FINAL Transportation Analysis for:

Downtown El Sobrante General Plan Amendment

Prepared for:
Contra Costa County
Community Development Department

Submitted by:

Dowling Associates, Inc.
Transportation Engineering • Planning • Research • Education

180 Grand Avenue, Suite 250
Oakland, CA 94612
Phone: (510) 839-1742; Fax: (510) 839-0871
www.dowlinginc.com
Contact: Alice Chen x101

October 23, 2007

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Introduction

This report describes the transportation setting of the proposed Downtown El Sobrante General Plan Amendment and the potential impacts of the project on the transportation system. The evaluation of potential impacts includes roadway operations, local circulation, and pedestrian, bicycle, transit, and parking provisions.

The General Plan Amendment includes the establishment of new mixed-use land use designations for selected areas along San Pablo Dam Road and Appian Way in downtown El Sobrante, and revisions to the Roadway Network Plan in the Transportation/Circulation Element, including removal of the San Pablo Dam Road Bypass Couplet and a reduction in the ultimate lane configuration to Appian Way. San Pablo Dam Road, between El Portal Drive and Appian Way, and Appian Way, between San Pablo Dam Road and Valley View Road, are the focus of the traffic analysis.

Environmental Setting

Traffic Impact Analysis Area

The Downtown El Sobrante General Plan Amendment (GPA) covers the proposed land use and circulation changes along both sides of San Pablo Dam Road and Appian Way, extending from El Portal Drive on the west and extending northeast to Valley View Road. Figure 1 provides an overview of the area and the project site parcels involved around the Downtown El Sobrante General Plan Amendment. The *West County Action Plan 2000 Update* (West Contra Costa Transportation Advisory Committee, July 2000) identifies several major roadways as routes of regional significance. Each route of regional significance within the project study area is described below.

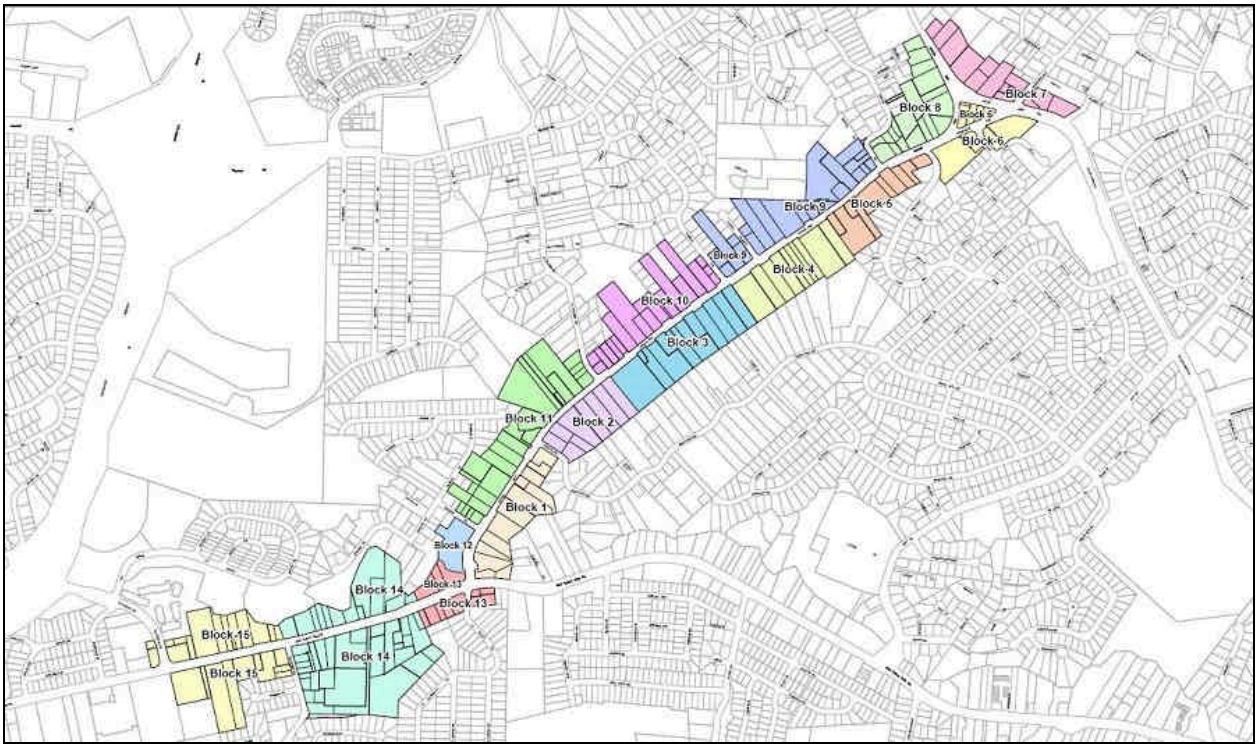


Figure 1. Study Area

Intra-County Corridors

San Pablo Dam Road provides a connection between I-80 and State Route 24 in Orinda. It provides local access to I-80 and serves as a commuter route. San Pablo Dam Road has been designated a Scenic Route in the Contra Costa County General Plan. Through downtown El Sobrante, this facility provides two travel lanes in each direction

plus a two-way left-turn lane. Within the Project Area San Pablo Dam Road carries about 31,200 vehicles per day[1]. While many sections of San Pablo Dam Road provide Class II bicycle lanes (i.e., on-street bike lanes designated by a painted stripe), through downtown El Sobrante the roadway accommodates only a Class III bicycle route (i.e., bike route designated by posted signs, but no painted lane).

The Contra Costa County General Plan Transportation-Circulation Element Map includes a one-way couplet through downtown El Sobrante that would require the conversion of existing San Pablo Dam Road to a westbound roadway. The new roadway (couplet) would have been constructed to the south of existing San Pablo Dam Road to accommodate eastbound traffic. However, the construction of a one-way couplet will not be pursued due to cost, difficult slopes, potential for community disruption, and its inconsistency with downtown revitalization efforts. The proposed project proposes to amend the Transportation-Circulation Element, which would maintain two directions of travel on San Pablo Dam Road with the provision for a new roadway connecting Pitt Way to Hillcrest Road.

Major Arterials

Appian Way provides a connection between San Pablo Dam Road and I-80. Through El Sobrante, this facility carries about 12,800 vehicles per day[2]. Appian Way provides Class II bicycle lanes through the Project Area.

The Contra Costa County General Plan Transportation-Circulation Element Map includes widening of Appian Way to two lanes in each direction. The project proposes to amend the Transportation-Circulation Element to maintain one travel lane in each direction.

El Portal Drive provides direct access between I-80 and the Project Area. El Portal Drive extends from San Pablo Dam Road to San Pablo Avenue. El Portal Drive carries about 14,000 vehicles per day[3].

Local Roadways

In addition to the regionally significant routes identified above, the following local road is important to this study area.

Hillcrest Road intersects San Pablo Dam Road within the Project Area. It extends south to Alpine Road and serves as the border for the neighboring City of San Pablo.

[1] Count conducted on November 15, 2006 by the County's PW Department.
[2] Count conducted on April 17, 2007. Previous count conducted by Fehr & Peers Associates on January 15, 2003 was 11,200 vehicles per day.
[3] Count conducted on April 17, 2007.

Study Facilities

The following intersections and roadway segments were chosen for study because of their importance to traffic circulation within the Project Area, and their importance as routes of regional significance:

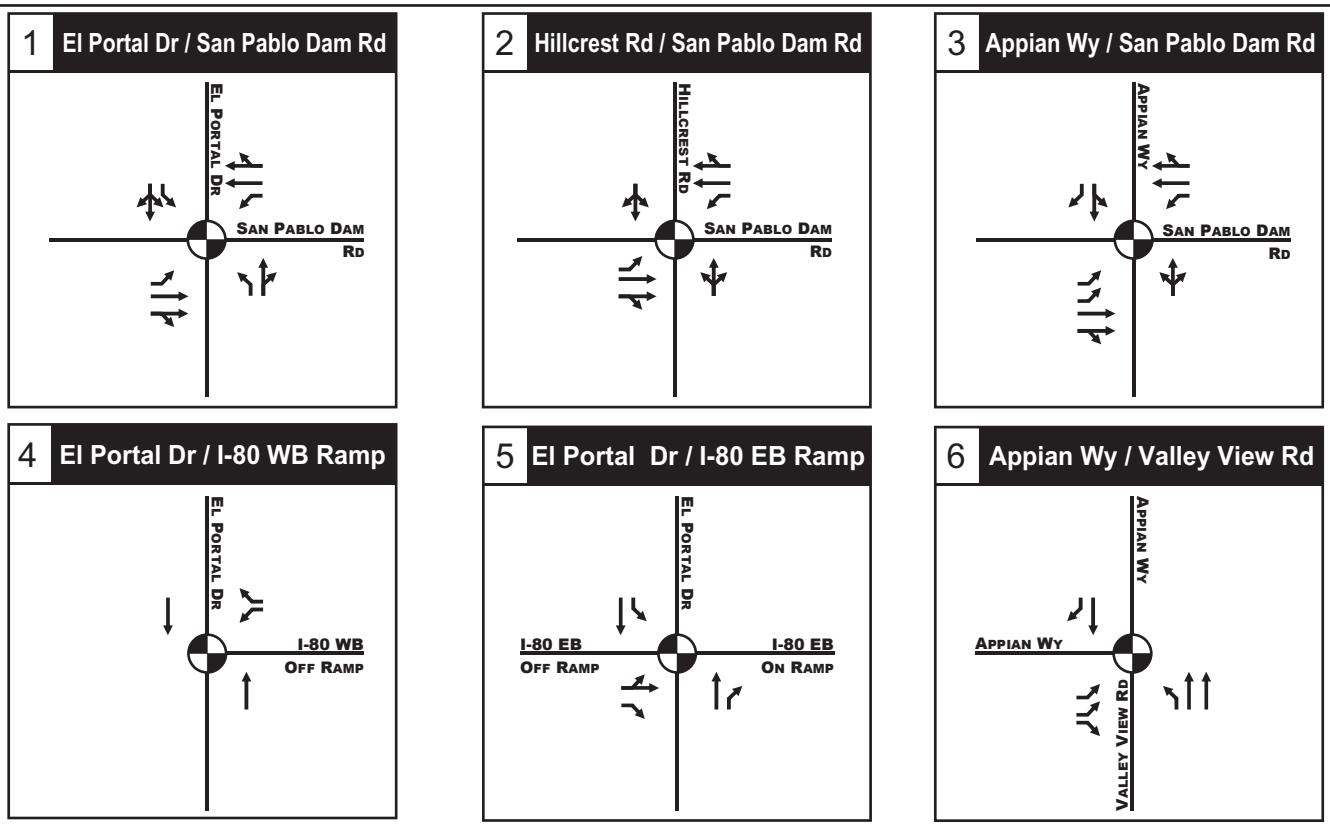
- San Pablo Dam Road / El Portal Drive (signalized intersection);
- San Pablo Dam Road / Hillcrest Road (signalized intersection);
- San Pablo Dam Road / Appian Way (signalized intersection);
- El Portal Dr / I-80 WB Ramps (signalized intersection);
- El Portal Dr / I-80 EB Ramps (signalized intersection);
- Appian Way / Valley View Road (signalized intersection);
- San Pablo Dam Road, between Appian Way and El Portal Drive (road segment);
- Appian Way, between Valley View Road and San Pablo Dam Road (road segment); and
- El Portal Drive, between I-80 EB Ramps and San Pablo Dam Road (road segment).

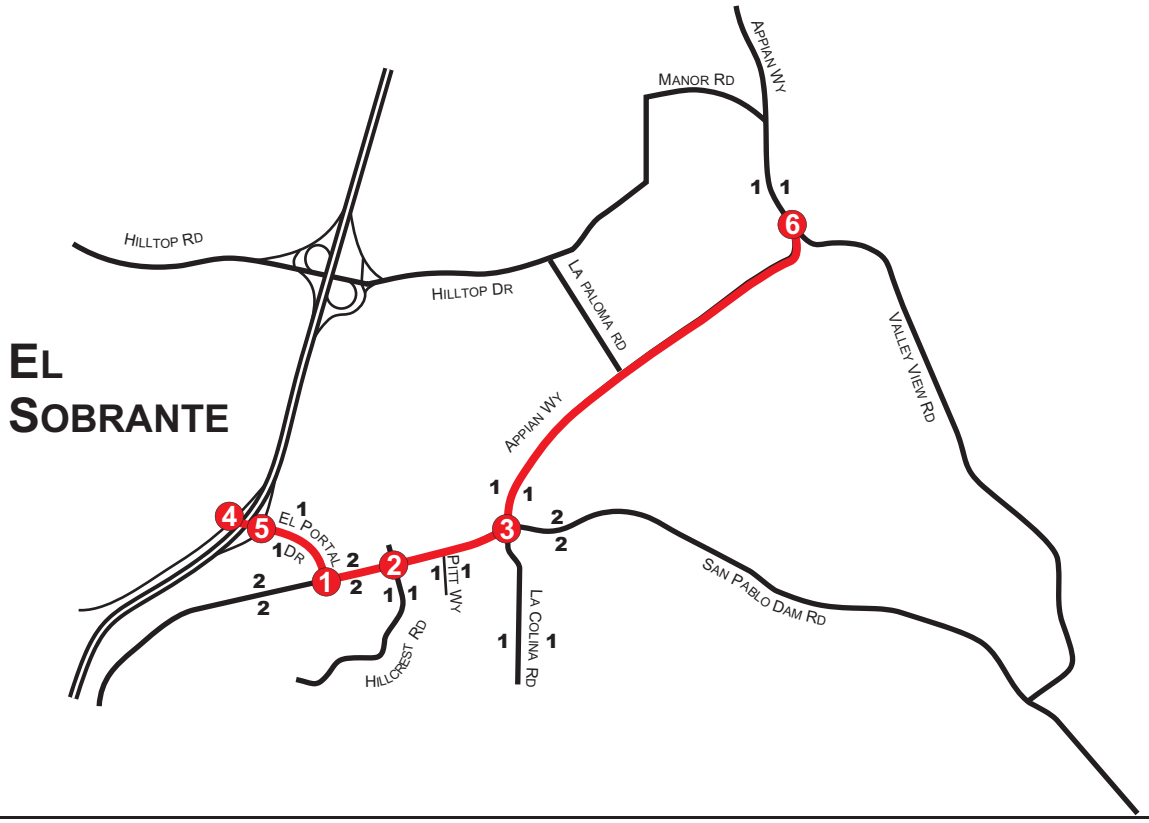
The existing lane geometrics for the study intersections and roadway segments are shown in Figure 2. Traffic operations were examined at each study intersection during the weekday morning (AM) and weekday evening (PM) peak hours, consistent with peak commute traveler behavior in the area.

Level of Service Concept

Level of Service (LOS) is used to rank traffic operation on various types of roadway facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or over-capacity conditions. The LOS designation is generally accompanied by a unit of measure that indicates a level of delay or a volume-to-capacity (v/c) ratio.

In general, intersection service levels are determined by methods including volume-to-capacity calculations and computations of vehicular delay. Road segment service levels are typically defined by theoretical service volumes. The following describes the analysis methodologies for each facility type.





LEGEND

34(12) AM(PM) Peak Hour Volumes

Traffic Signal

Study Roadway

N
W E
S

Not to Scale

Downtown El Sobrante GPA

Figure 2
Existing Roadway and
Intersection Lane Geometrics

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Signalized Intersections

The specific evaluation approach is documented in CCTA's *Technical Procedures* (July 19, 2006). The methodology required by the CCTA for impact studies on intersections is known as Contra Costa Transportation Authority Level of Service (CCTALOS) intersection capacity analysis. This method relates the total traffic volume for critical opposing movements to the theoretical capacity for those movements. The resulting v/c ratio is related directly to LOS grades, as shown in Table 1.

Table 1 - Signalized Intersection Level of Service Definitions

Level of Service	Description	V/C Ratio
A	Operations with very low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.00 – 0.60
B	Operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	0.61 – 0.70
C	Operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	0.71 – 0.80
D	Operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.81 – 0.90
E	Operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	0.91 – 1.00
F	Operation with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 1.00

Sources: *Technical Procedures*, CCTA, July 19, 2006 and *Highway Capacity Manual*, Transportation Research Board, 2000.

Roadway Segments

CCTA's *Technical Procedures* does not contain a specified methodology for roadway segment analysis. For this study, service volumes presented in the Transportation Research Board's *Highway Capacity Manual* (2000) were utilized to assess peak hour, peak direction road segment operations. San Pablo Dam Road is a major arterial with a posted speed limit of 25 mph, and is therefore assumed to represent a Class IV facility as an arterial with 10 signals per mile and speeds of 30 miles per hour. Appian Way has slightly higher posted speed limit of 35 mph, and is assumed to be a Class III facility for an arterial with 5 signals per mile and speeds of 35 miles per hour. El Portal Road has posted speed limit of 35 mph west of I-80. Consequently, it is also assumed to be a Class III facility similar to Appian Way. Table 2 shows the LOS grades for these roads.

Table 2 - Road Segment Level of Service Definitions

Level of Service	Peak Direction Service Volume (veh/hr)				
	San Pablo Dam Road[1]		El Portal Drive[2]	Appian Way[3]	
	CLASS IV, 2 Lanes	CLASS IV, 3 Lanes	CLASS III	CLASS III, 1 Lane	CLASS III, 2 Lanes
C	= 1,200	= 1,900	= 480	= 480	= 1030
D	1,200 – 1,570	1,900 – 2,370	480 – 780	480 – 780	1030 – 1600
E	1,570 – 1,620	2,730 – 2,430	780 – 850	780 – 850	1600 – 1690
F	> 1,620	> 2,430	> 850	> 850	> 1690

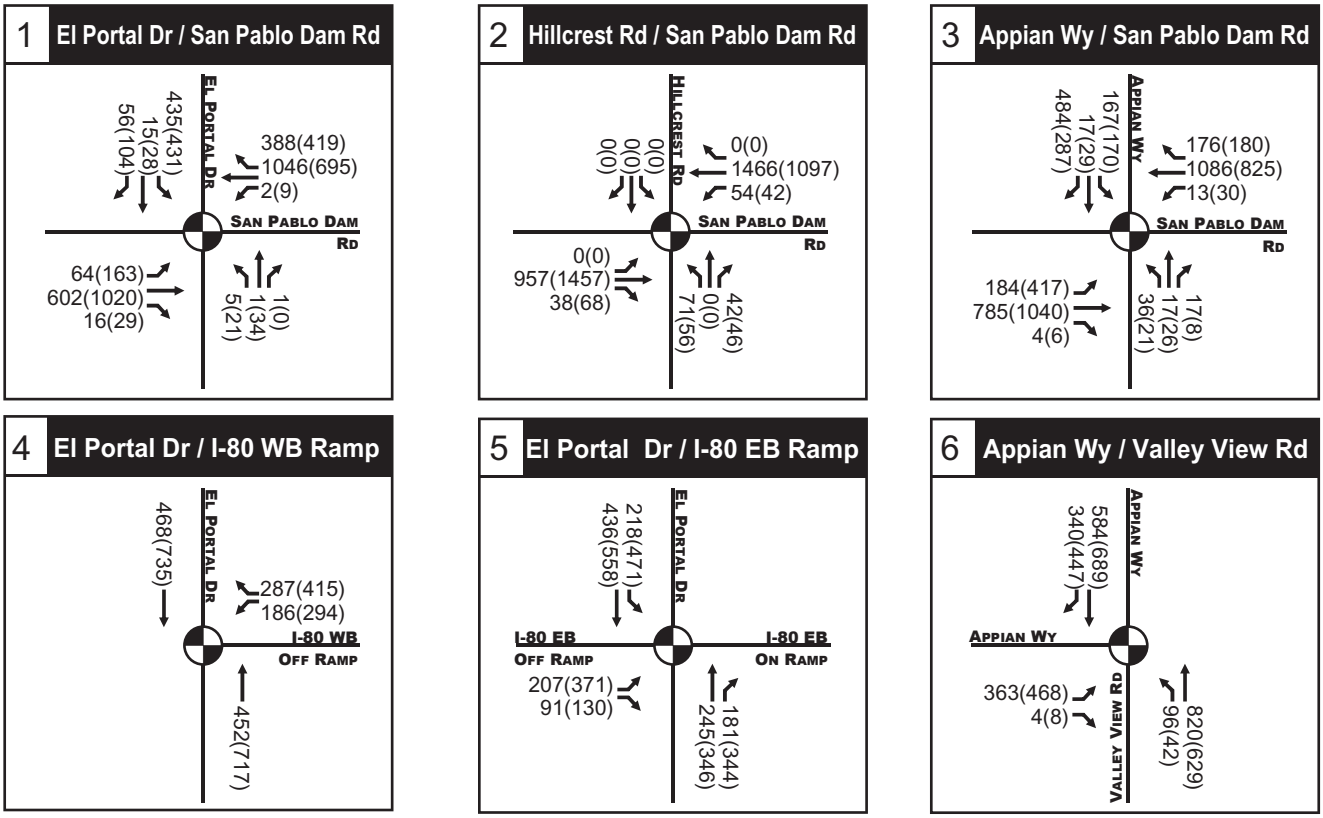
Notes:
1. Class IV (10 signals per mile), with two lanes in the peak direction.
   Class IV (10 signals per mile), with three lanes in peak direction.
2. Class III (5 signals per mile), with one lane in the peak direction.
3. Class III (5 signals per mile), with one lane in the peak direction.
   Class III (5 signals per mile), with two lanes in peak direction.

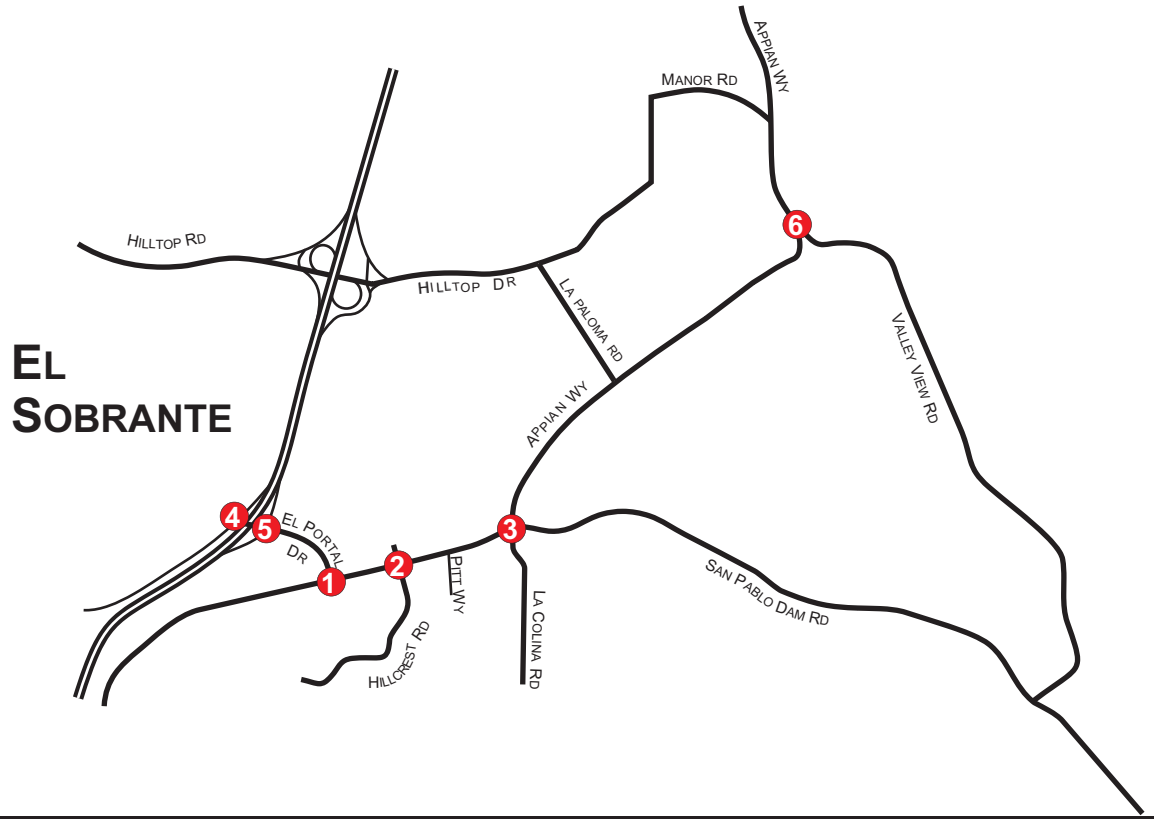
Source: *Highway Capacity Manual*, Transportation Research Board, 2000, pg 10-10.

Existing Conditions

Existing Levels of Service

Operating conditions were evaluated for the study intersections during both the AM and PM peak hours on a typical weekday. Traffic counts, shown in Figure 3, Existing Intersection Traffic Volumes, were conducted on three consecutive weekdays, April 17, 2007, Wednesday, to April 19, 2007 and are included in the technical appendix. The AM and PM peak traffic hours in the Project Area typically begin around 8:00 a.m. and 4:45 p.m., respectively. Table 3 shows the existing intersection levels of service, based on the methodologies discussed above. Detailed service level calculations are contained in the technical appendix. As shown, each study intersection operates at LOS B or better during each peak hour.





LEGEND

34(12) AM(PM) Peak Hour Volumes

Traffic Signal

N
W E
S

Not to Scale

Downtown El Sobrante GPA

Figure 3
Existing Intersection Volumes

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Table 3 - Existing Intersection Levels of Service

Study Intersection	Existing V/C ratio / LOS	
	AM	PM
1. San Pablo Dam Rd / El Portal Dr	0.65 / B	0.65 / B
2. San Pablo Dam Rd / Hillcrest Rd	0.49 / A	0.53 / A
3. San Pablo Dam Rd / Appian Way	0.72 / C	0.60 / A
4. El Portal Dr / I-80 WB Ramps	0.42 / A	0.64 / B
5. El Portal Dr / I-80 EB Ramps	0.39 / A	0.69 / B
6. Appian Way / Valley View Dr [1]	0.51 / A	0.58 / A

Notes:

1. Although this intersection is striped as two through lanes and one right-turn pocket in the southbound direction, it operates and was therefore analyzed as one through lane and one right-turn lane. This assumption is based on the approaching lanes and their geometry, given right approaching lane is relatively short in length.

Source: CCTALOS based on *Technical Procedures*, CCTA, July 19, 2006.

Existing road segment levels of service are shown in Table 4 for each direction of travel during the AM and PM peak hours. San Pablo Dam Road currently operates at LOS D during both peak hours. Appian Way and El Portal Drive both also operate at LOS D during both peak hours.

Table 4 - Existing Road Segment Levels of Service

Road Segment	Existing Volume / LOS			
	AM		PM	
1. San Pablo Dam Rd	995 / C (EB)	1537 / D (WB)	1525 / D (EB)	1153 / C (WB)
2. Appian Way	377 / C (NB)	668 / D (SB)	623 / D (NB)	486 / D (SB)
3. El Portal Drive	453 / C (NB)	506 / D (SB)	616 / D (NB)	563 / D (SB)

Assume AM peak is from 7-9am, and PM peak is from 4-7pm.

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

Side Street Delay

The side street delays for minor streets along San Pablo Dam Road were observed during the peak period during several signal cycles to determine whether side street traffic experienced delays beyond one signal cycle. Side street observations were made at Hillcrest, Appian Way, La Colina, and El Portal.

Queues determined during the "red" phase were observed to see if all vehicles cleared during the next "green" phase. Observations of at least 25 cycles during each of the AM and PM peak hours found few instances were the queues on the side streets did not clear. At Appian Way, one instance out of 25 cycles during the AM peak hour and three out of 25 cycles during the PM peak hour, the queue did not clear. At El Portal, only one instance out of 32 was observed during the AM peak hour where the queue did not clear.

Delay Index

The delay index represents the ratio of congested travel time to uncongested travel time along a corridor. Based on the Traffic Service Objectives Monitoring Report prepared in 2004, the delay index for San Pablo Dam Road from I-80 to State Route 24 in Orinda was 1.3 and 1.2 for eastbound and westbound traffic, respectively, during the AM peak hour, and 1.5 eastbound and 1.2 westbound during the PM peak hour.

Transit

Public transit service in the area is provided by Alameda-Contra Costa Transit District (AC Transit). AC Transit bus stops are located throughout the Project Area in both directions of San Pablo Dam Road and Appian Way. AC Transit Route 70 runs on Appian Way, while Routes 70, 74, 669, and 679 provide service to San Pablo Dam Road.

AC Transit *Route 70* travels between El Cerrito Del Norte BART and the Richmond Parkway Transit Center with a stop at the Hilltop Park and Ride. In the Project Area the route travels along San Pablo Dam Road and Appian Way with scheduled stops at San Pablo Dam Road / El Portal Drive and Appian Way / La Paloma Road. Weekday southbound and northbound service operates with 30-minute headways from 5:30 a.m. to 10:00 p.m. Weekend service is provided with 60-minute headways between about 6:30 a.m. and 8:00 p.m.

AC Transit *Route 74* travels between Marina Bay in Richmond to the Orinda BART station. In El Sobrante the route travels on San Pablo Dam Road with scheduled stops in the Project Area at San Pablo Dam Road / Appian Way. Weekday service operates from about 6:00 a.m. to 10:00 p.m. with approximately 30-minute headways in both directions. Weekend service to El Sobrante operates from 8:00 a.m. to 5:00 p.m. with hourly headways in both directions.

AC Transit *Route 669* and *679* provide school service with one bus each morning and afternoon per route.

Previous studies[4] indicated that the bus boardings and alightings through the downtown area are relatively low, which may be attributed to the poor accessibility of the existing bus stops from the surrounding neighborhoods, the low density of development along these corridors, and lack of bus stop amenities.

[4] The Downtown El Sobrante Transportation and Land Use Plan indicated low ridership.

Pedestrian and Bicycle Facilities

An inventory of existing bicycle and pedestrian facilities within the Project Area was conducted. Sidewalks are currently provided along most sections of Appian Way and all sections of San Pablo Dam Road through the Project Area. Pedestrian-actuated crossings are provided at each signalized study intersection. There is an actuated signalized pedestrian crossing on San Pablo Dam Road west of Pitt Way. In addition, there is an actuated signalized pedestrian crossing and fire station access on Appian Way between Pebble Drive and La Paloma.

Bicycle lanes are classified as Class I, II or III as follows:

- **Class I** bike paths are physically separated from motor vehicle and pedestrian traffic;
- **Class II** on-street bike lanes are defined by a painted stripe;
- **Class III** bike routes are represented only by posted route signs.

According to the Contra Costa County Countywide Bicycle Master Plan (May 1995), 0.5 percent of commute trips are made via bicycle county-wide; in El Sobrante, bicycles are used for 0.4 percent of commute trips.

San Pablo Dam Road and Appian Way have been designated as part of the bikeway network with on-street facilities (Class II bicycle lanes or Class III bicycle route designation). While most of San Pablo Dam Road provides Class II bicycle lanes, only the Class III bicycle route designation exists through downtown El Sobrante. Appian Way provides Class II bike lanes between San Pablo Dam Road and Valley View Road, and continues with Class III bicycle route designation to the north.

Parking

On-street parking is allowed on the north side of San Pablo Dam Road for up to two hours, except for a short section that is limited to 20 minutes. On the south side, parking is prohibited except for a short section near Appian Way, allowing two-hour parking. On-street parking bays are provided periodically along Appian Way. Throughout the project area, off–street private parking is provided to serve commercial uses.

Observations made between 7:00 and 9:00 a.m. and 4:00 and 6:00 p.m., on Tuesday and Wednesday, May 8th and 9th, 2007 found less than half of the on-street parking spaces occupied with most of the parking occurring in off-street parking lots.

Regulatory Setting

Contra Costa County has several planning documents that provide policy and procedural guidance for transportation planning in the County. A brief description of key documents is provided below.

West County Action Plan 2000 Update

Service level standards for Routes of Regional Significance are to be established through a cooperative process among jurisdictions and are to be institutionalized in documents called Action Plans. In 2000, the *West Contra Costa County Action Plan for Routes of Regional Significance* was adopted for the West County jurisdictions. Traffic Service Objectives (TSOs) were established for these facilities. Table 5 summarizes the TSO's for the routes of regional significance within and near the study area, including El Portal Drive, San Pablo Dam Road, and Appian Way.

In addition to TSOs, the Action Plans contain actions that were cooperatively determined by the cities and the County to address the regional impacts of new development. Specific actions identified to help achieve each TSO goal are not reproduced here but can be found in the *Action Plan.*

Table 5 - Transportation Service Objectives

Roadway	TSO
El Portal Dr	Maintain LOS D on all segments of the roadway. By 2005, increase bus ridership by ten percent. By 2005, provide a bikeway network.
San Pablo Dam Rd	Maintain a delay index of 2.0 or better by 2005. Maintain a maximum wait time of no more than one cycle length for drivers on side streets. Achieve a drive alone rate of no more than 75%.
Appian Way	Maintain LOS E on all segments of the roadway. By 2005, increase bus ridership by ten percent. By 2005, provide a bikeway network.
Source: *West County Action Plan 2000 Update*, West Contra Costa County Transportation Advisory Committee, July 2000.	

Congestion Management Program

Passage of Proposition 111 in 1990 required each urban county in California to designate a Congestion Management Agency (CMA) to prepare and update a Congestion Management Program (CMP). In the fall of 1990, Contra Costa County and Contra Costa cities designated CCTA as the CMA. The most current CMP was updated by CCTA in 2001.

An objective of the CMP is to apply and monitor traffic LOS standards on designated state highways and principal streets, establishing a CMP Road Network. The CMP Road Network is a sub-set of the Routes of Regional Significance. The Contra Costa County CMP roads in the Project Area include San Pablo Dam Road and El Portal Drive. The CMP intersection LOS Standards for these roadways are set forth in Table 6.

Table 6 - CMP LOS Intersection Standards

Roadway	LOS Intersection Standard
El Portal Dr	LOS E at most signalized intersections. LOS F is an exception at the intersections of Road 20 and I-80 ramps.
San Pablo Dam Rd	LOS E at most signalized intersections. LOS F is an exception at the intersections of the I-80 ramps.

Source: *Contra Costa County Congestion Management Program*, Contra Costa County Transportation Authority, October 2001.

Project Conditions

Project Description

The County Board of Supervisors approved the Downtown El Sobrante Transportation and Land Use Plan (December 2001) as a planning document that establishes a vision for a more livable community in downtown El Sobrante. The downtown is envisioned as a place that invites walking and bicycling both among residents and visitors, while continuing to serve local and regional vehicle traffic. Since then the Contra Costa County Community Development Department and Public Works Department have been working with the El Sobrante community, specifically through the El Sobrante Municipal Advisory Committee, on a scaled-back version of the plan that would bring about less dramatic changes to the area. The scaled-back version of the plan reflects the community's sentiment that while revitalization of El Sobrante's commercial area is desirable, and updating corresponding policies in the General Plan are necessary, they are concerned about the intensity of development and impacts associated with this development. They are particularly concerned about traffic impacts associated with the proposed changes to the General Plan.

Land Use Element Changes

Implementation of the proposed project would include the following changes to the Land Use Element:

- For the area on San Pablo Dam Road between El Portal Drive and Appian Way, the project would re-designate the land use from commercial to mixed-use. The new mixed use designation would accommodate the addition of a maximum of 221,920 square feet of office and retail space and a maximum of 204 multi-family units. The actual amount of development that eventually occurs could be less than the maximum amounts set forth. The focal point would be the Village Center within an approximately 25-acre area bounded by Hillcrest Road and Pitt Way.

- The mixed-use designation would also extend along selected portions of Appian Way between San Pablo Dam Road and Valley View Road. The added development could reach up-to 180,665 square feet of office and retail space and 286 multi-family units.

Based on historic development patterns in El Sobrante and the vicinity, it is projected that 70 percent of the mixed-use designations would be developed with retail space and the remaining 30 percent would be developed with commercial and professional office uses.

These assumptions are made for the purpose of analysis. The actual mix of uses within the mixed use areas will depend on development trends and market opportunities over time.

Transportation-Circulation Element Changes

The proposed project includes two changes to the Transportation-Circulation Element amendments:

- The General Plan currently provides that San Pablo Dam Road would be converted to a westbound travel way as part of a one-way couplet through El Sobrante. The Downtwon El Sobrante General Plan Amendment would amend this General Plan provision and maintain San Pablo Dam Road as a two-way facility. The couplet concept would no longer be reflected in General Plan maps or diagrams. Instead, the cross-section of San Pablo Dam Road would be retained as a four-lane facility. In addition, streetscape improvements including improved pedestrian and bicycle facilities would be established along San Pablo Dam Road. A new two-lane roadway, based on an extension of Pitt Way to Hillcrest Road, would be included.

- The General Plan provides that Appian Way would be widened from an existing two-lane configuration to a four-lane facility in the future. The Downtown El Sobrante General Plan Amendment proposes to maintain the existing configuration of two vehicular travel lanes and the bike lanes.

Trip Generation Projections

Trip generation rates from the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition) Manual were used to estimate the trips generated by the residential, retail and office land uses proposed as part of the project.

Adjustments were made to the gross total trip generation to account for the benefits of vehicle trip reduction at multi-use facilities and pass-by trips. Appropriate mixed-use reductions were estimated using ITE's methodology in the *Trip Generation Handbook*. To account for mixed-use and pass-by trips, a reduction of 15 percent was applied to the gross total trip generation. Survey results show larger reduction factors than 15 percent; however, to be conservative because the specific use is not known at this time, this analysis assumes only 15 percent. This percentage reduction amounts to between a 24 and 29 percent reduction to the shopping related trips, which is within the range for trip generation adjustments by use of pass-by for shopping center (ranges from 0 to 60 percent reduction) as cited in the CCTA Technical Procedures Update. Trip reduction benefits of mixed use are less prevalent in the morning, and the ITE pass-by rates are only provided for the PM peak period. Therefore the reduction is not

assumed for the AM peak hour. It should also be noted that the 15% reduction is consistent with that applied in the March 2003 Downtown El Sobrante Redevelopment Draft EIR.

Table 7 summarizes the resulting trip generation during the AM and PM peak hours, as well as average daily conditions.

Table 7 - Project Trip Generation

Land Use	Units	Trip Rate			Trips		
		In	Out	Total	In	Out	Total
San Pablo Dam Road Corridor							
Multi-Family Residential: (Dwelling Units)[1]							
AM Peak Hour	204	0.10	0.41	0.51	21	83	104
PM Peak Hour	204	0.40	0.22	0.62	82	44	126
Daily	204	3.36	3.36	6.72	685	685	1370
Retail: (1,000 Square Feet)[2]							
AM Peak Hour	155	0.80	0.51	1.31	124	80	204
PM Peak Hour	155	1.12	1.42	2.54	173	221	394
Daily	155	21.51	21.51	43.02	3342	3342	6684
Office: (1,000 Square Feet)[3]							
AM Peak Hour	67	1.36	0.19	1.55	91	12	103
PM Peak Hour	67	0.25	1.24	1.49	17	82	99
Daily	67	5.51	5.51	11.02	367	367	734
Multi-Use Reduction:[4]							
PM Peak Hour					-41	-52	-93
Subtotal							
AM Peak Hour					**236**	**175**	**411**
PM Peak Hour					**231**	**295**	**526**
Daily					**4353**	**4342**	**8695**
Appian Way Corridor							
Multi-Family Residential: (Dwelling Units)[1]							
AM Peak Hour	283	0.10	0.41	0.51	29	115	144
PM Peak Hour	283	0.40	0.22	0.62	114	61	175
Daily	283	3.36	3.36	6.72	951	951	1902
Retail: (1,000 Square Feet)[2]							
AM Peak Hour	126	0.87	0.56	1.42	110	70	180
PM Peak Hour	126	1.13	1.44	2.57	143	182	325
Daily	126	21.54	21.54	43.08	2724	2724	5448
Office: (1,000 Square Feet)[3]							
AM Peak Hour	54	1.36	0.19	1.55	74	10	84
PM Peak Hour	54	0.25	1.24	1.49	14	67	81
Daily	54	5.51	5.51	11.02	298	298	596
Multi-Use Reduction:[4]							
PM Peak Hour					-41	-47	-88
Subtotal							
AM Peak Hour					**213**	**196**	**409**
PM Peak Hour					**230**	**263**	**493**
Daily					**3932**	**3926**	**7858**
TOTAL PROJECT TRIPS							
AM Peak Hour					**449**	**371**	**820**
PM Peak Hour					**461**	**558**	**1019**
Daily					**8285**	**8268**	**16553**

Notes:
[1] Multi-Family Residential total trip generation determined using average trip generation rate for LU 220 (Apartments). The number of trips then calculated by multiplying the trip generation rate by the number of dwelling units. The rates associated with the "Peak Hour of Adjacent Street Traffic" are used when available.
[2] Retail total trip generation determined using regression equations for LU 814 (Specialty Retail). Trip generation rates then calculated by dividing the number of trips by the square footage. Since neither average rate or regression equation is available for the AM Peak Hour of Adjacent Street Traffic for Specialty Retail, the AM peak hour trip generation was determined using regression equation for the AM Peak Hour of Adjacent Street Traffic for LU 820 (Shopping Center) which is identified in the ITE Trip Generation Manual as a related use and is based on a much larger sample size including neighborhood and community shopping centers.
[3] Office total trip generation determined using average trip generation rate for LU 710 (General Office). The number of trips then calculated by multiplying the trip generation rate by the number of dwelling units. The rates associated with the "Peak Hour of Adjacent Street Traffic" are used when available.
[4] A reduction of 15 percent has been applied to all uses during the PM peak hour to account for the trip reduction benefit of a multi-use facility. Daily total number of trips adjusted lower by the PM peak hour reductions.
Source: Institute of Transportation Engineers, *Trip Generation Manual, 7th Edition*.

As shown in Table 7, approximately 8,695 daily trips are expected with the San Pablo Dam Road development and about 7,858 daily trips are expected with the Appian Way development. During the morning peak hour, a total of about 820 trips would be generated by both sites; and during the evening peak hour, a total of about 1,020 trips would be generated.

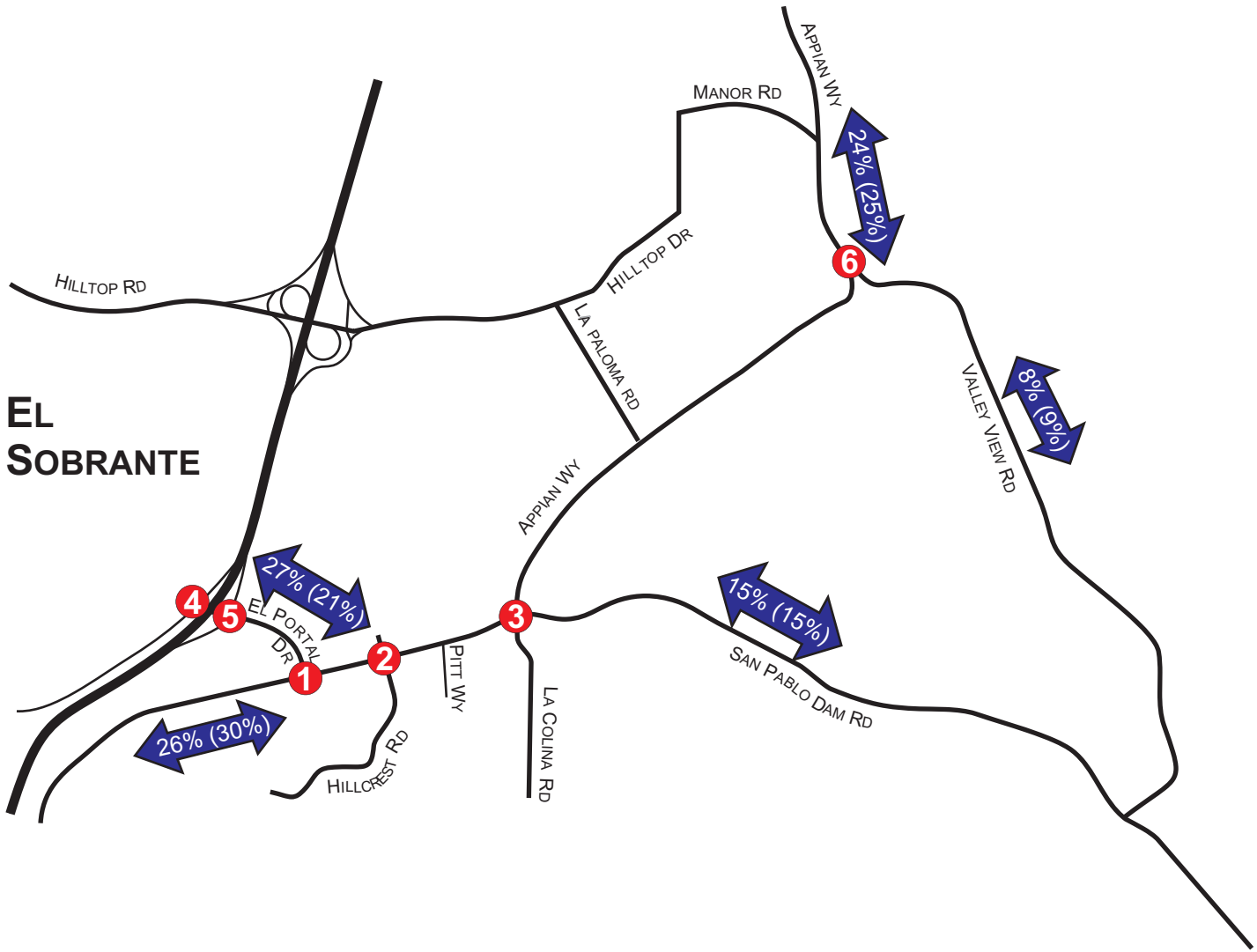
Trip Distribution and Assignment

Distribution and assignment of project trips was estimated using the CCTA Model select zone for traffic analysis zones (TAZs) in El Sobrante. The select zone results were used to estimate distribution patterns to local gateways.

Table 8, Project Trip Distribution, and Figure 4 summarizes the various distribution patterns. Using the percentages shown in Table 8, project trips were assigned to the road network based on their location. The project trips were added to the existing counts for existing plus project conditions. The proposed roadway system with the project is shown in Figure 5. The lane configuration on San Pablo Dam Road and Appian Way remain unchanged, but a new roadway connection is provided between Pitt Way and Hillcrest Road. The Existing Plus Project traffic volumes are shown in Figure 6.

Table 8 - Project Trip Distribution

Gateway	AM Distribution	PM Distribution
East of San Pablo Dam Rd and Appian Way Intersection	15%	15%
East of Appian Way and Valley View Rd Intersection	8%	9%
West of Appian Way and Valley View Rd Intersection	24%	25%
North of El Portal Dr and San Pablo Dam Rd Intersection	27%	21%
West of El Portal Dr and San Pablo Dam Rd Intersection	26%	30%



LEGEND

Y Study Intersection

AM% (PM%) Trip Distribution

N
W E
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Not to Scale

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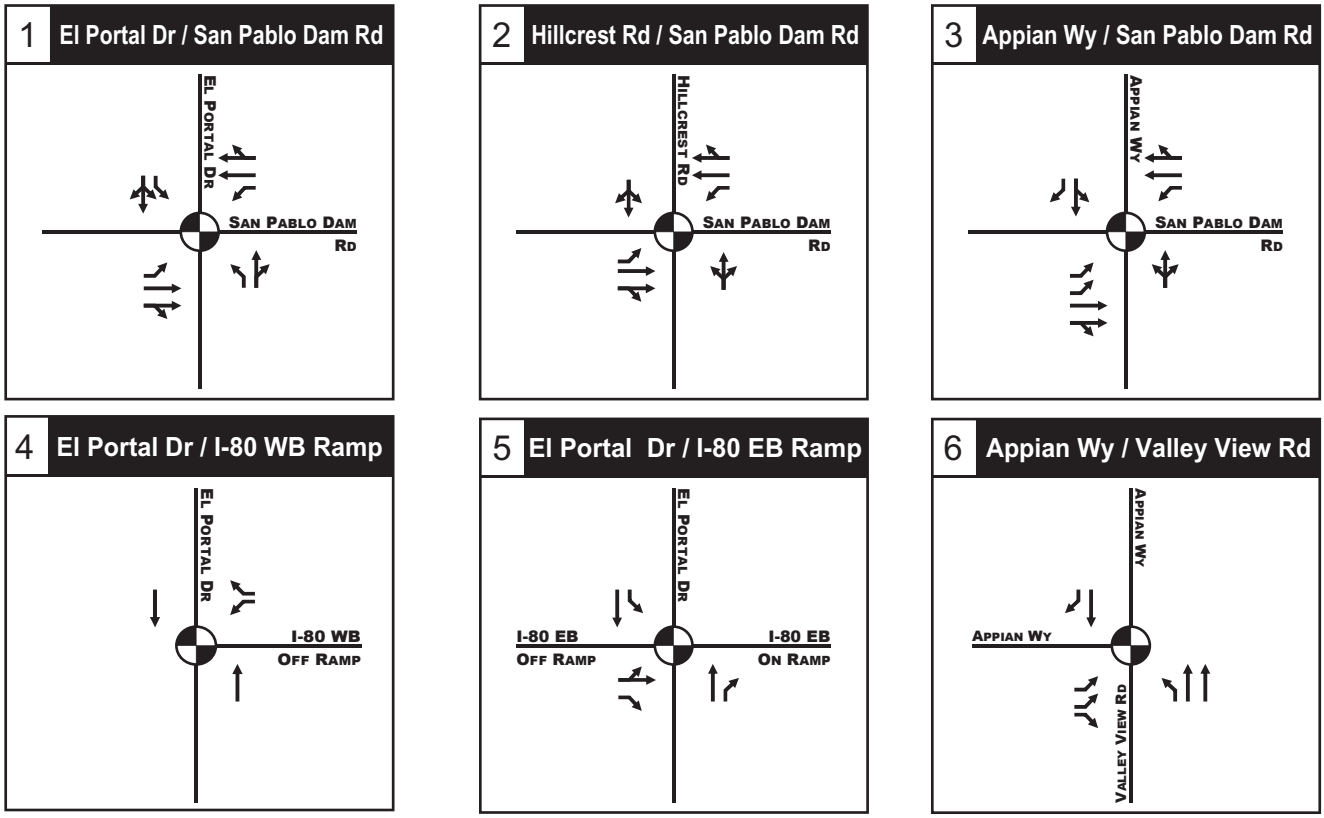
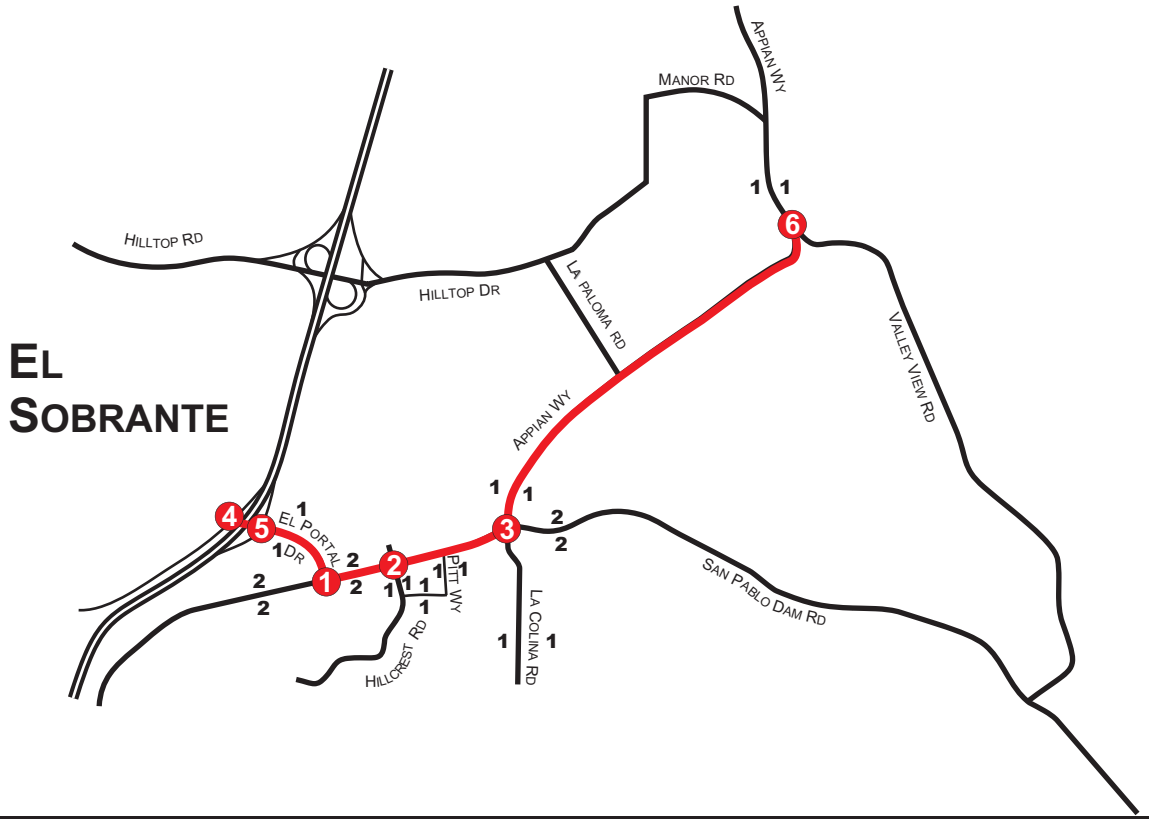
Downtown El Sobrante GPA

Figure 4
Trip Distribution for Existing and Existing plus Project Scenarios





LEGEND

34(12) AM(PM) Peak Hour Volumes

Traffic Signal

Study Roadway

N W E S

Not to Scale

Downtown El Sobrante GPA

Figure 5
Proposed Roadway Network

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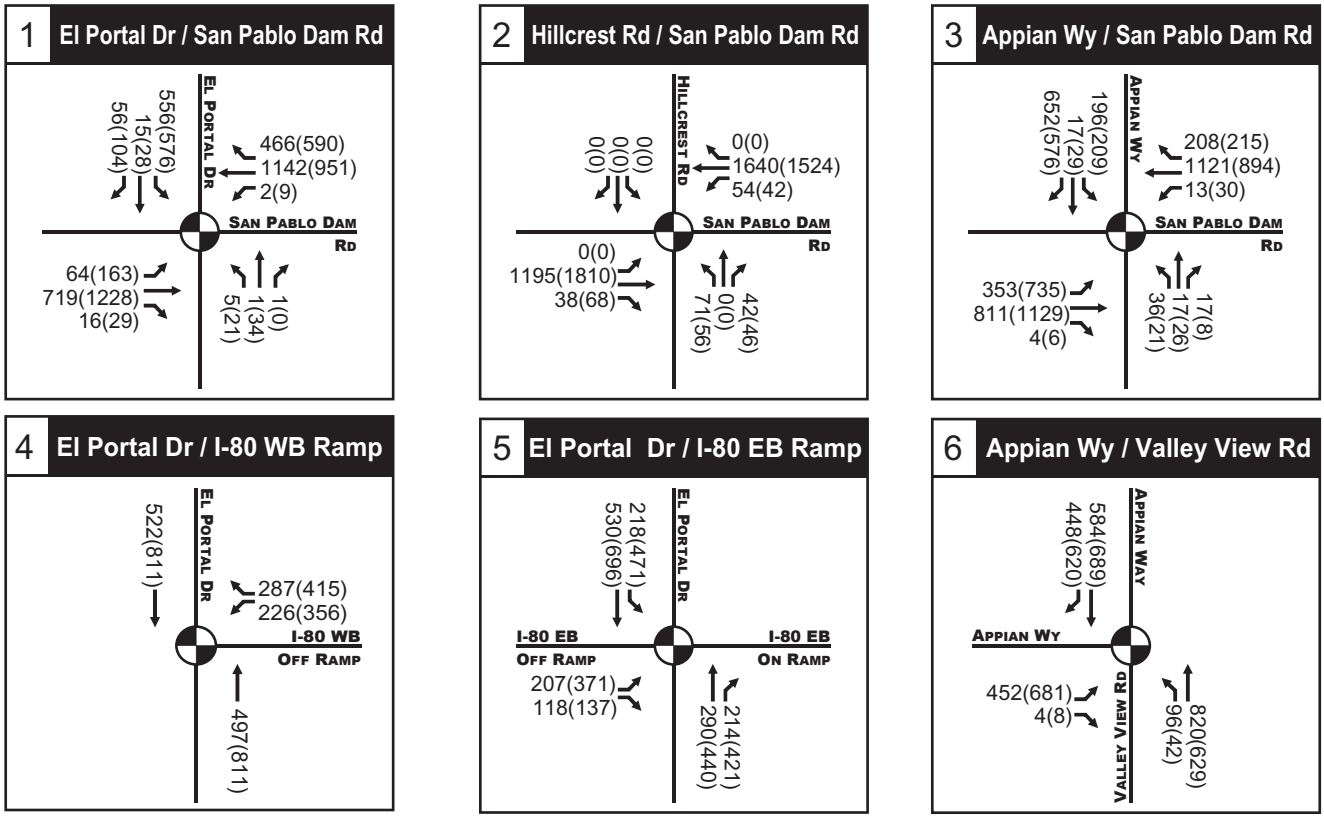

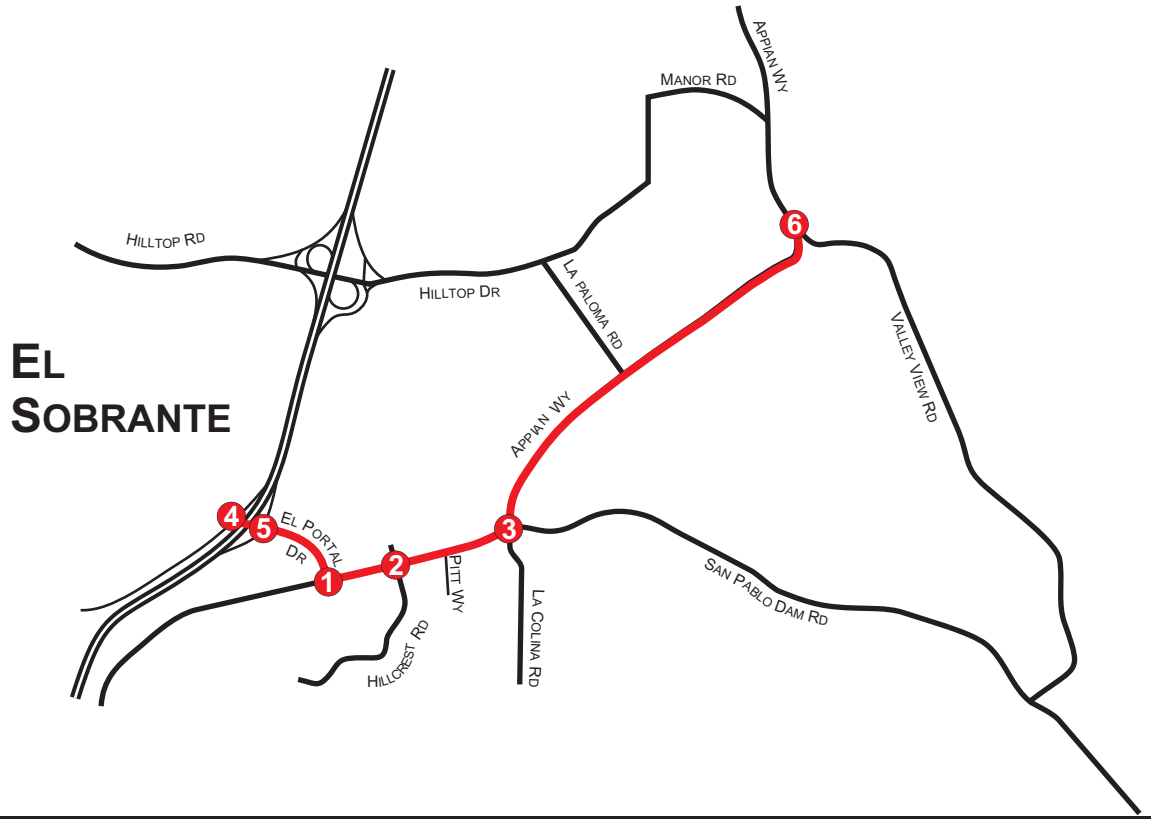

LEGEND

34(12) AM(PM) Peak Hour Volumes

Traffic Signal

Study Roadway

N
W E
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Not to Scale

Downtown El Sobrante GPA

Figure 6
Existing Plus Project
Intersection Volumes

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Traffic Analysis

Analysis Scenarios

The traffic analysis was performed in a manner consistent with the *Technical Procedures*, Contra Costa Transportation Authority (CCTA), July 19, 2006. The General Plan Amendment "Project" changes the ultimate land uses on selected blocks within the study area (see Figure 1)., The analysis identifies project impacts on the surrounding transportation network under the following scenarios:

- **Existing Conditions:** This scenario reflects transportation conditions in 2007.
- **Existing Plus Project Conditions**: This scenario represents near-term transportation conditions with the General Plan Amendment.
- **Cumulative Conditions:** This scenario represents long-term forecasted conditions with the General Plan Amendment (GPA). It considers future transportation conditions based on GPA growth through the year 2030 within Contra Costa County including the Project Area.

Traffic Forecasting

The cumulative scenario considers existing traffic, future background (through) traffic due to regional growth, traffic generated by development likely to occur in the Project Area, and project (GPA) traffic.

The Contra Costa Transportation Authority (CCTA) Travel Demand Model[5] was utilized to extract the base and future traffic volumes for year 2000 and 2030, respectively. The 2030 land use and socio-economic data were from the Association of Bay Area Governments (ABAG) *Projections 2003*. Year 2000 and 2030 model volumes were used to develop adjusted 2030 intersection turning movement volumes using the "Furness" process described in the CCTA *Technical Procedures*. For the 2030 roadway volumes, the increment in AM and PM peak hour volumes from 2000 to 2030 was applied to the existing counts. The origin-destination matrix estimation (ODME) balancing procedures were not applied for this study. Project traffic is also included within the cumulative scenario and will be discussed further in the next section.

[5] The forecasts were developed using the CCTA Model, version 4.8.

Existing Plus Project Levels of Service

The CCTALOS methodology was applied, producing the LOS results presented in Table 9 for Existing Plus Project conditions. Addition of project traffic would increase the volume-to-capacity (v/c) ratio at all the study intersections. However, with the addition of project traffic to existing conditions, all intersections would operate at LOS D or better.

Table 9 – Existing Versus Existing Plus Project Intersection Levels of Service

Study Intersection	Existing (v/c ratio / LOS)		Existing + Project (v/c ratio / LOS)	
	AM	PM	AM	PM
1. San Pablo Dam Rd / El Portal Dr	0.65 / B	0.65 / B	0.74 / C	0.82 / D
2. San Pablo Dam Rd / Hillcrest Rd	0.49 / A	0.53 / A	0.54 / A	0.63 / B
3. San Pablo Dam Rd / Appian Way	0.72 / C	0.60 / A	0.84 / D	0.76 / C
4. El Portal Dr / I-80 WB Ramps	0.42 / A	0.64 / B	0.45 / A	0.68 / C
5. El Portal Dr / I-80 EB Ramps	0.39 / A	0.69 / B	0.43 / A	0.75 / C
6. Appian Way / Valley View Dr [1]	0.51 / A	0.58 / A	0.54 / A	0.64 / B

Notes:

1. Although this intersection is striped as two through lanes and one right-turn pocket in the southbound direction, it operates and was therefore analyzed as one through lane and one right-turn lane. This assumption is based on the approaching lanes and their geometry, given right approaching lane is relatively short in length.

Source: CCTALOS based on *Technical Procedures*, CCTA, July 19, 2006.

With the addition of project traffic, the peak hour volumes on the roadways would increase. The resulting volumes and roadway LOS are shown in Table 10.

With the project, roadway LOS drops to LOS F on San Pablo Dam Road and Appian Way, and to LOS E during the PM peak hour on El Portal Drive.

Table 10 – Existing Versus Existing Plus Project Road Segment Levels of Service

Study Intersection	Existing Volume / LOS (Peak Direction)				Existing + Project Volume / LOS (Peak Direction)			
	AM		PM		AM		PM	
1. San Pablo Dam Rd[1]	995 / C (EB)	1537 / D (WB)	1525 / D (EB)	1153 / C (WB)	1233 / D (EB)	1711 / F (WB)	1878 / F (EB)	1580 / E (WB)
2. Appian Way[2]	377 / C (NB)	668 / D (SB)	623 / D (NB)	486 / D (SB)	578 / D (NB)	865 / F (SB)	976 / F (NB)	814 / E (SB)
3. El Portal Drive	453 / C (NB)	506 / D (SB)	616 / D (NB)	563 / D (SB)	531 / D (NB)	635 / D (SB)	787 / E (NB)	708 / D (SB)

Note:
1. With existing CLASS IV functional category
2. With existing geometry, 1-lane per direction

Source: *Highway Capacity Manual*, Transportation Research Board, 2000

Transit Service

The proposed General Plan Amendment is likely to generate new demand for transit service. The Downtown El Sobrante General Plan Amendment includes several measures that seek to improve transit ridership. These include development of mixed-use neighborhoods that are pedestrian oriented with improved sidewalks and/or bus stop bays where possible.. The goal of these proposals for future improvements is to create an environment that encourages transit use and provides greater opportunity for the community to use public transit.

Pedestrian and Bicycle Facilities

The proposed Downtown El Sobrante General Plan Amendment is likely to increase pedestrian and bicycle activity in El Sobrante. Because the General Plan Amendment will affect San Pablo Dam Road and Appian Way, more protected pedestrian crossings of these roadways may occur. Implementation of the General Plan Amendment will not directly disrupt, interfere or conflict with existing or planned bicycle and pedestrian facilities, but, rather, will enhance them with the implementation of pedestrian and bicycle improvements. Although the exact alignment of such improvements is not known at this time, the General Plan Amendment envisions improved sidewalks and cycling facilities, and pedestrian-oriented ground floor commercial uses, which will enhance the safety and travel experience for pedestrians and bicyclists.

Without the widening of Appian Way to four-lanes, the pedestrian crossings would be shorter with the two-lane configuration.

Parking

Although specific development proposal are not known at this time, the new land use designations along San Pablo Dam Road and Appian Way are likely to generate new parking demand. The extent of such demand, and the location of uses generating such demand, cannot be determined at this time, and would be identified and evaluated on a project-specific basis. The Downtown El Sobrante General Plan Amendment estimated that an additional 250 parking spaces would be developed in the downtown area, bringing the total to 1,000 spaces.

Cumulative Traffic Conditions

Trip Generation Projections

For the cumulative analysis, the trip generation is handled internally in Contra Costa Traffic Authority (CCTA) traffic demand model. The number of households and jobs were entered in the land use database to estimate the trips generated by the residential, retail and office land uses proposed as part of the project. The CCTA model predefines employment rate to 3.32 employees per 1,000 office-square-feet, and 1.62 employees per 1,000 retail-square-feet.

The commercial square feet projected was divided into 30% for office and 70% for retail. According to the CCTA model, office employment is accounted in other employment (OTHEMP), while the retail employment is accounted as RETEMP. The dwelling units were assumed to be multi-family units. The total population was based on the existing household population rate per Traffic Analysis Zone (TAZ) in the CCTA model.

Since the boundaries of the GPA fall within several TAZs and the model already assumes some growth in these TAZs, a detailed review of the land uses was conducted to estimate what portion of the growth was attributed to the GPA and what portion was outside of the GPA but within the TAZ. Table 11 shows the total household and employment numbers for each CCTA TAZ within the GPA area. The trip generation process is handled by the CCTA model including the daily, AM peak hour, and PM peak hour trips.

Table 11 – Model Land Use Data

CCTA TAZ	2000 Land Use Total		GPA Project Land Use Total	
	Year 2000 MF Households	Year 2000 Total Employment	Year 2030 MF Households	Year 2030 Total Employment
10185	392	184	596	712
10186	531	603	341	411
10187	389	268	403	285
10189	898	508	957	621
10192	898	311	1,033	311
10193	577	174	988	175
10197	900	312	1,011	312
Total	**4,585**	**2,360**	**5,329**	**2,827**

Figure 7 illustrates the model zones listed above.

Trip Distribution and Assignment

Trip distribution and assignment were done by using the CCTA Decennial Model with *Projections 2003* Land Use to distribute and assign traffic based on the revised land use. Figure 7 shows the cumulative intersection traffic volumes. These volumes represent the adjusted volumes that use the increment from the model to adjust the existing counts as described in the Technical Procedures' Furness adjustment.

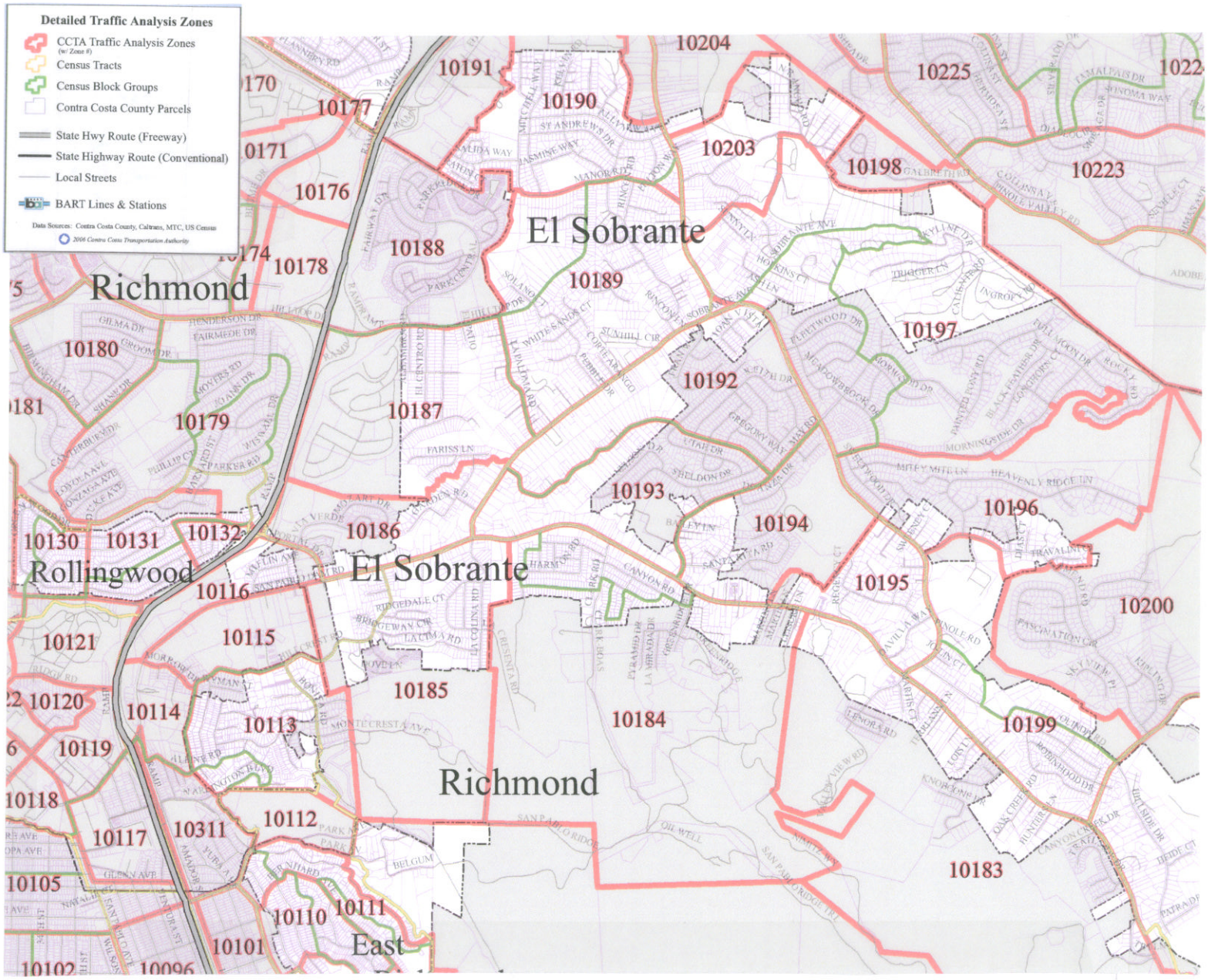
Cumulative Levels of Service

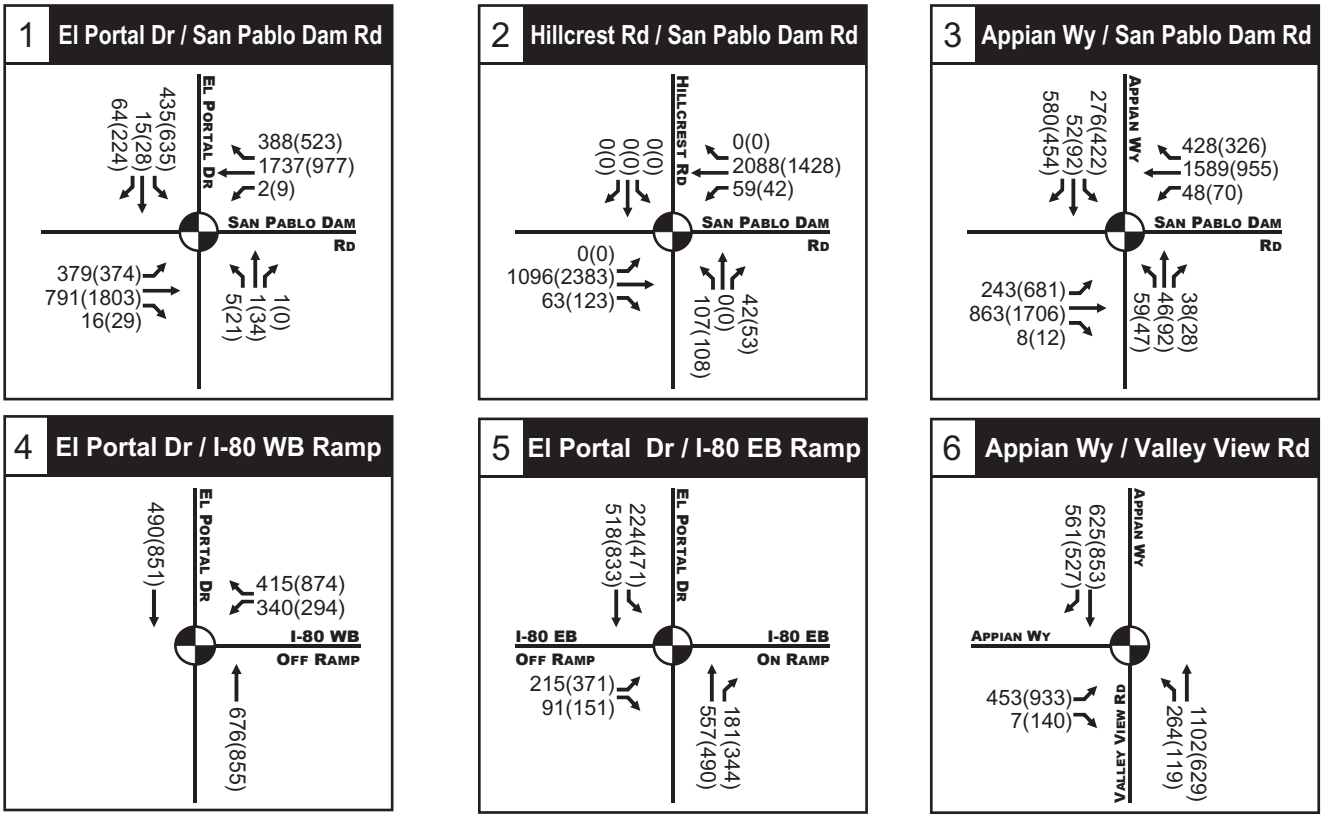
The CCTALOS methodology was applied to the cumulative scenario. Table 12 summarizes the LOS results of 2030 General Plan Amendment (GPA) scenario. The GPA scenario assumes no roadway modification. Both San Pablo Dam Road and Appian Way will operate under existing roadway condition, 4-lane and 2-lane for San Pablo Dam Road and Appian Way, respectively.

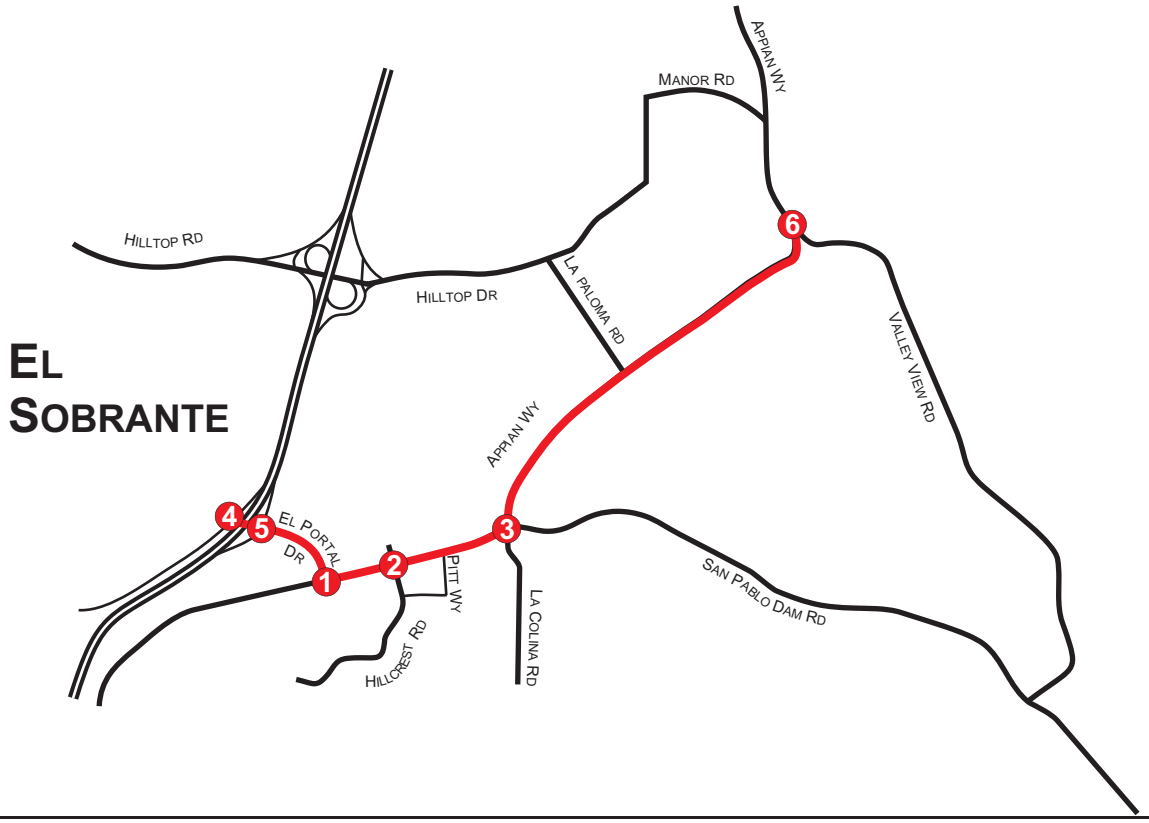
The addition of project traffic would contribute to congestion at several study intersections under Cumulative conditions. Traffic volumes would become 1% to 5% higher than capacity. By Year 2030, two intersections would operate at LOS F.

- Operations at San Pablo Dam Road / El Portal Drive would deteriorate to LOS F by 2030 during the AM peak hour.
- Operations at San Pablo Dam Road / Appian Way would deteriorate to LOS F by 2030 during both AM and PM peak hours.

Figure 7. Zonal Map







LEGEND

34(12) AM(PM) Peak Hour Volumes

Traffic Signal

Study Roadway

N
W E
S

Not to Scale

Downtown El Sobrante GPA

Figure 8

Cumulative Intersection Volumes

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Table 12 – Cumulative Intersection Levels of Service Summary

Study Intersection	2030 with GPA[1] (v/c ratio / LOS)	
	AM	PM
1. San Pablo Dam Rd / El Portal Dr	**1.05 / F**	0.99 / E
2. San Pablo Dam Rd / Hillcrest Rd	0.69 / B	0.85 / D
3. San Pablo Dam Rd / Appian Way	**1.05 / F**	**1.03 / F**
4. El Portal Dr / I-80 WB Ramps	0.61 / B	**0.96 / E**
5. El Portal Dr / I-80 EB Ramps	0.58 / A	0.77 / C
6. Appian Way / Valley View Dr [2]	0.66 / B	0.86 / D

Notes:
1. Assumes 2-lane Appian Way
2. Although this intersection is striped as two through lanes and one right-turn pocket in the southbound direction, it operates and was therefore analyzed as one through lane and one right-turn lane. This assumption is based on the approaching lanes and their geometry, given right approaching lane is relatively short in length.

Source: CCTALOS based on *Technical Procedures*, CCTA, July 19, 2006.

Future road segment levels of service are shown in Table 13. Under cumulative conditions, all three roadways would operate at LOS F conditions during one or both of the peak hours. As noted above, the trip generation, trip distribution, and assignment were conducted using the CCTA Decennial Model, which in some cases results in directional roadway volumes under the Cumulative condition as shown in Table 13 that are lower than the Existing Plus Project condition shown in Table 10. This difference can be attributed to the structure of the Countywide model, including trip generation based on household survey data for the region rather than standard ITE rates, and mode choice consistent with the MTC model.

Table 13 - Cumulative Road Segment Levels of Service

Study Intersection	2030 with Project (GPA) Volume / LOS (Peak Direction)			
	AM		PM	
1. San Pablo Dam Rd[1]	1159 / C (EB)	**2195 / F (WB)**	**2506 / F (EB)**	1536 / D (WB)
2. Appian Way[2]	717 / D (NB)	**908 / F (SB)**	**1099 / F (NB)**	**968 / F (SB)**
3. El Portal Drive	768 / D (NB)	514 / D (SB)	**931 / F (NB)**	**887 / F (SB)**

Note:
1. Class IV, 3-3 couplet for 2030 No Project; Class IV, 2 lanes each way for 2030 with Project
2. Class III, 2 lanes each way for 2030 No Project; Class IV, 1 lane each way for 2030 with Project

Source: *Highway Capacity Manual*, Transportation Research Board, 2000

Under GPA, San Pablo Dam Road and Appian Way would operate at LOS F during AM and PM peak hours by 2030. Furthermore, LOS F on El Portal Drive would occur by 2030 during the PM peak hour.

Delay Index

Delay Index is calculated based on the total free flow travel time and total average travel time, on selected links in the CCTA TransCAD travel demand model, during peak hours.

$$DI = \frac{\sum_i \bar{t}_i}{\sum_i FFT_i}$$

where $DI = \text{Delay Index}$,

$\bar{t}_i = \text{average travel time of link } i$,

$FFT_i = \text{free flow time of link } i$

The delay index was determined for San Pablo Dam Road between I-80 and State Route 24 in Orinda. The results are shown in Table 14.

Table 14 – Peak Hour Roadway Travel Speeds and Delay Index

TSO	Average Speed (mph)			Delay Index		
San Pablo Dam Rd (I-80 to SR 24)	TSO	EB	WB	TSO	EB	WB
2030 Cumulative Plus Project						
AM Peak Hour Roadway	15	34.33	25.76	2	1.17	1.49
PM Peak Hour Roadway	15	23.17	34.29	2	1.72	1.16

For San Pablo Dam Road, both average speed and delay index satisfy the Traffic Service Objectives (TSO) for both AM and PM Peak Hours.

Cumulative No Project Comparison

The cumulative conditions with the project traffic were compared to the cumulative impacts of the current General Plan. The land use inputs to the CCTA model were prepared for the current General Plan using the same approach as was applied to the GPA.

The General Plan household and total employment are compared to the GPA land uses in Table 15. While the total number of households does not change dramatically, the total employment for the GPA represents a decrease of almost 5,000 jobs when compared to the General Plan

Table 15 – Model Land Use Comparison

	GP Land Use Total		GPA Project Land Use Total	
CCTA TAZ	Year 2030 MF Households	Year 2030 Total Employment	Year 2030 MF Households	Year 2030 Total Employment
10185	491	2182	596	712
10186	341	739	341	411
10187	483	622	403	285
10189	1236	1733	957	621
10192	921	1106	1033	311
10193	1021	551	988	175
10197	1092	702	1011	312
Total	**5586**	**7636**	**5329**	**2827**

The current General Plan includes the widening of Appian Way to four lanes and the three-lane couplet on San Pablo Dam Road between El Portal and Appian Way. The GP land uses are assigned to the roadway network and the differences in volumes were compared to the GPA volumes as shown in Table 16. These volumes are ***raw*** model volumes, which have not been adjusted. The GPA volumes shown here are not directly comparable to those shown earlier in Table 13. However, the model volumes show the difference between the two forecasts.

With the additional lane of capacity in each direction on San Pablo Dam Road and Appian Way as part of the current General Plan, the volume-to-capacity ratio (v/c) decreases, but the peak hour volumes increase dramatically. This increase can be attributed to both the higher development with the GP, but also to additional freeway traffic avoiding the congestion on I-80.

Table 16 – Volume and Volume-to-Capacity Ratio Comparison

	2030 GP			
Roadway	volume / volume-to-capacity ratio (v/c)			
	AM		PM	
1. San Pablo Dam Rd	1154 / 0.40 (EB)	**3503 / 1.08 (WB)**	**3274 / 1.06 (EB)**	1862 / 0.65 (WB)
	3 lanes	3 lanes	3 lanes	3 lanes
2. Appian Way	603 / 0.32 (NB)	1745 / 0.78 (SB)	1912 / 0.94 (NB)	1277 / 0.67 (SB)
	2 lanes	2 lanes	2 lanes	2 lanes
3. El Portal Drive	**1305 / 1.45 (NB)**	375 / 0.42 (SB)	716 / 0.80 (NB)	**1480 / 1.64 (SB)**
	1 lane	1 lane	1 lane	1 lane

Table 17 – Volume and Volume-to-Capacity Ratio Comparison (Cont.)

	2030 GPA			
Roadway	volume / volume-to-capacity ratio (v/c)			
	AM		PM	
1. San Pablo Dam Rd	853 / 0.45 (EB)	**2680 / 1.26 (WB)**	**2816 / 1.28 (EB)**	1326 / 0.70 (WB)
	2 lanes	2 lanes	2 lanes	2 lanes
2. Appian Way	513 / 0.54 (NB)	883 / 0.80 (SB)	**1301 / 1.11 (NB)**	851 / 0.90 (SB)
	1 lane	1 lane	1 lane	1 lane
3. El Portal Drive	**946 / 1.05 (NB)**	529 / 0.59 (SB)	703 / 0.78 (NB)	**979 / 1.09 (SB)**
	1 lane	1 lane	1 lane	1 lane

Traffic Diversion

Based on the select link analysis conducted in December 2005 as part of Supplemental Transportation Analysis for El Sobrante General Plan, the model forecasts found that the widening of San Pablo Dam Road and Appian Way resulted in diversion off the freeway. The widenings of San Pablo Dam Road and Appian Way resulted in most changes in trips for sub-regional traffic to and from Pinole and Richmond, but also regional traffic to and from Solano and Alameda counties as well as San Francisco. The benefits of the widening were shown to be very limited for local trips with origins or destinations within El Sobrante.

However, due to the added capacity on San Pablo Dam Road and Appian Way, fewer trips would use Hilltop Drive and Richmond Parkway through the residential neighborhoods of El Sobrante.

Impacts and Mitigation Measures

Significance Criteria

Traffic

Based on CEQA guidelines, a traffic increase from the project or from cumulative development is considered to be a significant impact if the associated changes to the transportation system:

- Conflict with adopted environmental plans and goals of the community where it is located; or
- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.

These general CEQA provisions provide the basis for the specific criteria that have been applied in this EIR to evaluate the significance of project-related traffic increases. Based on the Contra Costa County General Plan and the TSO's outlined in the *West County Action Plan 2000 Update* (West Contra Costa County Transportation Advisory Committee, July 2000), the following standards of significance are set forth:

> A **significant impact** occurs if LOS E cannot be maintained at the intersections of San Pablo Dam Road / El Portal Drive, San Pablo Dam Road / Hillcrest Road, San Pablo Dam Road / Appian Way, El Portal Drive / I-80 WB Ramps, El Portal Drive / I-80 EB Ramps, and Appian Way / Valley View Road.
>
> A **significant impact** occurs if LOS D cannot be maintained on all segments of El Portal Dr.
>
> A **significant impact** occurs if LOS E cannot be maintained on all segments of Appian Way.
>
> A **significant impact** occurs if Delay Index of 2.0 cannot be maintained on San Pablo Dam Road or maximum wait time of no more than one cycle length for drivers on side streets of San Pablo Dam Road.

Alternative Transportation Modes

Based on CEQA guidelines, an impact on alternative transportation modes from the project or from cumulative development is considered to be significant if associated changes to the transportation system result in:

- Conflicts with adopted policies supporting alternative transportation modes (e.g., bus turnouts, bicycle racks). The project is solely responsible for the mitigation of an impact thus created; or
- Insufficient capacity of alternative transportation modes that will result in increased use of the automobile or will discourage use of alternative modes of transportation. The project is solely or partially responsible for the mitigation of such impact depending on conditions that would exist in the absence of the project.

Based on the Contra Costa County General Plan and the TSO's outlined in the *West County Action Plan 2000 Update* (West Contra Costa County Transportation Advisory Committee, July 2000), the following standards of significance are applied:

> A **significant impact** occurs if the project directly disrupts, interferes, or conflicts with existing or planned alternative transportation services or facilities, discouraging the use of alternative modes.
>
> A **significant impact** occurs if there is an increase in the number of conflict points between motorists, bicyclists, and pedestrians.
>
> A **significant impact** occurs if there is insufficient provision for pedestrian and bicyclist facilities to accommodate access to community facilities, residential areas, business districts, and other points of public interest.

Parking

Based on CEQA guidelines, a parking impact from the project or from cumulative development is considered to be significant if the associated changes to the transportation system result in:

- Insufficient parking capacity on-site or off-site that may cause illegal parking; or,
- Conflicts with parking design standards.

The project is solely responsible for the mitigation of an impact thus created. No specific County objectives are set forth for parking; however, based on CEQA guidelines, the following standard of significance is set forth for the project area:

> A **significant** impact occurs if the redeveloped parcels cannot accommodate parking demand after development or if the parking does not meet design standards.

Traffic Impacts and Mitigations

Intersection Levels of Service

Impact 1: The Downtown El Sobrante General Plan Amendment would increase volumes at studied intersections.

Discussion and Conclusion: The traffic generated by development assumptions under the Downtown El Sobrante General Plan Amendment would result in, and contribute to future unacceptable operations at the intersections of: San Pablo Dam Road/El Portal Drive and San Pablo Dam Road/Appian Way. These intersections will operate at LOS F under Cumulative conditions, which exceed the threshold of significance.

The impact of future development, including that under the General Plan Amendment, occurs at some point when the levels of service at these two intersections are expected to violate the Congestion Management Program standards discussed above. If and when monitoring of traffic at these intersections reveals that a deficiency has occurred, the County will work with the Contra Costa Transportation Authority to develop a deficiency plan as required by the Congestion Management Program (2001 Update to the Contra Costa Congestion Management Program, Chapter 8, Deficiency Planning, page 77). These efforts do not provide a sufficient level of certainty with regard to the funding of design and implementation costs to mitigate the potential impact.

This impact is **potentially significant.**

Mitigation Measure: The following measures would lessen the severity of the identified impacts:

A. Widen westbound San Pablo Dam Road approaching El Portal Drive to include an exclusive right-turn pocket.

B. Widen westbound San Pablo Dam Road approaching Appian Way to include an exclusive right-turn pocket.

Effectiveness of Mitigation Measure: Implementation of Mitigation Measure A would improve future intersection operations to LOS E during the morning peak hour; however, future intersection operations would be LOS D during the evening peak hour.

Implementation of Mitigation Measure B would improve future intersection operations to LOS E during the morning and evening peak hours.

It should be noted that the identified mitigation measure at San Pablo Dam Road and El Portal Drive may need additional right-of-way on the northeast corner of this intersection. In addition, the identified

mitigation measure at the intersection of San Pablo Dam Road and Appian Way may require widening into the San Pablo Creek. Additional engineering evaluation would be required to ensure that the identified mitigations could be implemented.

With the delays at the intersection of San Pablo Dam Road and Appian Way, this intersection serves to meter traffic coming into downtown El Sobrante from the east. By adjusting the signal timing at this intersection, the County could slow traffic and control the number of vehicles entering downtown El Sobrante on either San Pablo Dam Road or Appian Way. The operations of this intersection would affect the queue on San Pablo Dam Road, which has the potential to back-up into upstream intersections.

Implementation of the above mitigation measures would reduce the impacts to a less than significant level.

Table 17 – Cumulative Intersection Levels of Service – With Mitigations

Study Intersection	2030 with GPA[1] - Mitigated (v/c ratio / LOS)	
	AM	PM
1. San Pablo Dam Rd / El Portal Dr	0.93 / E	0.88 / D
3. San Pablo Dam Rd / Appian Way	0.92 / E	0.98 / E

Notes:
1. Assumes 2-lane Appian Way
2. Although this intersection is striped as two through lanes and one right-turn pocket in the southbound direction, it operates and was therefore analyzed as one through lane and one right-turn lane. This assumption is based on the approaching lanes and their geometry, given right approaching lane is relatively short in length.

Source: CCTALOS based on *Technical Procedures*, CCTA, July 19, 2006.

Roadway Segment Level of Service

Impact 2: The Downtown El Sobrante General Plan Amendment would contribute to unacceptable levels of service on San Pablo Dam Road, Appian Way and El Portal Drive

Discussion and Conclusion: The traffic generated by development assumptions under the General Plan Amendment would result in and contribute to future unacceptable operations on El Portal Drive, Appian Way, and San Pablo Dam Road. These roadway segments will operate at LOS E or F under Existing Plus Project and/or Cumulative conditions.

This impact is **potentially significant.**

Mitigation Measures: As an alternative to constructing the San Pablo Dam Road couplet and the widening of Appian Way, which result in community disruption, right-of-way acquisition, overwhelming of the

County's financial and staff resources, and traffic diversion from the congested I-80 freeway, the following measures would lessen the severity of the identified impacts:

A. Provide signal coordination along the corridors where signals are closely spaced.

B. Modify signal timings to establish a traffic gateway at key signalized intersection(s) to meter traffic entering the El Sobrante area.

C. Minimize additional driveways during development review process.

D. Implement streetscape improvements along San Pablo Dam Road and Appian Way to support and encourage alternative modes of transportation.

Effectiveness of Mitigation Measure: Implementation of Mitigation Measure A would control the flow of traffic along the main corridors, while implementation of Mitigation Measure B would meter traffic into the El Sobrante area .

Implementation of Mitigation Measure C would minimize additional driveways which result in mid-block vehicular turning movements that would adversely affect the through traffic stream as well as pedestrian environment. In addition, adequate access and facilities for pedestrians and cyclists will be planned at the development sites.

Implementation of Mitigation Measure D is intended to improve the appearance and accessibility of these facilities to support walking, bicycling, and the use of public transit.

While these measures would improve the flow of traffic on these corridors, it is difficult to determine whether or not the aforementioned improvements would be sufficient to fully mitigate identified impacts without further detailed traffic operations analyses, particularly when evaluating the 2030 traffic conditions, and assumptions on the effectiveness of the design measures. Therefore, the impact on the roadway segment LOS is considered to be a **significant and unavoidable** impact.

Impact 3: The Downtown El Sobrante General Plan Amendment would contribute to diversion of commuter traffic onto local streets within the Project Area.

Discussion and Conclusion: Future congestion on San Pablo Dam Road, Appian Way and El Portal Drive would result in diverting some cut-through traffic on the local streets of Hilltop Drive neighborhood.

The cut-through traffic on local streets is considered to be a **potentially significant impact**.

Mitigation Measure: To address the neighborhood cut-through traffic, the County shall work with the local community to develop a comprehensive Traffic Calming Program.

Effectiveness of Mitigation Measure: A comprehensive Traffic Calming Program for the Hilltop Drive neighborhood may include measures to reduce speeds and restrict access to reduce diversion into the neighborhood residential streets.

Implementation of the design and operational improvements on the major corridors (described under impact #2) combined with the establishment of a traffic calming program on the local streets would eliminate/minimize diversion of commuter traffic onto the residential community to a **less than significant** level.

Traffic Service Objectives (TSOs)

Impact 4: Under 2030 cumulative conditions with the Downtown El Sobrante General Plan Amendment, the average speeds and delay index on San Pablo Dam Road would not exceed the traffic service objective (TSO).[6]

Discussion and Conclusion: The average speeds and delay index were determined for San Pablo Dam Road between I-80 and State Route 24 in Orinda. With TSOs of 2.0 for delay index and 15 mph for average speeds for San Pablo Dam Road, both average speed and delay index satisfy the Traffic Service Objectives (TSO) for both AM and PM Peak Hours.

The impact of the GPA on the delay index is considered to be a **less than significant impact**.

Mitigation Measure: No mitigation measures are required.

[6] The TSO for side street wait time was not applied. The side street wait time would depend upon the actual signal cycle length and the signal timing, which would require more detailed intersection operations analysis than is typically required of planning-level study. Specifically, the CCTALOS methodology required for the intersection LOS analysis is capacity-based and does not include the signal timing. Assumptions on signal timing, phasing, and cycle length would be required to prepare the more detailed operations analysis using 2030 forecasts of future demand that do not account for intersection operations and capacity constraints.

Alternative Modes Impacts and Mitigations

Transit Services

Impact 5: The Downtown General Plan Amendment may generate new demand for transit services and facilities.

Discussion and Conclusion: The proposed General Plan Amendment may generate increased demand for transit service. Increased ridership on bus routes may exceed the capacity of the existing and planned transit system, despite the current low ridership along these corridors.

The GPA is intended to increase transit ridership by adding mixed-use developments along the corridor, improving access to bus stops, and providing amenities at bus stops. With the added residential development and increased commercial uses along San Pablo Dam Road and Appian Way, the GPA provides an opportunity for future transit service. For instance, Route L currently does not extend east of El Portal and the former Tranbay service along San Pablo Dam Road was discontinued. The added developments in Downtown El Sobrante combined with the congestion along I-80 provide an opportunity for increased transit services. This impact is considered **potentially significant**.

Mitigation Measure: The County shall consult with AC Transit prior to the approval of individual projects that may significantly increase transit patronage. Increases in transit demand generated by individual projects shall be assessed at the time application is made. Individual projects shall provide mitigation to accommodate increases in transit demand, if necessary.

Effectiveness of Mitigation Measure: Implementation of the above mitigation measure will reduce this impact to a **less than significant** level

Pedestrian Activity

Impact 6: The Downtown General Plan Amendment is intended to enhance and improve the pedestrian connectivity.

Discussion and Conclusion: The proposed General Plan Amendment could be viewed as generating additional conflicts between motor vehicles on the one hand, and pedestrians and bicyclists on the other. The baseline for environmental review, however, is the existing physical environment, and the conditions to which motorists, pedestrians and bicyclists are now exposed.

The existing conditions in the area are not conducive to pedestrian and bicycle travel. Motor vehicle traffic on San Pablo Dam Road is concentrated, moves at relatively high speed, and allows little or no room for safe bicycle travel. Appian Way has few amenities for bicycle travel. The existing development along both San Pablo Dam Road and Appian Way provide few amenities that would encourage pedestrians to visit or stay. Movement of motor vehicles to and from businesses along both San Pablo Dam Road and Appian Way currently creates conflicts with pedestrians and bicyclists.

The proposed General Plan Amendment seeks to promote pedestrian and bicycle facilities and access. It also seeks to encourage development and infrastructure design that would remove or reduce conflicts with motor vehicles. Strategies to reduce the speed of motor vehicle traffic include the installation of medians, construction of the roadway connecting Pitt Way to Hillcrest Road, and potential installation of marked bicycle lanes where feasible. The proposed General Plan Amendment would include specific policies and measures to provide pedestrian pathways and sidewalks that connect existing and proposed developments with the area parks, public gathering places, and the El Sobrante Public Library. Contra Costa County General Plan Policy 5-25 calls for a system of safe and convenient pedestrian ways as a means of connecting community facilities, residential areas, and business districts. This impact is **beneficial.**

Mitigation Measure: No mitigation measures are required.

Bicycle Access

Impact 7: The Downtown General Plan Amendment may generate new bicycle activity within the area.

Discussion and Conclusion: While the proposed General Plan Amendment would not directly disrupt, interfere, or conflict with existing or planned bicycle facilities, the changes to the General Plan may result in greater bicycle activity within the area. This in turn could result in increased conflict points between motorists and bicyclists. Contra Costa County General Plan Policy 5-13 requires physical conflicts between vehicular traffic and bicyclists to be minimized. This impact is **significant**.

Mitigation Measure: The County shall require integration of bicycle facilities within the area. When individual development applications are received, the County shall ensure that adequate bicycle parking, access facilities, and signage are provided and oriented to encourage bicycle travel.

Effectiveness of Mitigation Measure: Mitigation Measure would ensure that planning for bicycle access and travel would occur in connection with the review of individual project applications in the

area as they are submitted. Implementation of this mitigation measure would reduce this impact to a **less than significant** level.

It should also be noted that special considerations (through proper design, signal operation, etc.) will be taken when possibly implementing the recommended westbound right-turn lane on San Pablo Dam Road at each of Appian Way and El Portal Drive. Such considerations will be taken to minimize any potential impacts of added roadway capacity on the pedestrian and bicycle movements.

Parking Impacts

Impact 8: The Downtown El Sobrante General Plan Amendment will generate new parking demand associated with development within the area.

Discussion and Conclusion: Mixed use designations that provide for commercial and multiple family housing developments within the area will generate new parking demand that may exceed existing parking supply. This impact is **potentially significant**.

Mitigation Measure: When individual development applications are received, the County shall apply General Plan Policy 5-19 which requires individual projects to provide adequate off-street parking to serve anticipated parking demand generated by the site, or contribute funds, and/or institute programs to reduce parking demand. The possibility of shared parking because of the complementary nature of residential and commercial uses shall be considered when assessing appropriate parking supply.

Effectiveness of Mitigation Measure: Implementation of the above mitigation measure would reduce this impact to a **less than significant** level.

CMP Compliance

Land Use Evaluation Program

The CCTA model was used to forecast cumulative conditions. The land use inputs for the study area and surrounding zones in West County were reviewed and updated to reflect the latest development project lists from the County and the City of Richmond. The future roadway network was reviewed and updated. Model runs were prepared for the Year 2000 Validation and Year 2030 Forecast.

LOS Standards

CMP LOS standard were used to develop the significance criteria and intersection and roadway LOS were analyzed. The CMP LOS intersection standard of LOS E at most signalized intersections, except at intersections that were already operating at LOS F at program inception. The following intersections would be non-compliant in 2030:

- San Pablo Dam Road / El Portal Drive
- San Pablo Dam Road / Appian Way