Plan review:

- (a) Monitor, biannually, all Regional Routes of Significance to determine MTSO compliance (by CCTA); and

- (b) If the results of the monitoring effort show that a regional route has exceeded the adopted MTSO, a focused Action Plan may be prepared by the RTPC; and
- (c) A complete review of the Lamorinda Action Plan shall be conducted on a four-to-five-year cycle (jointly by the RTPC and CCTA) in coordination with updates to the Authority's Countywide Comprehensive Transportation Plan Update.

Figure 12: Action Plan Review Process for Lamorinda GPAs and Projects



Current as of November 6, 2009

APPENDIX 1
TECHNICAL MEMORANDUM- ANALYSIS OF MTSOS FOR THE
LAMORINDA ACTION PLAN

TECHNICAL MEMORANDUM

TO: LPMC-TAC
THROUGH: Martin R. Engelmann, CCTA
FROM: Bill Loudon, DKS
DATE: July 21, 2008
SUBJECT: Analysis of MTSOs for Lamorinda P/A No. 07085-005

Under contract with the Contra Costa Transportation Authority, DKS Associates conducted an analysis of the Action Plan Multi-Modal Transportation Service Objectives (MTSOs) to determine whether the MTSOs can be met under a variety of test scenarios and horizon years. In Lamorinda, the currently adopted MTSOs from the 2000 Action Plan Update are:

- Delay Index;
- Transit Ridership Increase

The methodology for estimating future-year values for the Delay Index is as follows:

- Use observed data from the 2007 MTSO Monitoring Report prepared by Kimley Horn;
- Compare the 2007 model data to the observed data (the 2007 model value is determined by interpolating between 2000 and 2010); and
- Estimate the 2020 and 2030 delay index values by applying the change from 2007 to either 2020 or 2030 in the model to the observed 2007 value.

The estimation is based on segment travel time differences between 2007 and each of the 2020 or 2030 scenarios.

The following scenarios are available for evaluation:

1. Baseline 2007 (Actual Monitoring Results)
2. 2020 with Implementation of all Action Plans (except Gateway Constraints)
3. 2020 with Implementation of all Action Plans + Gateway Constraints
4. Baseline 2030
5. 2030 with Implementation of all Action Plans (except Gateway Constraints)
6. 2030 with Implementation of all Action Plans + Gateway Constraints

The term “Gateway Constraints” refers to a policy that the Tri-Valley Transportation Council (TVTC) adopted in 1995 regarding number of lanes on major roadways entering the Tri-Valley subarea and a policy being proposed by LPMC for major roadways entering Lamorinda. The policy would limit the future volume entering Lamorinda on SR 24, Pleasant Hill Road and Camino Pablo to no more than the existing capacities of the roads.

5.1.1.1 Results of the MTSO Analysis

Prior analyses demonstrated that the “transit ridership growth” MTSO is projected to be met in the Baseline 2030 analysis (scenario 4). Table 1 shows the AM peak hour results of the Delay Index for each scenario. The first column shows the adopted MTSO, followed by the observed value, and the various forecasted values. Grey shading indicates that the MTSO is not met. Table 2 shows the

results of the Delay Index for the PM peak hour. The tables indicate that under both future scenarios (Action Plan and Action Plan with Gateway Capacity Constraints), at least two segments are likely to exceed the Delay Index target values in 2020 and 2030.

Table 1 - AM Peak Hour Delay Index Forecasts

Segment	MTSO	2007 Baseline (Observed)	2020 with Action Plans	2020 with Action Plans + Gateway Constraints	2030 Baseline	2030 with Action Plans	2030 with Action Plans + Gateway Constraints
SR-24							
Westbound	2.0	1.9	2.4	2.1	3.8	3.5	2.9
Eastbound	Not Monitored		NA	NA	NA	NA	NA
Pleasant Hill Road							
Northbound	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Southbound	2.0	2.3	3.6	2.7	5.3	5.2	4.2
Camino Pablo/San Pablo Dam Road							
Northbound	2.0	1.4	1.4	1.4	1.6	1.6	1.4
Southbound	2.0	1.7	1.8	1.7	2.1	2.1	1.8

Table 2 - PM Peak Hour Delay Index Forecasts

Segment	MTSO	2007 Baseline (Observed)	2020 with Action Plans	2020 with Action Plans + Gateway Constraints	2030 Baseline	2030 with Action Plans	2030 with Action Plans + Gateway Constraints
SR-24							
Westbound	Not Monitored		NA	NA	NA	NA	NA
Eastbound	2.0	1.8	2.6	1.9	4.5	4.2	2.3
Pleasant Hill Road							
Northbound	2.0	1.7	2.5	2.0	3.7	2.7	2.8
Southbound	2.0	1.9	2.0	1.7	4.0	4.0	3.2
Camino Pablo/San Pablo Dam Road							
Northbound	2.0	1.3	1.3	1.3	1.6	1.5	1.4
Southbound	2.0	1.1	1.2	1.2	1.6	1.5	1.2

Figures 1 and 2 illustrate the percentage of segments that would meet the Delay Index target value for each year with the Action Plan (Figure 1), followed by Figure 2, which shows Action Plan with Gateway Capacity Constraints. The percentages are compared to the results for all five subregions.

Figure 1 Delay Index Values by Year for Action Plans

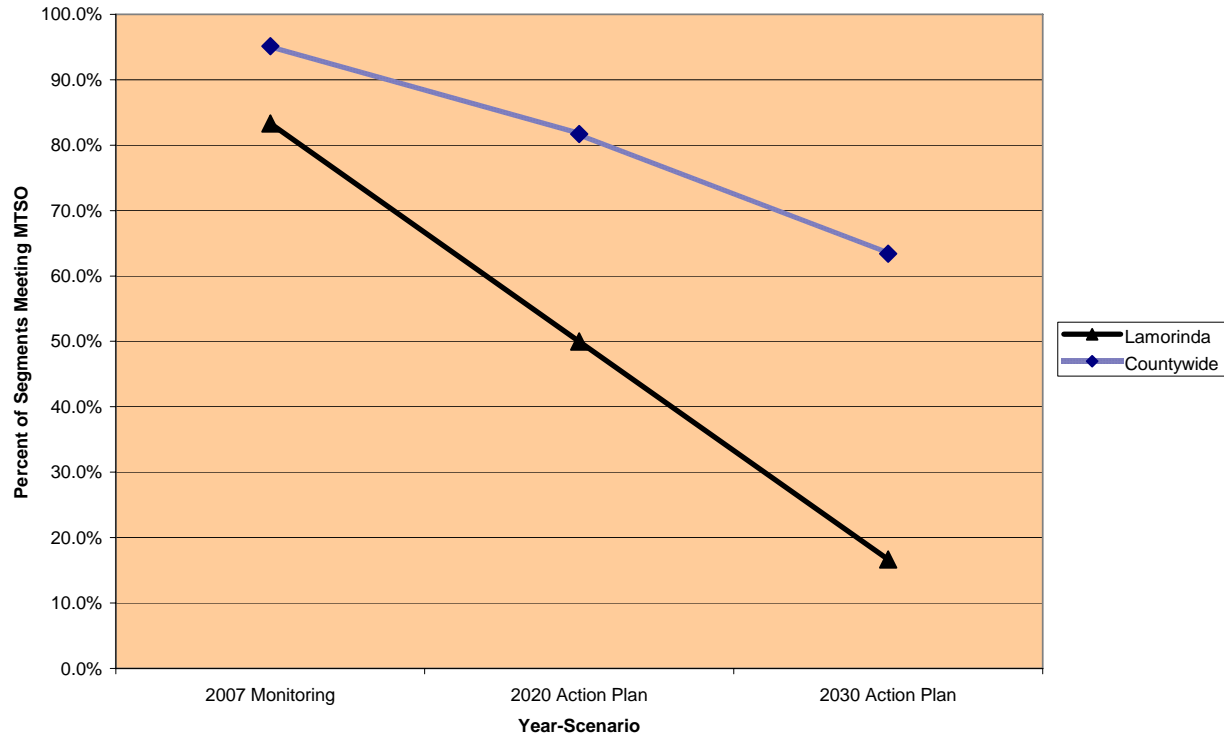
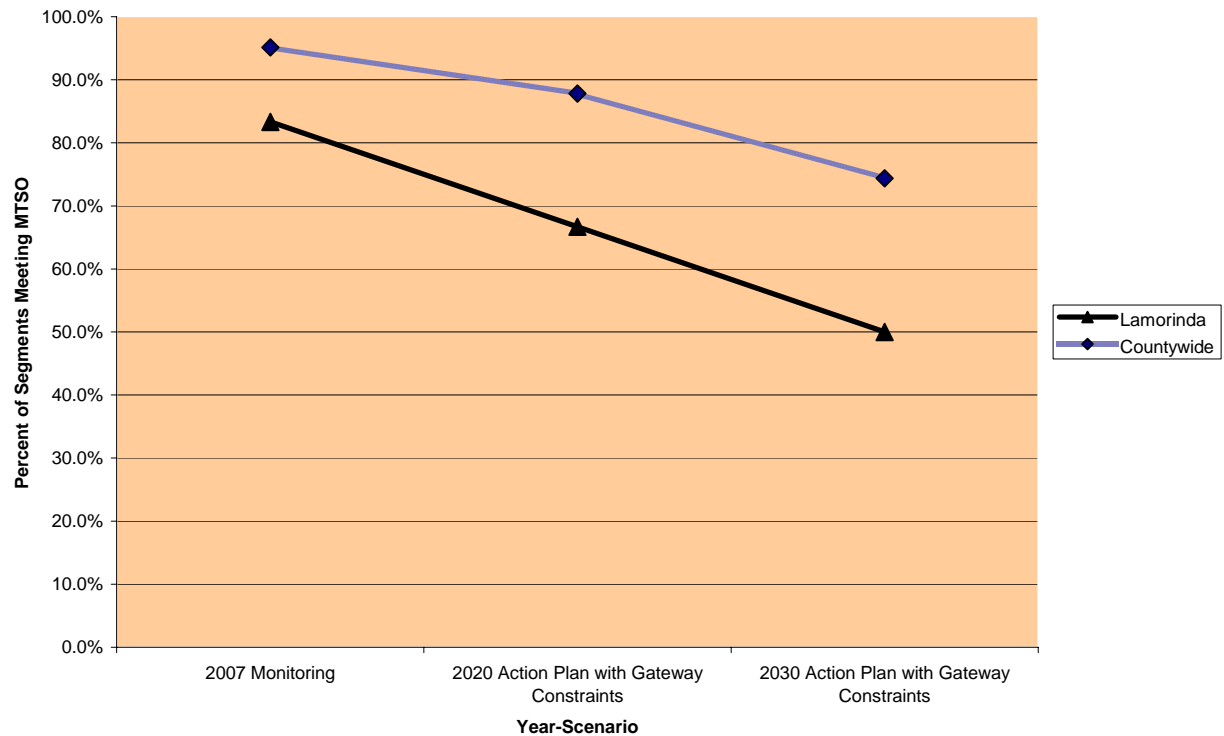


Figure 2 Delay Index Values by Year for Action Plans with Gateway Constraints



5.1.1.2 Discussion

To address the MTSO exceedances, LPMC-TAC has the following options:

1. **Modify the MTSOs.** Staff notes that the MTSOs are flexible measures that LPMC and SWAT sets as part of the Lamorinda Action Plan. Ideally, MTSOs would envision an improvement in operations. In some cases, however, objectives may seek to avoid further degradation of performance. Or, in the worst case, where projections now indicate significant levels of deterioration, LPMC and SWAT could choose to limit the rate of degradation. Furthermore, the target date for achievement, which is now set at 2030, is flexible as well. Finally, MTSOs could use a different transportation measure, for example address safety and operability on Pleasant Hill Road, rather than delay index that is currently proposed.
2. **Modify the set of actions, measures, and programs in the Action Plan to help achieve the MTSO.** The proposed list of actions in the Plan is based primarily upon existing capital projects in the LTIF and the Measure J Strategic Plan. New capital improvement projects, as well as new programs or measures, could be introduced to help improve future performance of the transportation system. The growth management strategies could also be re-examined to address MTSO issues.
3. **Lay out a process for in the Action Plan specifically dealing with how LPMC will respond to MTSO exceedances.** This option would introduce new language in the Action Plan to specify LPMC's approach toward dealing with a possible MTSO exceedance. In consultation with CCTA staff, the LPMC-TAC would outline a detailed procedure for dealing with MTSO exceedances.

The LPMC met on July 21, 2008 and expressed a desire to follow option 3. It recommended maintaining the MTSOs through 2030, but changing the Delay Index for SR 24 to 2.5 after 2030..

APPENDIX 2
TECHNICAL MEMORANDUM - GATEWAY CONSTRAINT
METHODOLOGY

TECHNICAL MEMORANDUM

TO: TRANSPLAN-TAC
THROUGH: Martin R. Engelmann, CCTA
FROM: Joe Story, DKS
DATE: July 28, 2008; 10:30 a.m.
SUBJECT: Gateway Constraint Methodology P/A No. 07085-005

The analysis of the 2030 and 2020 Action Plans included application of the Gateway Constraint methods as detailed in the CCTA *Technical Procedures*, last updated in July 2006. Within this guidance, there is a detailed explanation of the Gateway Capacity Constraint Methodology as Chapter 9. The DKS application of this methodology is discussed here.

5.1.1.3 Determination of Constrained Locations

DKS first identified those policy locations where the potential for gateway capacity constraint exists. They include those that are “policy gateways” as set forth in the Tri-Valley and Lamorinda Action Plans: I-580 at the San Joaquin/Alameda County Line, I-580 east of Castro Valley, I-680 at the Sunol Grade, I-680 at Livorna Road (Danville), Vasco Road, and State Route 24 both east of the Caldecott Tunnel and west of I-680. These locations are listed in Table 1 and illustrated graphically in Figure 1.

In addition, the need to apply traffic management strategies that constrain traffic flow was also recognized as a constraint point to Lamorinda for Pleasant Hill Road at the Lafayette city limits. Further, State Route 4 at Willow Pass, and on I-80 at the Bay Bridge were included as constraint locations where additional capacity is not feasible. These additional gateway constraint locations that were applied are listed in Table 2 as well as also shown in Figure 1.

5.1.1.4 Application of the Gateway Constraint Methodology

Section 9.2 of the *Technical Procedures* outlines how eligible locations were determined. It should be noted that the arterial volumes used generally reflect the amount of green time anticipated on the mainline flow. The actual freeway target gateway volumes were determined by examining the PeMS data made available from Caltrans. These data sets utilized sensors on the roadways to help guide the volumes of vehicles, and the variations of demand during an extended peak period. These were analyzed for an average Tuesday-through-Thursday condition when school would be in session. This analysis was necessary to develop the target volumes for gateway constraints, as the appropriate target volume would be lowered if the duration of congestion is longer (as there would be less of a likelihood for traffic to shift to other hours if congestion was sustained longer). The average distribution of traffic at peak hours as compared to peak periods was then assigned, as instructed in Chapter 9 of the *Technical Procedures*.

5.1.1.5 Traffic Shifted from Peak Hours

The resulting total number of trips in both the Action Plan and the Gateway Constraint analysis is shown in Table 3. This table demonstrates that the trips during the AM peak hour were reduced by 1.8 percent, while 1.3 percent of the trips were reduced in the PM peak hour. The largest percent reductions occurred with trips associated with San Francisco commuting (inbound in the AM peak

hour and outbound in the PM peak hour) as well as counties out of the Bay Area (outbound in the AM peak hour and inbound in the PM peak hour).

5.1.1.6 Other Gateway Locations Not Constrained

DKS reviewed a number of other gateway constraint locations identified in Table 4 and generally determined that there was not a need to further reduce traffic at these locations. A comparison of other possible gateway constraint locations shows that no further constraints would result in lower traffic volumes beyond those already listed in Tables 1 and 2. Table 3 shows that the resulting 2030 gateway constraint volumes lie below a targeted capacity in all cases except one – Kirker Pass Road. Signals on the Kirker Pass Road are currently metered, so that a final gateway constraint assumption on this facility is a function of the preferred flow rates on the roadways.

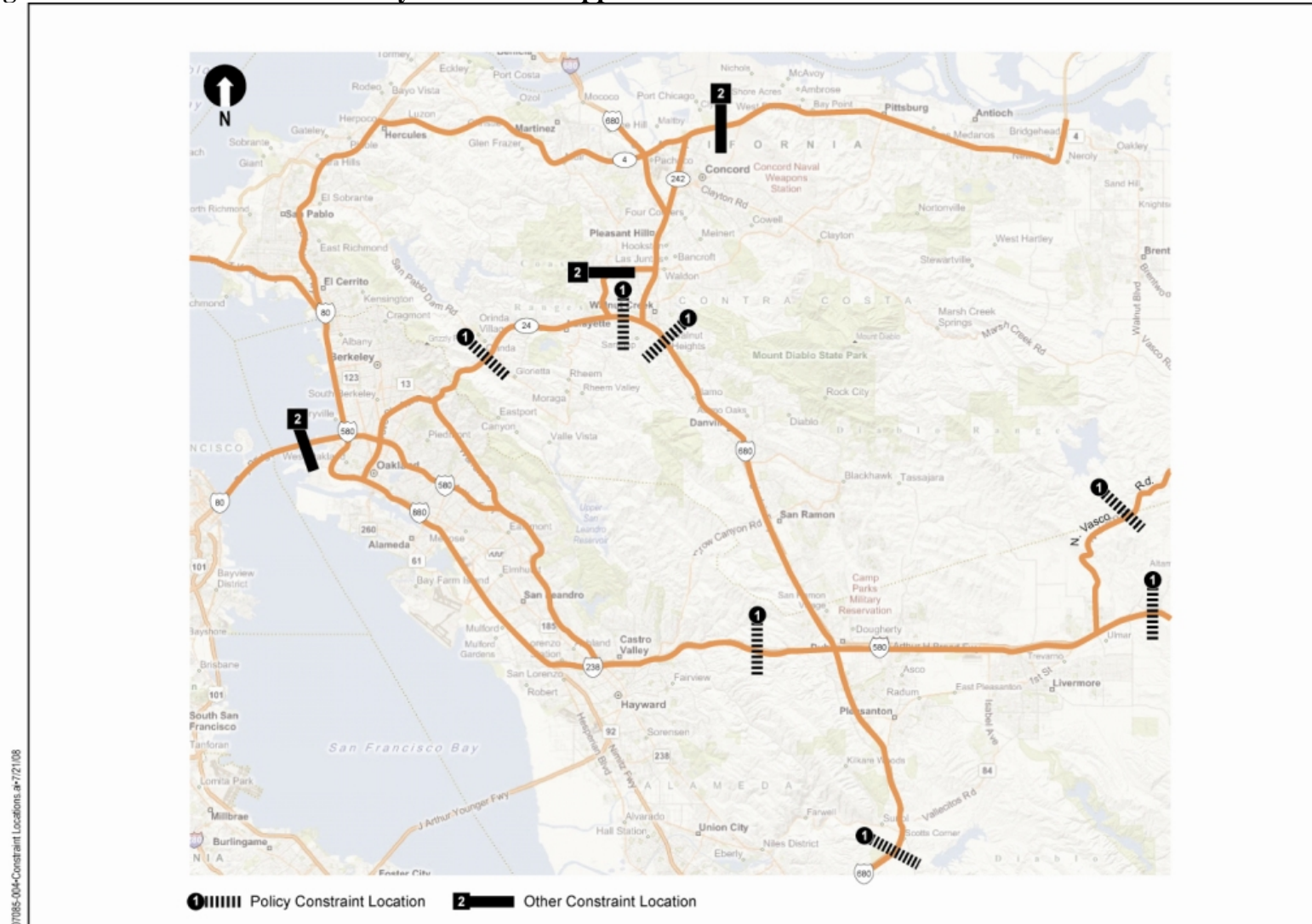
p:\p\07\07085-002 ccta east county action plan\gateway constraint method memo.doc

Table 1 -- Gateway Constraint Summary – Policy Direction

Facility-Direction	Gateway Location	Mixed-Flow Lanes	Gateway Method Used (In/ Out)	Action Plan 2030 Demand	Theoretical Maximum Flow Per Lane	Target Segment Capacity (CCTA Technical Procedures)	Gateway Constraint Time Period Applied -2030	Gateway Constraint Time Period Applied -2020
I580-Westbound	East of Castro Valley	4	Out	11,019	2,200	11,704	None	None
I580-Eastbound	East of Castro Valley	4	In	12,282	2,200	9,240	AM and PM	AM and PM
I580-Westbound	East of Greenville Rd (Livermore)	4	In	11,070	2,100	8,820	AM	None
I580-Eastbound	East of Greenville Rd (Livermore)	4	Out	10,451	2,100	11,172	None	None
I680-Northbound	South of SR84 (Pleasanton)	3	In	8,428	2,300	5,985	AM and PM	AM and PM
I680-Southbound	South of SR84 (Pleasanton)	3	Out	10,472	2,300	6,669	AM and PM	PM
I680-Northbound	North of Livorna Road (Alamo)	3	Out	8,367	2,000	11,438	None	None
I680-Southbound	North of Livorna Road (Alamo)	3	In	8,853	2,000	10,640	None	None
SR24-Eastbound	West of I-680	4	Out	11,132	2,200	10,296	PM	None
SR24-Westbound	West of I-680	4	In	10,400	2,200	13,034	None	None
SR24-Eastbound	Caldecott Tunnel	4	In	10,862	2,000	8,400	PM	PM
SR24-Westbound	Caldecott Tunnel	4	Out	11,955	2,000	10,998	AM	None
Vasco Rd-Northbound	North of Alameda/CC County Line	1	Out	1,036	850	995	PM	None
Vasco Rd-Southbound	North of Alameda/CC County Line	1	Out	1,208	850	995	AM	AM

Notes: CCTA Technical Procedures, July 19, 2006, pp. 83-93, establishes specific guidance on the calculation of gateway capacities based upon the duration of congestion. The duration is a key input variable used to determine the target for the Gateway Constraint procedure. Target procedures vary depending on whether the traffic is coming from outside or inside the study area, with locations as indicated. *The assignment process creates assignment volumes that match the target segment capacity.*

Figure 1 – Locations Where Gateway Constraints Applied



07085-004-Constraint Locations #7/21/08

Table 2 -- Gateway Constraint Summary – Other Constrained Locations

Facility-Direction	Gateway Location	Mixed-Flow Lanes	Gateway Method Used (In/Out)	Action Plan 2030 Demand	Theoretical Maximum Flow Per Lane	Target Segment Capacity (CCTA Technical Procedures)	Gateway Constraint Time Period Applied - 2030	Gateway Constraint Time Period Applied - 2020
SR4-Eastbound	West of Willow Pass	3	Out	9,211	2,000	7,560	PM	PM
SR4-Westbound	West of Willow Pass	3	Out	10,417	2,000	8,991	AM	AM
I80-Westbound	Bay Bridge Toll Plaza	5	Out	18,046	2,310	11,550	AM	AM
I80-Eastbound	Bay Bridge Toll Plaza	5	In	18,743	2,310	11,550	PM	PM
Pleasant Hill Road-Northbound	South of Reliez Valley Road	2	Out	2,437	980	2,293	PM	None
Pleasant Hill Road-Southbound	South of Reliez Valley Road	2	Out	2,466	980	2,293	AM and PM	None

Notes: CCTA Technical Procedures, July 19, 2006, pp. 83-93, establishes specific guidance on the calculation of gateway capacities based upon the duration of congestion. The duration is a key input variable used to determine the target for the Gateway Constraint procedure. Target procedures vary depending on whether the traffic is coming from outside or inside the study area, with locations as indicated. The assignment process creates assignment volumes that match the target segment capacity.

Table 3 -- Summary of Assigned Vehicle Trips – Action Plan and Action Plan + Gateway Constraint Scenarios

County	Action Plan		Action Plan + Gateway Constraints		Difference		Percent Difference	
	Origins	Destinations	Origins	Destinations	Origins	Destinations	Origins	Destinations
AM Peak Hour								
San Francisco	99,740	123,672	99,505	110,927	-235	-12,745	-0.2%	-10.3%
San Mateo	149,212	151,397	149,022	149,163	-189	-2,234	-0.1%	-1.5%
Santa Clara	363,374	378,662	364,186	377,591	811	-1,071	0.2%	-0.3%
Alameda	271,603	264,652	254,294	257,785	-17,309	-6,867	-6.4%	-2.6%
Contra Costa	200,603	172,499	197,637	172,414	-2,965	-85	-1.5%	0.0%
Solano	72,912	71,322	70,276	71,340	-2,635	18	-3.6%	0.0%
Napa	25,755	24,956	25,468	24,935	-287	-21	-1.1%	-0.1%
Sonoma	99,911	94,657	99,742	94,568	-169	-88	-0.2%	-0.1%
Marin	51,275	52,568	51,100	52,509	-175	-59	-0.3%	-0.1%
Out of Bay Area	29,776	29,776	28,093	28,093	-1,682	-1,682	-5.7%	-5.7%
Sum	1,364,160	1,364,160	1,339,325	1,339,325	-24,835	-24,835	-1.8%	-1.8%
PM Peak Hour								
San Francisco	152,849	137,866	141,420	137,764	-11,429	-102	-7.5%	-0.1%
San Mateo	211,323	211,278	208,994	211,090	-2,330	-188	-1.1%	-0.1%
Santa Clara	519,929	511,981	516,072	508,977	-3,857	-3,004	-0.7%	-0.6%
Alameda	342,931	355,567	338,348	342,121	-4,583	-13,446	-1.3%	-3.8%
Contra Costa	250,335	259,059	250,608	257,028	273	-2,032	0.1%	-0.8%
Solano	100,730	99,127	100,466	96,504	-263	-2,623	-0.3%	-2.6%
Napa	33,488	34,085	33,439	33,710	-49	-374	-0.1%	-1.1%
Sonoma	127,466	130,722	127,345	130,408	-121	-314	-0.1%	-0.2%
Marin	69,828	69,192	69,759	68,847	-69	-345	-0.1%	-0.5%
Out of Bay Area	33,633	33,633	31,570	31,570	-2,063	-2,063	-6.1%	-6.1%
Sum	1,842,511	1,842,511	1,818,020	1,818,020	-24,490	-24,490	-1.3%	-1.3%

Table 4 -- Gateway Constraint Summary – Other Locations Studied but Not Constrained

Facility	Time	Direction	Lanes	Base Capacity	2030 Demand (Action Plan)	2030 Demand (Action Plan + Gateway Constraint)	Gateway Constraint Value (@ 2 hours) ¹	Gateway Capacity	Gateway Volume/Capacity
Richmond San Rafael Bridge	AM	EB	2	4000	2366	2824	1.05	4200	0.67
Richmond San Rafael Bridge	AM	WB	2	4000	5456	4462	1.17	4680	0.95
Carquinez Bridge	AM	EB	4	8000	7671	7296	1.17	9360	0.78
Carquinez Bridge	AM	WB	4	8000	8883	6986	1.05	8400	0.83
Benicia-Martinez Bridge	AM	NB	5	10000	6166	6358	1.17	11700	0.54
Benicia-Martinez Bridge	AM	SB	4	8000	7105	6568	1.05	8400	0.78
Antioch Bridge	AM	NB	1	2000	879	893	1.17	2340	0.38
Antioch Bridge	AM	SB	1	2000	959	856	1.17	2340	0.37
SR 4 East at San Joaquin County Line	AM	EB	1	2000	786	816	1.17	2340	0.35
SR 4 East at San Joaquin County Line	AM	WB	1	2000	1398	1310	1.05	2100	0.62
Kirker Pass Road east of Concord Avenue	AM	EB	2	1960	995	883	1.17	2293	0.39
Kirker Pass Road east of Concord Avenue	AM	WB	2	2200	3107	2833	1.17	2574	1.10
Richmond San Rafael Bridge	PM	EB	2	4000	3581	2958	1.05	4200	0.70
Richmond San Rafael Bridge	PM	WB	2	4000	4451	4596	1.17	4680	0.98
Carquinez Bridge	PM	EB	4	8000	8763	6723	1.17	9360	0.72
Carquinez Bridge	PM	WB	4	8000	7953	7522	1.05	8400	0.90
Benicia-Martinez Bridge	PM	NB	5	10000	6607	5625	1.17	11700	0.48
Benicia-Martinez Bridge	PM	SB	4	8000	6494	6420	1.05	8400	0.76
Antioch Bridge	PM	EB	1	2000	971	897	1.17	2340	0.38
Antioch Bridge	PM	WB	1	2000	956	953	1.17	2340	0.41
SR 4 East at San Joaquin County Line	PM	EB	1	2000	1644	1564	1.17	2340	0.67
SR 4 East at San Joaquin County Line	PM	WB	1	2000	1104	1079	1.05	2100	0.51
Kirker Pass Road east of Concord Avenue	PM	EB	2	1960	2336	2130	1.17	2293	0.93
Kirker Pass Road east of Concord Avenue	PM	WB	2	1960	1491	1473	1.17	2293	0.64

¹Note: Inbound capacity gateway value assumed at 1.05 for inbound traffic and 1.17 for outbound traffic, as explained in Technical Procedures.