

# CIRCULATION

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## **PURPOSE**

Although Lafayette experiences a significant amount of regionally-generated through traffic, it is important to achieve a balance between the potentially conflicting goals of improving traffic flow and maintaining and enhancing the City's quality of life and sense of place, particularly in the Downtown Core.

The basic concept of the Circulation Chapter is to make the existing system work as efficiently as possible. This position is based on the assumptions that 1) No substantial expansion of the system or its capacity is envisioned, and 2) Traffic levels within the city are influenced by land use decisions outside the city's control – with significant traffic load generated by the Town of Moraga to the south.

At the center of the city's traffic congestion is the Lafayette "Y" formed by Moraga Road, Mt. Diablo Boulevard, Oak Hill Road and First Street. The Plan envisions no change to the configuration or overall capacity of these streets and their intersections. The traffic signals that control traffic through the "Y" and along Mt. Diablo Boulevard will be designed to balance the needs of vehicular traffic and pedestrians. In areas away from these intersections, the balance will favor pedestrians and bicyclists.

## **PUBLIC PARTICIPATION**

Traffic is a highly sensitive issue in Lafayette. Citizen involvement and participation in the circulation planning process will enable residents to let the City know of their needs, share their ideas, and bring about positive change that would benefit the community at large. It is important that the public is fully informed and participates in discussions about proposed changes to the circulation system.

Effective public participation depends on several key factors. The public must receive clearly written information early in the planning process. The format chosen, whether small neighborhood workshops or community wide town hall meetings, should reflect the amount of

public interest in a given issue. It takes time to build community consensus, but the results are decisions, which are solidly based on the values of the community.

## **SCOPE OF THE CIRCULATION CHAPTER**

Government Code §65302(b) requires every General Plan include a transportation element that consists of “the general location and extent of existing and proposed thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the General Plan.” This chapter conforms with the requirements of the Government Code.

The *Circulation Chapter* discusses transportation and circulation issues for the Lafayette Planning Area. It briefly describes the existing circulation system and travel characteristics, projects future traffic based on the build out of the land uses described in the *Land Use Chapter*, and identifies the resulting anticipated roadway conditions. Policies and implementation programs in this chapter provide a guide for decisions regarding circulation system improvements needed to accommodate Lafayette's anticipated growth. In addition, this chapter takes into account the traffic impact of anticipated regional development and the roadway improvements adopted by regional agencies such as the Contra Costa Transportation Authority (CCTA) and Metropolitan Transportation Commission (MTC).

The *Circulation Chapter* is based on several underlying themes and findings summarized below:

- Single-passenger automobiles have strained the inter-city transportation system. State Route 24 – the main inter-city roadway is nearing its capacity during commute hours. This situation will only worsen unless transportation service levels are improved and greater emphasis is placed on alternatives to the single-occupant automobile, such as bus and rail transit, bicycling, ridesharing, walking, and telecommuting. It is essential to reduce the demand for travel through growth management to ensure that future development does not exceed the capacity of the transportation system
- Land use and circulation are inextricably connected. They must be coordinated so that future development and circulation will be balanced with each other. The land use and growth management policies in this Plan reflect this relationship.
- Transportation facilities must be accessible to all sectors of the community including seniors, children, the disabled, persons with low-income, and persons who depend on public transportation.
- The provision of efficient routes for transit service, emergency and other service vehicles continues to be a high priority for the City.
- The intrusion of through-traffic onto local streets must be minimized so as to preserve the quality of residential neighborhoods.
- Future improvements to the circulation system must be consistent with and support the other goals and policies of the General Plan.
- Traffic is both a local and a regional issue. Effective improvements to the circulation system depend on the multi-jurisdictional cooperative effort of multiple agencies such

as the State of California, Metropolitan Transportation Commission, Contra Costa Transportation Authority, County of Contra Costa, Bay Area Rapid Transit District, adjacent cities and counties, and other public transit districts.

## THE STREET CLASSIFICATION SYSTEM

Lafayette's street system is classified into four categories based on function. A definition of the street classification system is shown in Table 1 below.

**TABLE 1 - STREET CLASSIFICATION SYSTEM DEFINITIONS**

Street System	Function		
Freeway	<p>A high-speed, limited-access roadway used primarily for long trips. California State Department of Transportation (Caltrans) controls the design, operation and maintenance of freeways.</p> <ul style="list-style-type: none"> <li>▪ State Route 24</li> </ul>		
Arterial	<p>A major street carrying the traffic of local and collector streets to and from freeways and other major streets, with controlled intersections and generally providing direct access to properties. (Note arterial designated streets below)</p> <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>▪ Pleasant Hill Road</li> <li>▪ Moraga Road</li> <li>▪ Deer Hill Road</li> <li>▪ St. Mary's Road</li> </ul> </td> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>▪ Mount Diablo Boulevard</li> <li>▪ First Street: Deer Hill Road to Mt. Diablo Boulevard</li> <li>▪ Glenside Drive/Reliez Station Road/Olympic Boulevard</li> <li>▪ Oak Hill Road from Mt. Diablo Boulevard to Deer Hill Road</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>▪ Pleasant Hill Road</li> <li>▪ Moraga Road</li> <li>▪ Deer Hill Road</li> <li>▪ St. Mary's Road</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mount Diablo Boulevard</li> <li>▪ First Street: Deer Hill Road to Mt. Diablo Boulevard</li> <li>▪ Glenside Drive/Reliez Station Road/Olympic Boulevard</li> <li>▪ Oak Hill Road from Mt. Diablo Boulevard to Deer Hill Road</li> </ul>
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Collector	<p>A street for traffic moving between arterial and local streets, generally providing direct access to properties.</p>		
Local	<p>A street providing direct access to properties and often designed to discourage through traffic.</p>		

SOURCE: DRAFT ENVIRONMENTAL IMPACT REPORT ON THE LAFAYETTE GENERAL PLAN REVISION, SECTION 3, TRAFFIC AND CIRCULATION, LEONARD CHARLES AND ASSOCIATES AND ROBERT L. HARRISON TRANSPORTATION PLANNING, SEPTEMBER, 1998.

Because the function, design and traffic loads of collectors and local streets vary greatly and sometimes overlap, specific collectors are not identified in this plan.

## TRAFFIC LEVEL OF SERVICE

Traffic engineers and planners use level of service grades to evaluate the relative congestion of roads and highways. The level of service (LOS) for roadways is a scale that measures the amount of traffic a roadway or an intersection may be capable of handling. Level of service "A" represents free flow conditions and level of service "F" represents jammed conditions where traffic flow is over the theoretical capacity of the roadway and consequently moves very slowly. Level of service calculations can then be used to determine where and what type of roadway improvements are required, such as the location and timing of traffic signals, the redesign of intersections, and the number of lanes and turn pockets needed for a particular street.

Lafayette uses both the Contra Costa Transportation Authority and Highway Capacity Manual methods for calculating level of service on roadways and intersections (See Table 2). The CCTA bases its level of service standard at signalized intersections on a comparison of the turning movements in an intersection with the capacity of the intersection to serve these movements, expressed as a ratio of the volume to capacity<sup>1</sup>. The CCTA level of service method tends to underestimate the congestion found at some of the intersections in Downtown Lafayette. In contrast, the HCM method describes traffic flow based on the length of time a vehicle is delayed at a signalized intersection. The CCTA and the HCM methods of determining level of service are described in the Traffic Analysis Report<sup>2</sup>. The CCTA and the HCM methods are used by this Plan both to describe level of service at signalized intersections in order to meet the requirements of the CCTA and to have a reliable, locally adopted LOS procedure. The CCTA method serves as the standard for assessing congestion, and the HCM method serves as a goal.

**TABLE 2 - LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS**

Level of Service	HCM Method Vehicle Delay (Seconds)	CCTA Method Volume to Capacity Ratio	Description
A	0 - 5.0	0.00 - 0.59	Free flow, insignificant delays
B	5.1 - 15.0	0.60 - 0.69	Stable operation with minimal delays.
C	15.1 - 25.0	0.70 - 0.79	Stable operation with acceptable delays.
D	25.1 - 40.0	0.80 - 0.90	Approaching unstable operation.
E	40.1 - 60.0	0.91 - 0.99	Unstable operation with significant delays.
F	>60.0	>1.00	Forced flow with excessive delays.

SOURCE: *DRAFT ENVIRONMENTAL IMPACT REPORT ON THE LAFAYETTE GENERAL PLAN REVISION*, SECTION 3, TRAFFIC AND CIRCULATION, LEONARD CHARLES AND ASSOCIATES AND ROBERT L. HARRISON TRANSPORTATION PLANNING, SEPTEMBER, 1998.

<sup>1</sup> This method is a modification of the methodology described in *Circular 212*, Transportation Research Board, January 1980.  
<sup>2</sup> *Draft Environmental Impact Report on the Lafayette General Plan Revision*, Section 3, Traffic and Circulation, Leonard Charles and Associates and Robert L. Harrison Transportation Planning, September, 1998.

## EXISTING ROADWAY CONDITIONS

The City's street system, topography and soil stability have been and continue to be the primary factors in shaping the circulation and land use patterns in Lafayette. Lafayette is bisected by State Route 24, and by several roads carrying heavy volumes of through-traffic such as Moraga Road and Pleasant Hill Road connecting surrounding communities to this highway. Traffic generally moves well, experiencing little delay during the non-commute hours of the day. Significant traffic congestion occurs, however, during the peak morning and afternoon commute hours.

The City street system can be divided into five transportation corridors. Each corridor represents a major flow of traffic through or within the city, serves a different origin and destination pattern, and has its characteristic problems and potential solutions. Existing intersection levels of service are described below and in Table 3 and on Map II-1: *Existing Intersection Levels of Service*. They are based on traffic counts taken in October 1998.

In 2012, the City adopted the Downtown Specific Plan. The environmental impact report ("EIR") for the Specific Plan analyzed existing and projected levels at 25 signalized and unsignalized intersections in and around the downtown. Refer to the end of this section for the analysis from the Downtown Specific Plan's EIR.

Downtown Corridor. The downtown corridor is defined as the area along Mount Diablo Boulevard from the westerly to easterly limits of the downtown area. Downtown intersections are those that are located on Mt. Diablo Blvd. between Risa Road and Carol Lane, and the intersections of Moraga Road with Moraga Blvd. and Brook Street/School Street. The source of the traffic problem in the downtown area is clear. Traffic passing through the downtown on the way to the Route 24 freeway or to the BART station must compete with local traffic. The north-south through traffic is particularly difficult to serve because of the layout of the downtown street system. The Lafayette "Y" requires that all north-south traffic must dog leg through two heavily used downtown intersections. The legs of the "Y" are Moraga Road to the south and Oak Hill Road on the northwest and First Street on the northeast. Mt. Diablo Boulevard connects the three legs of the "Y" together. The traffic pattern formed by the "Y" means the segment of Mt. Diablo Boulevard between Oak Hill Road and First Street must carry both the north-south and east-west traffic flows.

As shown on Table 3, the greatest congestion in the downtown occurs at the intersection of Mt. Diablo Boulevard and Moraga Road. However, recent improvements at this intersection have reduced congestion and delay. Using the HCM procedures and the most recent (October 2001) traffic counts, this intersection is found to operate at LOS D in the afternoon peak hour and at LOS C in the morning peak hour. The LOS procedures of the CCTA result in a LOS A in the morning peak hour and afternoon peak hours at this intersection. The CCTA LOS calculation method appears to underestimate the congestion and delay that is found at this intersection.

Using the HCM procedures, the intersection of Mt. Diablo Boulevard with Oak Hill Road operates at LOS D in the afternoon peak hour and at LOS C in the morning peak hour. The LOS procedures of the CCTA result in service level A in the morning and afternoon peak hours at this

intersection. Again, these procedures result in a level of service that does not appear to accurately reflect the actual conditions observed in the field.

Using the HCM method and the most recent 2001 traffic counts, the third intersection in the "Y", Mt. Diablo Boulevard at First Street, is found to operate at LOS C in both the morning and afternoon peak hours. The CCTA methods result in LOS A in the morning peak hour and LOS B in the afternoon peak hour at this intersection.

The intersection of Mt. Diablo Boulevard and Happy Valley Road operates at LOS D in the afternoon and LOS C in the morning peak hours. All of the other intersections in the downtown area function at LOS C or better at peak traffic hours.

Pleasant Hill Road Corridor. Pleasant Hill Road north of State Route 24 carries the highest traffic volume of any of the streets in Lafayette. This street functions to connect Lafayette, the Lafayette BART station, and State Route 24, with the cities of Walnut Creek, Pleasant Hill and Martinez. Since completion of the Route 24/I-680 interchange, Pleasant Hill Road has experienced a reduction in through traffic. (*Reso. 2009-021, 2009*)

The conditions on Pleasant Hill Road north of Route 24 experience some congestion. The intersection that experiences the worst problems is Pleasant Hill Road at Deer Hill Road/Stanley Boulevard, as shown in Table 3. According to the HCM method, the intersection operates at LOS D in both the morning and afternoon peak hours. However, the procedures of the CCTA result in LOS E in the morning and LOS F in the afternoon peak hours. It appears that on Pleasant Hill Road the CCTA method over estimates the existing degree of congestion and delay.

At the intersection of Pleasant Hill Road with Springhill Road the CCTA procedures result in a LOS E in the morning and LOS C in the afternoon peak hours. The HCM method produces LOS C and B respectively at these hours. The intersection of Pleasant Hill Road with Reliez Valley Road operates at LOS C or better at both morning and afternoon peak hours under either the CCTA or the HCM LOS calculation procedures.

The Pleasant Hill Road Action Plan, as adopted by the City Council, has been included by the CCTA in the *Countywide Comprehensive Transportation Plan*. Designated as Lafayette's only Route of Regional Significance, it is not subject to the adopted Level of Service Standards for non-regional routes. Instead, an Action Plan has been prepared that establishes Multi-Modal Transportation Service Objectives (MTSO's). (*Reso. 2009-021, 2009*)

Deer Hill Road Corridor. Deer Hill Road serves the area north of downtown and north of the Route 24 freeway. The Deer Hill Road corridor is defined as the area along Deer Hill Road from Happy Valley Road to Pleasant Hill Road. The primary vehicle trip generator along Deer Hill Road is the BART station parking lot.

The intersection of Deer Hill Road with Pleasant Hill Road was discussed above. At the westerly limit of the Corridor, the stop sign controlled intersection of Deer Hill Road with Happy Valley Road operates at LOS F for westbound traffic in the morning peak hour and LOS D for westbound traffic in the afternoon peak hour.

The all-way stop controlled intersection of Deer Hill Road with Oak Hill Road operates at LOS D at peak hours. Traffic volumes are high enough that a traffic signal is warranted on Deer Hill Road at both the Happy Valley Road and the Oak Hill Road intersections. With signalization both intersections would operate at an acceptable LOS. A traffic signal was recently installed at the intersection of Deer Hill Road with the SR 24 Ramps. This intersection currently operates at LOS C in both the morning and afternoon peak hours.

Moraga Road Corridor. Moraga Road provides the primary route for traffic from the south traveling to and through the downtown area. The corridor runs from Mount Diablo Boulevard to the southerly City limit. The operation of the intersection of Moraga Road with Mount Diablo Boulevard was discussed above. A traffic signal was recently installed at the intersection of Moraga Road with Moraga Boulevard. This intersection operates at LOS A in both the morning and afternoon peak hours.

The intersections of Moraga Road with School and with Brook Streets are separated by approximately 150 feet. Because the two "T" intersections are located in close proximity, they function as a single four-legged intersection. The existing traffic signal system has been designed to control both intersections under a single operating design. As shown on Table 3, under the HCM procedures, the combined intersections are found to operate at LOS E in the morning peak hour and LOS C in the late afternoon peak hour. The CCTA LOS method finds the intersection operating at service levels D and B in the morning and afternoon peak hours respectively.

The morning operation of the intersection is designed to permit the safe crossing of the street by school children. All vehicle traffic is stopped by the pedestrian phase of the signal. This phase is called for in about one-third of the signal cycles in the morning peak hour. The time lost to vehicle traffic during the all-red pedestrian phase causes the intersection to operate with significant delay for motorists.

The greatest traffic delay at the School Street intersection is experienced by parents who drop-off students at Stanley Intermediate School, located approximately one quarter mile east of Moraga Road on School Street, and then have to wait at the traffic signal before entering Moraga Road in either north or southbound directions, as well as the parents who drop-off students at the Lafayette Elementary School. The queue of vehicles attempting to turn onto Moraga Road extends from the intersection back past Stanley School. This traffic queue lasts for about 20 to 30 minutes each school day morning. These vehicles experience significant delay and LOS F.

Both the HCM and CCTA LOS calculation methods result in a LOS B for the intersection of Moraga Road and St. Mary's Road in both the morning and afternoon peak hours. While there is substantial congestion experienced along Moraga Road at peak hours, the capacity of the intersection with St. Mary's Road is not a primary cause of existing traffic delay.

The intersections of Hamlin Road and Tanglewood Drive with Moraga Road are separated by about 75 feet. Traffic is controlled by stop signs on Hamlin Road and on Tanglewood Drive. A southbound left turn pocket is provided for turns from Moraga Road into Hamlin Road. Traffic attempting to enter Moraga Road from the side streets experiences significant delay, particularly



for left turns during the morning peak hours. The level of service for traffic making the left turn from Tanglewood Drive is LOS E at morning peak hour and LOS C at afternoon peak hour. Most traffic from Hamlin Road makes a right turn onto Moraga Road and experiences less delay than is experienced by the traffic on Tanglewood Drive.

Silver Springs Road is the easterly leg and Mt. View Drive is the westerly leg of a standard four-legged intersection with Moraga Road. Old Jonas Hill Road intersects Moraga Road approximately 180 feet south of Silver Springs Road/Mt. View Drive intersection. The intersections are close enough, however, to be evaluated as a single intersection for traffic operations purposes. Each of the three side streets is controlled by a stop sign. Separate lanes are provided on Moraga Road for both northbound and southbound left turning traffic. Because left turn pockets are provided on Moraga Road, there is little delay for northbound or southbound through traffic. There is some delay (LOS B) for traffic on Moraga Road turning left into the side streets. Average side street service level at this intersection is LOS C in the morning and LOS B in the afternoon peak hours.

Burton Valley Corridor. The Burton Valley Corridor includes Reliez Station Road, Glenside Drive, and St. Mary's Road between the Pleasant Hill Road Corridor and the southerly City limits on St. Mary's Road. In recent years, several roadway improvements have been made in this corridor to improve traffic safety and to serve pedestrians.

Most of the intersections in this corridor are controlled by all-way stop signs. While there is a significant volume of through traffic using the local streets that make up this corridor, the maximum calculated average stopped delay per vehicle over a one-hour peak period is 22 seconds. This means that all of the local street intersections operate at LOS D or better in both the morning and afternoon peak hours. It should be noted that the LOS reported is the average condition over the one-hour peak period. At some intersections, much greater congestion may occur for short time periods. For example, there is a peak flow of parents intending to drop-off students at the Burton Valley School southbound around 8:15 a.m. and returning northbound around 8:30 a.m. All-way stop intersections are particularly inefficient when serving high peak direction traffic flows. At these times delays are greater for a few minutes than are shown on Table 3 for the full one-hour condition.

**TABLE 3 - EXISTING (2002) INTERSECTION LEVELS OF SERVICE (LOS)**

	AM Peak		AM Peak		PM Peak		PM Peak	
	HCM Method		CCTA Method		HCM Method		CCTA Method	
<b>Downtown Corridor, Mount Diablo Blvd. with:</b>	LOS	Delay <sup>1</sup>	LOS	V/C <sup>2</sup>	LOS	Delay <sup>1</sup>	LOS	V/C <sup>2</sup>
I - Dolores/Mt. View Drive	B	14	A	0.40	C	19	A	0.46
2 - Happy Valley Road	C	18	A	0.52	D	26	B	0.64
3 - Oak Hill Road	C	21	A	0.52	D	26	A	0.57
4 - Moraga Road	C	21	A	0.53	D	28	A	0.60
5 - First Street	C	21	A	0.57	C	24	B	0.66
6 - Second Street	B	12	A	0.33	B	11	A	0.33
<b>Pleasant Hill Road Corridor, Pleasant Hill Road with:</b>								
7 - Mt. Diablo Boulevard	B	13	A	0.47	C	16	A	0.60
8 - Olympic Boulevard <sup>4</sup>	E	30	[3]	[3]	D	22	[3]	[3]
9 - Deer Hill Rd/St Stanley Blvd.	D	39	E	0.95	D	31	F	1.10
10 - Springhill Road	C	21	E	0.92	B	10	C	0.74
11 - Reliez Valley Road	C	15	B	0.68	B	11	A	0.53
<b>Deer Hill Road Corridor, Deer Hill Road with:</b>								
12 - Happy Valley Road <sup>5</sup>	A/F	3/>45	[3]	[3]	A/D	4/27	[3]	[3]
13 - Oak Hill Road <sup>4</sup>	C	17	[3]	[3]	D	20	[3]	[3]
14 - SR 24 Westbound Ramps <sup>4</sup>	C	17	A	0.56	C	18	B	0.63
15 - First Street	B	10	A	0.35	B	13	A	0.47
<b>Moraga Road Corridor, Moraga Road with:</b>								
16 - Moraga Boulevard <sup>5</sup>	A	3	A	0.50	A	3	A	0.43
17 - School/Brook Street	E	46	D	0.82	C	24	B	0.64
18 - St. Mary's Road	B	1	B	0.64	B	11	B	0.63
19 - Tanglewood/Hamlin <sup>5</sup>	B/E	5/42	[3]	[3]	B/C	6/15	[3]	[3]
25 - Silver Spring/Mtn. View Dr.	B/C	5/17	[3]	[3]	B/B	6/8	[3]	[3]
<b>Burton Valley Corridor, Reliez Station Road with:</b>								
20 - Olympic Boulevard <sup>4</sup>	D	22	[3]	[3]	C	14	[3]	[3]
21 - Glenside Drive <sup>4</sup>	C	19	[3]	[3]	C	11	[3]	[3]
<b>Glenside Drive with:</b>								
22 - Burton Drive <sup>4</sup>	C	13	[3]	[3]	C	18	[3]	[3]
23 - St. Mary's Road North <sup>4</sup>	C	11	[3]	[3]	C	10	[3]	[3]
24 - St. Mary's Road South <sup>4</sup>	C	11	[3]	[3]	C	19	[3]	[3]

[1] Average stopped delay per vehicle in seconds calculated using the HCS computer software.

[2] Volume to Capacity Ratio calculated using the CCTA approved VCCC computer software.

[3] LOS for stop sign controlled intersections not calculated by the CCTA Method.

[4] LOS and average total delay shown for all vehicles at these all-way stop intersections.

[5] LOS and delay shown for major street left turn and side street traffic at these one-way or two-way stop intersections. Excludes turning movements of 10 vehicles per hour or less.

SOURCE: ROBERT L. HARRISON TRANSPORTATION PLANNING

**EXISTING DOWNTOWN CIRCULATION (DOWNTOWN SPECIFIC PLAN)**

All of the signalized study area intersections currently operate at “good” LOS D or better except the following three intersections:

- ♦ Moraga Road/School Street: LOS F during the AM and mid-day (2:15 to 3:15 PM) peak hours. Although the worst congestion occurs for less than one hour during each peak period, which coincides with the adjacent school drop-off and pick-up activity, the intersection level of service is unacceptable in the AM and mid-day peaks.
- ♦ Moraga Road/Brook Street: “Poor” LOS D during the mid-day (2:15 to 3:15 PM) peak hour. Although the peak hour level of service is acceptable for this downtown intersection, it is severely affected by both queue spillover and constrained traffic flow from the adjacent Moraga Road/School Street intersection during both the AM and mid-day peak hours.
- ♦ Deer Hill Road/State Route 24 Westbound Ramps: “Poor” LOS D during the AM and PM peak hours is unacceptable for this intersection outside downtown. The Mount Diablo Boulevard/Moraga Road intersection operates at an acceptable LOS D during the AM, mid-day, and PM peak periods based on the overall average delay at the intersection, which determines the level of service.

All of the unsignalized intersections operate at LOS C or better except Deer Hill Road/Happy Valley Road, which operates at LOS F during the AM peak hour. This does not meet the General Plan LOS goal. Traffic volumes are higher at some of the study area intersections during the noon hour when compared to the mid-day (2:15 p.m. to 3:15 p.m.) peak hour used in this analysis, however, separate level of service calculations (using HCM methodology) showed that those intersections currently operate at LOS C or better during the lunchtime hour. The 2:15 to 3:15 p.m. period clearly represents the worst-case mid-day conditions at most study area intersections.

<b>TABLE 3a: EXISTING INTERSECTIONS IN AND AROUND THE DOWNTOWN LEVEL OF SERVICE (HCM METHOD)</b>				
	<b>Signalized Intersection</b>	<b>AM Peak LOS</b>	<b>Mid-Day Peak LOS</b>	<b>PM Peak LOS</b>
1.	Mt. Diablo Blvd./Acalanes Road/SR 24 EB Ramps	B	B	A
2.	Mt. Diablo Blvd./Risa Road/Village Center	B	B	A
3.	Mt. Diablo Blvd./Dolores Drive/Mtn. View Drive	B	B	B
4.	Mt. Diablo Blvd./Happy Valley Road	B	C	C
5.	Mt. Diablo Blvd./Dewing Avenue	B	B	B
6.	Mt. Diablo Blvd./Lafayette Circle (west)	A	B	A
7.	Mt. Diablo Blvd./Oak Hill Rd./Lafayette Circle (east)	C	C	C
8.	Mt. Diablo Blvd./Moraga Road	D	D	D
9.	Mt. Diablo Blvd./First Street	C	C	C

10.	Mt. Diablo Blvd./Second Street	A	A	A
11.	Mt. Diablo Blvd./Brown Avenue/Almanor Lane	B	B	B
12.	Mt. Diablo Blvd./Carol Lane	A	A	A
13.	Mt. Diablo Blvd./Lafayette Park Hotel	A	A	A
14.	Mt. Diablo Blvd./Pleasant Hill Rd./SR 24 EB On-Ramp	B	B	B
15.	Pleasant Hill Rd/SR 24 EB Off-Ramp/Old Tunnel Rd	B	B	B
16.	Moraga Road/Moraga Blvd.	A	A	A
17.	Moraga Road/Brook Street	B	D	B
18.	Moraga Road/School Street	F	F	B
19.	Moraga Road/St. Mary's Road	B	B	B
23.	Deer Hill Road/SR 24 WB Ramps/Laurel Drive	D	C	D
24.	Deer Hill Road/First Street/Sierra Vista Way	B	B	B
	<b>Unsignalized Intersections</b>	<b>AM Peak LOS</b>	<b>Mid-Day Peak LOS</b>	<b>PM Peak LOS</b>
20.	Oak Hill Road/SR 24 EB Off-Ramp	B	B	A
21.	Deer Hill Road/Happy Valley Road	F	C	C
22.	Deer Hill Road/Oak Hill Road	C	B	C
25.	First Street/SR 24 EB On-Ramp	A	A	B

## COORDINATING LAND USE AND CIRCULATION

The coordination of land use and circulation is essential to balance the capacity of the existing circulation network with the traffic growth generated by new development. To understand the relationship between land use and circulation, a traffic forecasting model was used in preparing this General Plan.<sup>3</sup> The model predicted the amount of traffic that will occur when all of the land covered by the General Plan is built out, including the anticipated development in the surrounding cities of Moraga, Orinda, Concord, Pleasant Hill and Walnut Creek. The traffic projections estimate how much traffic will be generated by new development, what traffic problems will occur, and the roadway improvements to relieve traffic congestion.

The policies and programs in the General Plan ensure that land use and circulation are coordinated. Standards for traffic levels of service and for fire, police, parks, sanitary facilities, water and flood control illustrate a comprehensive long-range method of matching the demand for public facilities generated by new development with plans, capital improvements and development mitigation programs.

The traffic projections indicate that the development permitted by the General Plan would cause an increase in traffic congestion on the city's street system. The impact of added traffic on each of the 25 key intersections in Lafayette is summarized by Tables 4 and 4a.

Projected traffic would meet the levels of service established by the CCTA for signalized intersections at all but one intersections: Moraga Road at Brook/School Streets.

<sup>3</sup> *Draft Environmental Impact Report on the Lafayette General Plan Revision*, Traffic and Circulation, Leonard Charles and Associates and Robert L. Harrison Transportation Planning, 2002.

The City anticipates that the intersection of Moraga Road and School/Brook Streets will not meet the adopted LOS standards at some point in the future. The period of excessive congestion will primarily occur during the Peak AM hour and only while school is in session. On non-school days congestion would be less at this intersection. The City recognizes that there are a variety of options for reducing traffic congestion, including signalization or re-routing traffic. Such options must be evaluated against other considerations – specifically, pedestrian access and safety, and protection of the quality of life in surrounding residential neighborhoods. These concerns may cause the rejection of certain traffic management options.

Routes of Regional Significance are excluded from service level standards by the CCTA since Traffic Service Objectives (TSO's) are used instead. This approach allows local jurisdictions to develop programs that emphasize performance characteristics other than peak hour level of service at intersections. In Lafayette, Pleasant Hill Road north of State Route 24 is a Route of Regional Significance and is subject to the TSOs adopted in the Pleasant Hill Road Action Plan. These are:

- Improve the existing peak hour peak direction Delay Index by 10% by the year 2010.
- Maintain or increase the average vehicle occupancy to 1.2 persons per vehicle by 2010.

Traffic projections indicate there would be three unsignalized intersections, which are projected to operate at a highly congested LOS E or LOS F. These are:

- ✓ The intersection of Deer Hill Road with Happy Valley Road.
- ✓ The intersection of Deer Hill Road with Oak Hill Road.
- ✓ The intersection of Pleasant Hill Road with Olympic Boulevard

In addition, State Route 24 during peak hours is projected to decline to LOS F. This would occur regardless of whether or not the build out permitted by the Lafayette General Plan occurs.

The intersections and State Route 24 described above are primarily impacted by traffic generated outside of Lafayette. A significant proportion of traffic growth is attributable to through traffic, which passes through Lafayette, but originates and has destinations outside of the City. Local trips are defined as travel entirely within Lafayette. Regional trips traffic includes all trips that originate outside of Lafayette and pass through the City without stopping.

The traffic projections indicate that local traffic growth accounts for only 20 percent of the total projected traffic growth on Moraga Road, Burton Valley, Pleasant Hill Road and Deer Hill Road corridors to about 35 percent of the projected traffic growth in the Downtown corridor.

In addition, State Route 24 during peak hours is projected to decline to LOS F. This would occur regardless of whether or not the build out permitted by the Lafayette General Plan occurs.

The intersections and State Route 24 described above are primarily impacted by traffic generated outside of Lafayette. A significant proportion of traffic growth is attributable to through traffic, which passes through Lafayette, but originates and has destinations outside of the City. Local

trips are defined as travel entirely within Lafayette. Regional trips traffic includes all trips that originate outside of Lafayette and pass through the City without stopping.

The traffic projections indicate that local traffic growth accounts for only 20 percent of the total projected traffic growth on Moraga Road, Burton Valley, Pleasant Hill Road and Deer Hill Road corridors to about 35 percent of the projected traffic growth in the Downtown corridor.

The City is committed to maintaining a safe and efficient roadway system that respects the tranquility of surrounding neighborhoods. Alternatives to the single-occupant vehicle, such as increased use of public transit and carpools, and reducing the travel demand through better land use planning are important locally and countywide. This Plan includes land use policies and designations that reduce the need to travel by vehicle to work, recreation and shopping. Higher density residential development near public transportation combined with mixed use designations Downtown, will permit more Lafayette residents to live closer to their jobs and will encourage public transit use.

Land use and circulation are coordinated by General Plan policies permitting a level of potential development that can be served by the existing and planned circulation system. The Growth Management Section of the *Land Use Chapter* contains policies and programs to ensure that new development does not exceed the capacity of the roadway system and other public services.

*Refer to Map II-2: Projected Intersection Levels of Service.*

**TABLE 4 - PROJECTED INTERSECTION LEVELS OF SERVICE (AS OF 2002)**

	AM Peak Hour		AM Peak Hour		PM Peak Hour		PM Peak Hour	
	HCM Method		CCTA Method		HCM Method		CCTA Method	
	LOS	Delay <sup>1</sup>	LOS	V/C <sup>2</sup>	LOS	Delay <sup>1</sup>	LOS	V/C <sup>2</sup>
<b>Downtown Corridor, Mount Diablo Blvd. with:</b>								
1 - Dolores/Mt. View Drive	C	15	A	0.46	C	21	A	0.54
2 - Happy Valley Road	C	22	B	0.61	D	29	C	0.75
3 - Oak Hill Road	D	30	B	0.63	D	34	B	0.69
4 - Moraga Road	D	27	B	0.63	D	32	B	0.68
5 - First Street	D	26	C	0.74	D	35	D	0.82
6 - Second Street	B	12	A	0.39	B	12	A	0.39
<b>Pleasant Hill Road Corridor, Pleasant Hill Road with:</b>								
7 - Mt. Diablo Boulevard	C	15	A	0.57	C	19	C	0.75
8 - Olympic Boulevard <sup>4</sup>	F	46	[3]	[3]	D	27	[3]	[3]
9 - Deer Hill Rd/Stanley Blvd.	E	47	F	1.02	F	73	F	1.12
10 - Springhill Road	D	25	F	1.05	C	21	D	0.88
11 - Reliez Valley Road	C	24	D	0.82	B	10	B	0.68
<b>Deer Hill Road Corridor, Deer Hill Road with:</b>								
12- Happy Valley Road <sup>5</sup>	A/F	3/>45	[3]	[3]	A/E	4/32	[3]	[3]
13 - Oak Hill Road <sup>4</sup>	D	27	[3]	[3]	E	34	[3]	[3]
14 – SR 24 Westbound Ramps <sup>4</sup>	C	22	B	0.65	C	22	C	0.71
15 - First Street	C	16	A	0.55	C	18	A	0.48
<b>Moraga Road Corridor, Moraga Road with:</b>								
16 - Moraga Boulevard <sup>5</sup>	A	4	A	0.57	B	7	A	0.48
17 - School/Brook Street	F	64	D	0.89	D	36	B	0.68
18 - St. Mary's Road	D	14	C	0.76	B	15	B	0.70
19 - Tanglewood/Hamlin <sup>5</sup>	B/E	6/>45	[3]	[3]	B/D	7/20	[3]	[3]
21 - Silver Spring/Mtn. View Dr.	B/D	5/24	[3]	[3]	B/B	8/9	[3]	[3]
<b>Burton Valley Corridor, Reliez Station Road with:</b>								
20 - Olympic Boulevard <sup>4</sup>	D	30	[3]	[3]	C	16	[3]	[3]
21 - Glenside Drive <sup>4</sup>	D	29	[3]	[3]	C	13	[3]	[3]
<b>Glenside Drive with:</b>								
22 - Burton Drive <sup>4</sup>	C	20	[3]	[3]	D	28	[3]	[3]
23 - St. Mary's Road North <sup>4</sup>	C	16	[3]	[3]	C	12	[3]	[3]
24 - St. Mary's Road South <sup>4</sup>	C	16	[3]	[3]	D	28	[3]	[3]

[1] Average stopped delay per vehicle in seconds calculated using the HCS computer software.

[2] Volume to Capacity Ratio calculated using the CCTA approved VCCC computer software.

[3] LOS for stop sign controlled intersections not calculated by the CCTA Method.

[4] LOS and average total delay shown for all vehicles at these all-way stop intersections.

[5] LOS and delay shown for major street left turn and side street traffic at these one-way or two-way stop intersections. Excludes turning movements of 10 vehicles per hour or less.

SOURCE: ROBERT L. HARRISON TRANSPORTATION PLANNING

## PROJECTED DOWNTOWN CIRCULATION (DOWNTOWN SPECIFIC PLAN)

All of the signalized study area intersections would operate at an acceptable LOS D or better except the following four intersections by 2030:

- ♦ Mount Diablo Boulevard/Moraga Road: LOS E during the PM peak hour. The intersection would operate at an acceptable LOS D during the AM and mid-day peak periods based on the overall average delay at the intersection, which determines the level of service.
- ♦ Moraga Road/School Street: LOS F during the AM, mid-day, and PM peak hours.
- ♦ Moraga Road/Brook Street: LOS E during the mid-day peak hour. Although the AM and PM peak hour level of service would be acceptable for this intersection, it would be severely affected by both queue spillover and constrained traffic flow from the LOS F conditions at the Moraga Road/School Street intersection during all three peak hours.
- ♦ Deer Hill Road/State Route 24 Westbound Ramps: LOS E during the AM and PM peak hours.

Three of the four unsignalized study intersections would operate at an unacceptable level of service during at least one of the peak hours:

- ♦ Deer Hill Road/Happy Valley Road: LOS F during the AM peak hour and LOS E during the PM peak hour.
- ♦ Deer Hill Road/Oak Hill Road: LOS E during the PM peak hour.
- ♦ First Street/State Route 24 Eastbound On-Ramp: LOS F for the southbound left turn to the freeway on-ramp during the PM peak hour.

<b>TABLE 4a: PROJECTED LEVEL OF SERVICE AT INTERSECTIONS IN AND AROUND THE DOWNTOWN (HCM METHOD)<sup>4</sup></b>				
	<b>Signalized Intersection</b>	<b>AM Peak LOS</b>	<b>Mid-Day Peak LOS</b>	<b>PM Peak LOS</b>
1.	Mt. Diablo Blvd./Acalanes Road/SR 24 EB Ramps	B	B	B
2.	Mt. Diablo Blvd./Risa Road/Village Center	A	B	B
3.	Mt. Diablo Blvd./Dolores Drive/Mtn. View Drive	B	B	B
4.	Mt. Diablo Blvd./Happy Valley Road	C	C	D
5.	Mt. Diablo Blvd./Dewing Avenue	B	B	B
6.	Mt. Diablo Blvd./Lafayette Circle (west)	A	B	A
7.	Mt. Diablo Blvd./Oak Hill Rd./Lafayette Circle (east)	C	D	D
8.	Mt. Diablo Blvd./Moraga Road	D	D	E

<sup>4</sup> Final EIR for the Downtown Specific Plan, September 10, 2012



9.	Mt. Diablo Blvd./First Street	C	D	D
10.	Mt. Diablo Blvd./Second Street	B	A	A
11.	Mt. Diablo Blvd./Brown Avenue/Almanor Lane	B	B	B
12.	Mt. Diablo Blvd./Carol Lane	A	A	A
13.	Mt. Diablo Blvd./Lafayette Park Hotel	A	A	A
14.	Mt. Diablo Blvd./Pleas. Hill Rd./SR 24 EB On-Ramp	B	B	B
15.	Pleasant Hill Rd/SR 24 EB Off-Ramp/Old Tunnel Rd	B	B	B
16.	Moraga Road/Moraga Blvd.	A	A	A
17.	Moraga Road/Brook Street	C	E	C
18.	Moraga Road/School Street	F	F	F
19.	Moraga Road/St. Mary's Road	C	B	C
23.	Deer Hill Road/SR 24 WB Ramps/Laurel Drive	E	D	E
24.	Deer Hill Road/First Street/Sierra Vista Way	B	B	C
	<b>Unsignalized Intersections</b>	<b>AM Peak LOS</b>	<b>Mid-Day Peak LOS</b>	<b>PM Peak LOS</b>
20.	Oak Hill Road/SR 24 EB Off-Ramp	C	C	D
21.	Deer Hill Road/Happy Valley Road	F	D	E
22.	Deer Hill Road/Oak Hill Road	D	C	E
25.	First Street/SR 24 EB On-Ramp	A	A	F

For the routes of regional significance, the CCTA traffic model was used assuming buildout of the General Plan. The Delay Index measures travel congestion and is expressed as the ratio of time required to travel between two points during the peak hour (the congested travel time) versus the time required during uncongested offpeak times. A Delay Index of 2.0, which is the acceptable standard of significance for State Route 24 and Pleasant Hill Road north of State Route 24, means that congested travel time is twice as long as during an off-peak travel time.

The Delay Indexes were calculated during the AM and PM peak hours on State Route 24 in both the eastbound and westbound direction between St. Stephens Drive and Interstate 680. State Route 24 will operate with an unacceptable Delay Index of over 2.0 for westbound traffic in the AM peak hour and eastbound traffic in the PM peak hour. For Pleasant Hill Road in both the northbound and southbound direction between State Route 24 and Taylor Boulevard, the Delay Indexes were calculated during the AM and PM peak hours. Pleasant Hill Road will operate with an unacceptable Delay Index of over 2.0 for southbound traffic in the AM peak hour and northbound traffic in the PM peak hour.

**Goal C-1      Develop a safe and efficient circulation system that respects Lafayette's quality of life and community character and is consistent with other City goals.**

**Policy C-1.1      Public Participation and Education in Transportation Decisions: Continue to actively seek the participation of Lafayette residents and businesses in the preparation and review of local and regional transportation plans and issues.**

Program C-1.1.1: Disseminate information describing proposed transportation projects through signs in affected areas, newspapers, newsletters, electronic media and other appropriate means to inform and encourage community participation in decisions regarding transportation planning.

Program C-1.1.2: Hold public meetings and hearings for the purpose of planning and evaluating proposed transportation plans and improvements.

Program C-1.1.3: Work with residents, businesses and property owners who wish to improve traffic safety and solve circulation problems.

Program C-1.1.4: Provide staff to assist residents with information and direction regarding the City's process for recommending ideas for traffic safety and circulation improvements.

Program C-1.1.5: Develop a comprehensive city-wide handbook providing information on traffic calming devices, conditions appropriate for use, fees and/or costs and procedures for implementation.

Program C-1.1.6: Continue to support and participate in MORTRAC's (the Moraga Road Transportation Advisory Committee) efforts to:

- (1) address community concerns regarding the level of vehicular traffic, traffic congestion, pedestrian and bicycle safety, and neighborhood character along the Moraga Road corridor, and
- (2) develop a plan regarding circulation and related quality of life issues on and around Moraga Road.

Policy C-1.2

Level of Service Standards and Goals: Establish the following level of service (LOS) standards and goals. Transportation improvements must be consistent with the community's strong desire to preserve Lafayette's unique identity and quality of life.

<b>Signalized Intersections</b>	<b>LOS Standard<sup>5</sup></b>	<b>Standard V/C Ratio<sup>6</sup></b>	<b>HCM Goal Stopped Delay At Peak Hours</b>
Downtown Intersections	Poor D	0.85 to 0.89	33 to 40 Sec.
Intersections Outside Downtown	Good D	0.80 to 0.84	25 to 33 Sec.

<sup>5</sup> The level of service standard established by the *Draft General Plan* uses the CCTA methodology to calculate level of service standards. The HCM method is used to calculate level of service goals. Under the CCTA *Growth Management Plan* service level grades, such as LOS "A" or "B", are divided into high or low categories. A "high D", for example, means a higher volume to capacity ratio than does a "Low D". This definition has caused confusion since the *Growth Management Plan* definition states that a "high" letter grade means a worse level of service than does a "low" grade of the same letter. In order to clarify these definitions the LOS letter grades in the *Draft General Plan* are divided by categories defined as "Good" or "Poor". For example, a "Good D" in the Draft General Plan is equivalent to a "Low D" in the CCTA's *Growth Management Plan*.

<sup>6</sup> As defined in the CCTA Technical Procedures. (*Reso. 2009-021, 2009*)

Program C-1.2.1: Calculate both HCM and CCTA Levels Of Service (LOS) when conducting traffic counts and studies.

Policy C-1.3 Review and Update Traffic Management Plans: Periodically review traffic management plans, including downtown traffic plans and any neighborhood traffic management plans to ensure consistency with the goals and policies of the Lafayette General Plan.

Policy C-1.4 Roadway Maintenance: Maintain roadways to provide for the public's safety.  
Program C-1.4.1: Perform routine maintenance of roadways and walkways, pavement markings, traffic signals and facilities.

Program C-1.4.2: Implement the Pavement Management Program.

Policy C-1.5 Roadway Improvements: Plan for and implement changes to the roadway system so that the system is safe and efficient for all modes of travel while preserving the semi-rural character of the community.

Program C-1.5.1: Continue to develop and implement a five-year Capital Improvement Program (CIP).

Program C-1.5.2: Construct the following roadway improvements at the time an analysis of traffic service levels and safety factors establishes a necessity for such improvements:

Intersection of Deer Hill Road with Happy Valley Road:

- install traffic signal

Intersection of Deer Hill Road with Oak Hill Road:

- install traffic signal

Intersection of Pleasant Hill Road and Olympic Blvd.

- install traffic roundabout or traffic signal

Intersection of Oak Hill Road and State Route 24 eastbound off-ramp

- install traffic signal

Intersection of First Street and State Route 24 eastbound on-ramp

- install traffic signal

Program C-1.5.3: Develop procedures to ensure design review of roadway improvements early in the planning process.

Program C-1.5.4: Conduct an annual Planning Commission review of the City's Capital Improvement Program to determine consistency with the Lafayette General Plan.

- Policy C-1.6     Traffic Safety: Improve the safety of the roadway system.
- Program C-1.6.1: Provide comprehensive enforcement of all existing traffic laws.
- Program C-1.6.2: Periodically analyze the locations of traffic accidents to identify problem areas and utilize this information in prioritizing improvements as a part of the City’s Capital Improvement Program.
- Program C-1.6.3: Minimize the number of driveway accesses to arterial streets in the core area. Encourage shared access where appropriate. Require that all new proposals for access be reviewed for safety by the city traffic engineer.
- Policy C-1.7     Traffic Control Devices: Optimize the functioning of traffic control devices in order to efficiently manage vehicular and pedestrian traffic flow. When planning new traffic control devices consider their environmental and aesthetic impact.
- Goal C-2       Regulate traffic so as to preserve the peace and quiet of residential areas.**
- Through-traffic tends to take the route of least resistance, often resulting in a high through volume of traffic taking residential streets located adjacent to busy traffic corridors. It is essential that through traffic on local streets be discouraged to protect the quality of life and safety of residential neighborhoods located adjacent to heavily-traveled corridors.*
- Policy C-2.1     Manage Traffic Flow: Discourage diversion of through-traffic onto local streets.
- Program C-2.1.1: Develop measures to limit through-traffic on residential streets when necessary.
- Goal C-3       Regard the quality of life in Lafayette and maintaining community identity as more important than accommodating through-traffic.**
- Policy C-3.1     Community Identity and Through Traffic: Place a higher priority on safety, encouraging a pedestrian-oriented design and scale; and on maintaining the quality of life and identity of residential neighborhoods than on accommodating through-traffic.
- The roadway improvements required to accommodate through traffic to achieve more efficient traffic flow shall not be implemented if they are found to have significant adverse impacts on the quality of life and safety of residential neighborhoods.*
- Program C-3.1.1: Require that a traffic study be carried out for proposed change in access to local streets from arterial or collector streets. Include in the traffic study the projected increase in average daily and peak hour traffic that would result from the proposed change; include any traffic safety-related

matters and consider alternative feasible options. Conduct new traffic counts when and where needed.

Policy C-3.2      Response to Citizen Concerns: Continue to provide a system whereby residents can address automobile, bicycling and pedestrian issues.

Program C-3.2.1: Work with residents to implement traffic-calming measures, as appropriate, to address traffic safety, circulation, speed, and other neighborhood and downtown traffic concerns.

Program C-3.2.2: Work with residents who wish to develop tools such as neighborhood traffic management plans tailored to address the concerns and needs of a targeted area. These plans should be reviewed periodically to ensure consistency with the goals and policies of the General Plan.

Program C-3.2.3: Consider identification of locations where aesthetically pleasing traffic calming devices can be installed.

**Goal C-4            Coordinate land use and circulation planning.**

Policy C-4.1      Balance Circulation and Land Use Patterns: Limit development to that which can be adequately served by Lafayette’s circulation system.

Program C-4.1.1: Require applicants for new development to demonstrate that there is adequate transportation capacity to handle the additional traffic their project would generate. Evaluate area-wide cumulative traffic impacts as well as the impacts of any proposed mitigations in development review.

Program C-4.1.2: Consider transit-oriented developments, which are consistent with the goals and policies of the General Plan.

Program C-4.1.3: Approval of development expected to generate over 50 peak hour vehicle trips shall occur only if found to be consistent with Lafayette’s growth management goals and the other goals and policies of the General Plan.

Policy C-4.2      Traffic Mitigation: Require new developments to pay their fair share of circulation improvements.

Program C-4.2.1: Ensure that new development mitigates its off-site adverse impacts on the circulation system and, if applicable, contributes to a citywide traffic mitigation fee program.

Program C-4.2.2: Ensure that new developments provide adequate on-site improvements, such as delivery access, on-site vehicle, bicycle and pedestrian circulation amenities, public transit facilities, and off-street parking, as appropriate.

**Goal C-5            Preserve and enhance the scenic quality of Lafayette’s roads.**

- Policy C-5.1     Protect Irreplaceable Resources: When planning new roads or roadway improvements, protect resources such as open space, hillsides, ridgelines, riparian corridors, and recreational facilities. Circulation projects must be consistent with goals and policies of the Open Space and Conservation Element.
- Program C-5.1.1: No road should be constructed within 250 horizontal feet of the centerline of a major ridgeline. This prohibition does not apply to a road and attendant underground utilities which cross a major ridge if the crossing is necessary for orderly development.
- Program C-5.1.2: In designing road improvements consider seismic risk, soil stability, drainage, scenic character, and privacy. Require compliance with current engineering standards and practices. Require peer review as needed.
- Policy C-5.2     Aesthetics: When planning road and circulation system improvements, require that views of and from the roadway are in keeping with Lafayette’s semi-rural character.
- See the Land Use and Open Space Chapters for additional goals and policies on the preservation of natural areas and Lafayette’s semi-rural character.*
- Program C-5.2.1: Establish a process to ensure effective design review of circulation projects.
- Program C-5.2.2: Adopt specific criteria for street lighting. Street lighting installed for safety reasons should incorporate every effort to maintain the semi-rural character of the area.
- Policy C-5.3     Scenic Routes: Designate and protect scenic routes consistent with goals and policies of Lafayette’s General Plan.
- Program C-5.3.1: Adopt specific criteria for scenic routes with regard to applicable signage, landscaping and lighting.

## **ALTERNATIVES TO THE AUTOMOBILE**

Traffic congestion will continue to worsen significantly despite the roadway improvements recommended in this Plan. Improving the roadway system is not the only solution. Providing effective alternatives to the single-occupant automobile must be an essential component of circulation planning. This includes increased use of public transit, carpools, flexible work hours, bicycling, walking and telecommuting in conjunction with land use patterns and measures to reduce travel demand. Alternatives to the automobile contribute to energy conservation, reduce air and water pollution and the immense cost of building and maintaining additional highways and roads.

- Goal C-6           Provide an attractive, well-designed system of walkways for safe and efficient pedestrian movement in Lafayette. The walkway system should**

**connect residential areas with the local and regional trails system, public transportation, schools, parks and other community amenities, and the Downtown Core area.**

*Walking remains the least costly form of transport for all people. Walkways are crucial to promoting the health and sustainability of streets and neighborhoods. Walkways are designed to connect where people live, work, attend school, shop, and play without dependence on the automobile. Many opportunities exist to build well-designed walkways that serve the needs of the pedestrian.*

*Refer to the Parks, Trails and Recreation Chapter for policies and programs regarding trails.*

Policy C-6.1     Master Walkways Plan: Continue to update and implement the Master Walkways Plan.

Program C-6.1.1: Identify and preserve rights-of-way needed to implement the Master Walkways Plan.

Program C-6.1.2: Consider the need for sidewalks and walkways during the review of development proposals.

Program C-6.1.3: Include walkways in the City's Capital Improvement Program.

Program C-6.1.4: Amend the Master Walkways Plan to establish a process to address the aesthetic and design considerations of walkways.

Policy C-6.2     Walkway Safety: Seek to maintain the City's walkways to avoid hazards.

Program C-6.2.1: Evaluate the safety of existing walkways along important pedestrian routes; upgrade and maintain them as necessary.

Program C-6.2.2: Establish a walkway pavement improvement program.

**Goal C-7     Reduce automobile travel demand.**

*Measures to manage travel demand, called Transportation Systems Management (TSM), are directed at reducing the number of single-occupant vehicles using the circulation system during peak hour commute periods.*

*These programs include advocating public transit; promoting carpooling and vanpooling; encouraging telecommuting and compressed work weeks; providing shuttle buses to transit facilities; providing incentives and rewards for bicycling, walking and telecommuting; and offering preferred parking for carpools.*

*The CCTA Growth Management Program requires each jurisdiction in Contra Costa County to adopt a Transportation Systems Management Ordinance. The TSM programs also enable the City to achieve the "Clean Air Goals" established by the Bay Area Air Quality Management District.  
(Reso. 2009-021, 2009)*

- Policy C-7.1 Automobile Travel Demand: Seek to reduce vehicle trips by promoting alternatives to the single-occupant automobile.
- Program C-7.1.1: Continue to implement the City's *Transportation Systems Management (TSM) Ordinance*.
- Program C-7.1.2: Establish incentives for new commercial developments to provide hoteling (shared office facilities), cafeterias, day-care facilities, lunchrooms, showers, bicycle parking, home offices and other amenities which encourage the use of transit, bicycling, walking or telecommuting as commute modes to work.
- Program C-7.1.3: Work with neighboring jurisdictions to find additional ways to reduce travel demand.

**Goal C-8 Promote alternatives to the single-occupant automobile.**

- Policy C-8.1 Increase Use and Availability of Public Transit: Take measures to increase use of public transit. Work with public transit providers to improve equipment, schedules, and better serve the community. Encourage providers to promote their services.
- Lafayette is served by two public transit systems - the Bay Area Rapid Transit district (BART) and the County Connection (a bus service operated by the Central Contra Costa Transit Authority) - and the Lamorinda School Bus System serving the local schools.*
- Program C-8.1.1: Work with the school districts and the Lamorinda School Bus Program to provide an effective bus system for Lafayette's public school students.
- Program C-8.1.2: Consider the needs of public transit, such as bus stops, shelters, turnouts, etc. when planning roadway improvements and when reviewing development proposals.
- Program C-8.1.3: Conduct a study of ways to enhance local access to the City's BART station.
- Program C-8.1.4: Support expanded feeder service to BART.
- Program C-8.1.5: Continue to require the provision of bus stops, bus shelters, benches, turnouts, and related facilities in all major new commercial, residential and institutional developments.
- Program C-8.1.6: Study signal preemption for buses on City arterials. Improve signal timing where warranted.
- Program C-8.1.7: Establish options for future transit use when designing improvements for roadways and renovations or construction of major commercial, residential and institutional developments.



- Policy C-8.2     **Bicycles:** Encourage bicycling by making it easier and safer for people to travel by bicycle.
- CalTrans and MTC have adopted criteria for bicycle plans. A bikeways plan conforming to these criteria would make the City eligible for California Bicycle Lane Act funding grants.*
- Program C-8.2.1:** Update the City’s Master Bikeways Plan. Give priority to bikeways connecting downtown, school, recreations facilities, regional facilities and existing bikeways. Participate in Contra Costa County’s Regional Bicycle Advisory Committee.
- Program C-8.2.2:** Incorporate bikeways into the design and construction of public and private roadway improvements, wherever feasible.
- Program C-8.2.3:** Require adequate bicycle parking in new commercial developments, and at the BART station. Encourage adequate bicycle parking in commercial areas.
- Program C-8.2.4:** Revise the Zoning Ordinance to require that new development located on sites where planned bikeways occur to provide the easement or right-of-way for the bikeway, as appropriate.
- Program C-8.2.5:** Involve local bicycling organizations in the planning of bikeways throughout the City.
- Program C-8.2.6:** Utilize grant funding and other means, as appropriate, to acquire rights-of-way needed for a comprehensive bike route system and to provide bike racks and other bicycle-related facilities. Prepare a Bicycle Facilities Plan to identify projects to be programmed into the City’s Capital Improvement Program.

**Goal C-9     Provide Access for the Mobility Impaired.**

*It is essential to provide transportation facilities that are accessible to persons who are mobility-impaired. Approximately three percent of the Lafayette population cannot use conventional public transit due to a disability. The Federal Americans with Disabilities Act (ADA) contains many requirements to remove barriers for those with disabilities.*

- Policy C-9.1     **Accessible Public Transportation:** Support improved access to public transportation and sidewalks for people with disabilities.
- Program C-9.1.1:** Continue to work with other jurisdictions to provide access to public transit for persons with disabilities.
- Program C-9.1.2:** Support efforts to provide safe, efficient and affordable paratransit service for the elderly and individuals unable to use other public transportation service.

- Policy C-9.2     **Accessible Pedestrian Circulation:** Design a pedestrian circulation system to meet the accessibility needs of all segments of the population.

Program C-9.2.1: Provide enhancements and amenities to better accommodate the needs of persons with disabilities to facilitate their safe and efficient movement on sidewalks, walkways and in public facilities. This could include smooth surfaces, ample width, curb cuts and benches.

**Goal C-10**      **Inter-Jurisdictional Coordination: Work closely with neighboring jurisdictions and agencies responsible for roadways, transit facilities and transit services in Lafayette.**

Policy C-10.1      Regional Planning: Participate in regional transportation planning in order to minimize adverse impacts on Lafayette’s circulation system. Evaluation of proposed changes within Lafayette’s circulation system must consider the seismic, soils and scenic constraints in addition to the goals and policies of the Lafayette General Plan.

Program C-10.1.1: Provide City Council, staff, and resident representation on regional transportation planning agencies’ boards and technical committees.

Program C-10.1.2: Work with transportation agencies to develop programs consistent with the goals and policies of Lafayette’s General Plan.

Program C-10.1.3: Work with neighboring cities and regional transportation planning committees to address regional transportation and land use issues of mutual interest.

Program C-10.1.4: Provide staff resources to review, analyze and monitor transportation plans of neighboring jurisdictions.

*See current adopted and pending transportation management plans such as those for Pleasant Hill Road, Moraga Road, the Downtown Traffic Plan, and the Lamorinda Traffic Study & Project List.*

Policy C-10.2      Funding: Seek funding from federal, state and regional agencies for transportation projects that will alleviate congestion and enhance the livability of the community.

Policy C-10.3      Multi-Modal Transportation Service Objectives (MTSO’s): Work toward achieving Lafayette-approved multi-modal transportation service objectives on roads such as Highway 24 and Lafayette’s portion of Pleasant Hill Road.  
(Reso. 2009-021, 2009)

Program C-10.3.1: Work in a timely manner toward achieving the Transportation System Objectives established in the Pleasant Hill Road Action Plan for that portion of Pleasant Hill Road between State Route 24 and Taylor Boulevard.

## **COMPLETE STREETS**

In September 2008 the Governor signed into law the California Complete Streets Act, requiring General Plans to develop a plan for a multi-modal transportation system. “Complete Streets” are

defined as streets that serve everyone—pedestrians, bicyclists, transit riders, and drivers—and they take into account the needs of people with disabilities, older people, and children. Complete Streets design concepts can improve safety by considering all user groups, improve people’s health by promoting an active lifestyle that involves more walking or bicycling instead of driving, and allow all modes of travel to be used safely and efficiently in a community and the region. Implementation of Complete Streets concepts can result in improved mobility for people who cannot or do not drive and result in less reliance on automobiles. A reduction in automobile use would result in a reduction in local vehicle-miles travelled, along with a corresponding reduction in transportation-related greenhouse gas emissions created by the burning of fossil fuels.

The existing goals, policies and programs throughout the Circulation Element are generally consistent with the Complete Streets concept. These policies address consideration of pedestrians, reducing automobile travel demand, alternatives to the single-occupant automobile, and providing access for the mobility-impaired, all with context sensitivity and public input. The following additional goal, policies and programs supplement Lafayette’s Complete Streets concept. (*Reso. 2012-46, 2012*)

**Goal C-11 Provide a balanced, multimodal transportation network that meets the needs of all users and provides safe and convenient travel that is consistent with local conditions and needs of the community. (*Reso. 2012-46, 2012*)**

*Already consistent with many goals and policies of Lafayette’s existing General Plan, the Complete Streets concept reiterates a balanced approach to transportation design that provides flexibility to best accommodate all users and modes given the unique characteristics of the community. All streets are different, and the needs of various users will need to be balanced in a flexible manner. The Complete Streets concept acknowledges that there is a need for varying degrees of accommodation for each type of user in different settings, while still ensuring basic accommodation is provided for all permitted users. (*Reso. 2012-46, 2012*)*

Policy C-11.1 All Users: Design and operate city streets based on a “Complete Streets” concept that enables safe, comfortable, and attractive access and travel for pedestrians, bicyclists, motorists, movers of commercial goods and transit users of all ages and abilities. (*Reso. 2012-46, 2012*)

Policy C-11.2 Context Sensitivity: Ensure that the designs of public right-of-way improvements are consistent with the character of the project neighborhood. (*Reso. 2012-46, 2012*)

Policy C-11.3 Connectivity: Provide a connected network of facilities accommodating all modes of travel in the transportation system. This includes looking for opportunities for repurposing existing publicly-owned rights-of-way to enhance connectivity for cyclists, pedestrians, and transit users to schools, parks, commercial areas, civic destinations and regional non-motorized networks. (*Reso. 2012-46, 2012*)

Policy C-11.4 All Departments: Work towards making Complete Streets practices a routine part of everyday operations. Each City of Lafayette department should approach relevant projects, programs, and practices as an opportunity to improve streets and the transportation network for all users, and work in coordination with other

departments, agencies, and jurisdictions to maximize opportunities for Complete Streets connectivity. (*Reso. 2012-46, 2012*)

Policy C-11.5 All Projects and Phases: Apply Complete Street concept to the planning, funding, design, approval and implementation phases of roadway projects, including those involving new construction, reconstruction, retrofits, major rehabilitation, or changes in the allocation of pavement space on an existing roadway, as well as those that involve new privately built roads and easements intended for public use. Specific infrastructure for a given category of users may be excluded if an exemption is approved via the process set forth in Policy C11.6, “Exemptions.” (*Reso. 2012-46, 2012*)

Program C11.5.1: Solicit early input from the Circulation Commission and Bicycle and Pedestrian Advisory Committee, or their representatives, during project development to verify bicycling and pedestrian needs for projects. (*Reso. 2012-46, 2012*)

Program C-11.5.2: Coordinate the implementation of Complete Streets concepts, as appropriate, with ongoing transportation programs and plans such as the Pavement Management Program, Capital Improvement Program, Transportation Demand Management Program, Traffic Calming Program, Master Walkways Plan, and Bikeways Master Plan. (*Reso. 2012-46, 2012*)

Program C-11.5.3: Include “Complete Streets” considerations in all circulation improvement projects when planning, reviewing, and implementing capital improvement plans, major roadway rehabilitation and development review applications. When appropriate, these design considerations may include, but are not limited to, the following:

1. Minimize the number of driveway accesses (Consistent with Program C-1.6.3)
2. Public transit facilities, like bus stops and related improvements
3. Safety considerations such as lighting, sight distance, and traffic calming measures for residential streets
4. Sign design (e.g. street signs, entry signs, directional signs);
5. Street furniture; paving material, landscaping
6. Type, width and routing of pedestrian facility and supporting improvements
7. Type, width and routing of bikeway, bike parking and supporting improvements
8. Senior and disabled access
9. Transportation Demand Management (TDM) incentive measures
10. Accommodation of alternative fuel vehicles (*Reso. 2012-46, 2012*)

Program C-11.5.4: Evaluate Lafayette’s Complete Streets approach by using the following performance measures to be tracked annually:

1. Total miles of on-street bikeways added (defined by streets with clearly marked or signed bicycle accommodation)
2. Linear feet of new walkways added
3. Number of new curb ramps added or replaced
4. Number of publicly-accessible support measures for alternative fuel vehicles implemented (e.g. charging stations, designated parking)

5. Number of reported injury collisions involving pedestrians and bicycles *(Reso. 2012-46, 2012)*

Policy C-11.6 Exemptions: Exempt projects and plans from Complete Streets principles and practices under one or more of the following conditions:

1. A project involves only ordinary or emergency maintenance activities designed to keep assets in serviceable condition, or when interim improvements are implemented on a temporary basis.
2. The City Council makes a determination that Complete Streets implementation results in excessive and disproportionate costs, is not practically feasible or cost effective, creates significant or adverse environmental impacts, or negatively impacts neighborhood or area character.
3. A documented absence of current and future need is provided.

Exceptions described above will be documented and will be made available for public review. *(Reso. 2012-46, 2012)*