HACIENDA - TRANSIT ORIENDTED DEVELOPMENT

Traffic Analysis

Prepared by:
City of Pleasanton

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Introduction

This report documents the Transportation Impact analysis (TIA) for the Hacienda Transit Oriented Development (TOD) Project in Pleasanton California. The proposed refinement to the Hacienda Planned Unit Development (PUD) allows the conversion of the land use on three parcels, from Office to mixed use residential and retail. This potential conversion eliminates the 732,832 square feet of future office on the Shaklee and Roche Molecular parcels and potentially replaces the office with 1595 housing units (333 units in General Plan + 1262 new units – total units equal 55 units/acre) and 30,000 square feet of retail. The purpose of this study is to determine and address the transportation effects of the allowed development on the surrounding street system.

Analysis Scenarios

The Traffic Impact Analysis is based on the following development conditions:

Existing Traffic Conditions

Existing traffic conditions are based on the existing roadway geometries and traffic controls. The traffic counts used in the City of Pleasanton Travel Demand Model and are used as the base case benchmark.

Cumulative conditions without the project

Based on the City of Pleasanton's 2005 General Plan Model. This model includes all land use changes approved with the 2005 General Plan update (preferred plan model) and a placeholder for future Bart development. All assumed roadway geometry changes included in the 2005 General Plan are included in the model.

Cumulative conditions with the project

Based on the City of Pleasanton's 2005 General Plan Model. This model includes all land use changes approved with the 2005 General Plan update (preferred plan model) and a placeholder for future Bart development. All of the allowed land use and roadway geometry changes in the proposed project are included in the model.

Analysis Methods

In order to forecast the General Plan traffic volumes and LOS, the City of Pleasanton has developed a comprehensive traffic forecasting model. Summarized briefly, the model utilizes information regarding the city's existing and future land uses as well as the existing and future roadway network to project traffic volumes and the performance of major intersections within the city.

Using the land development present in Pleasanton in 2006, the model was calibrated such that the model's traffic volumes and distribution projections for the "existing" conditions closely matched the actual traffic counts collected in the spring of 2006. Based on the assumption that the model then closely reflects the city's real-life roadway network, traffic controls, and local and regional traffic origins and destinations, the model is able to simulate changing traffic conditions and travel patterns as land

development adds additional traffic to the roadway network and as various network improvements are made to the transportation infrastructure.

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (i.e., best operating conditions) to LOS F (worst operating conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F.

Table 1 relates the operational characteristics associated with each level of service category for both signalized and unsignalized intersections.

Table 1 – Intersection Level of Service Definitions

Level of Service	Description	Signalized Average control delay per vehicle (sec/vehicle)	Unsignalized Average control delay per vehicle (sec/vehicle)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

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

Existing Conditions

This section describes the existing transportation conditions in the project study area, including the roadway network and transit, pedestrian, and bicycle facilities in the vicinity of the Project site.

The project area is located along Owens Drive and Willow Road and includes three separate parcels.

I-580 extends in an east/west direction, from San Rafael toward Tracy and the San Joaquin Valley. In the vicinity of Pleasanton, I-580 forms the northern city boundary with four to five lanes in each direction

Hopyard Road is a southeast-northwest arterial which begins at Del Valle Parkway in the southeast and ends north of I-580. Hopyard Road varies in width from between two and six travel lanes, and the speed limit varies between 35 and 40 mph.

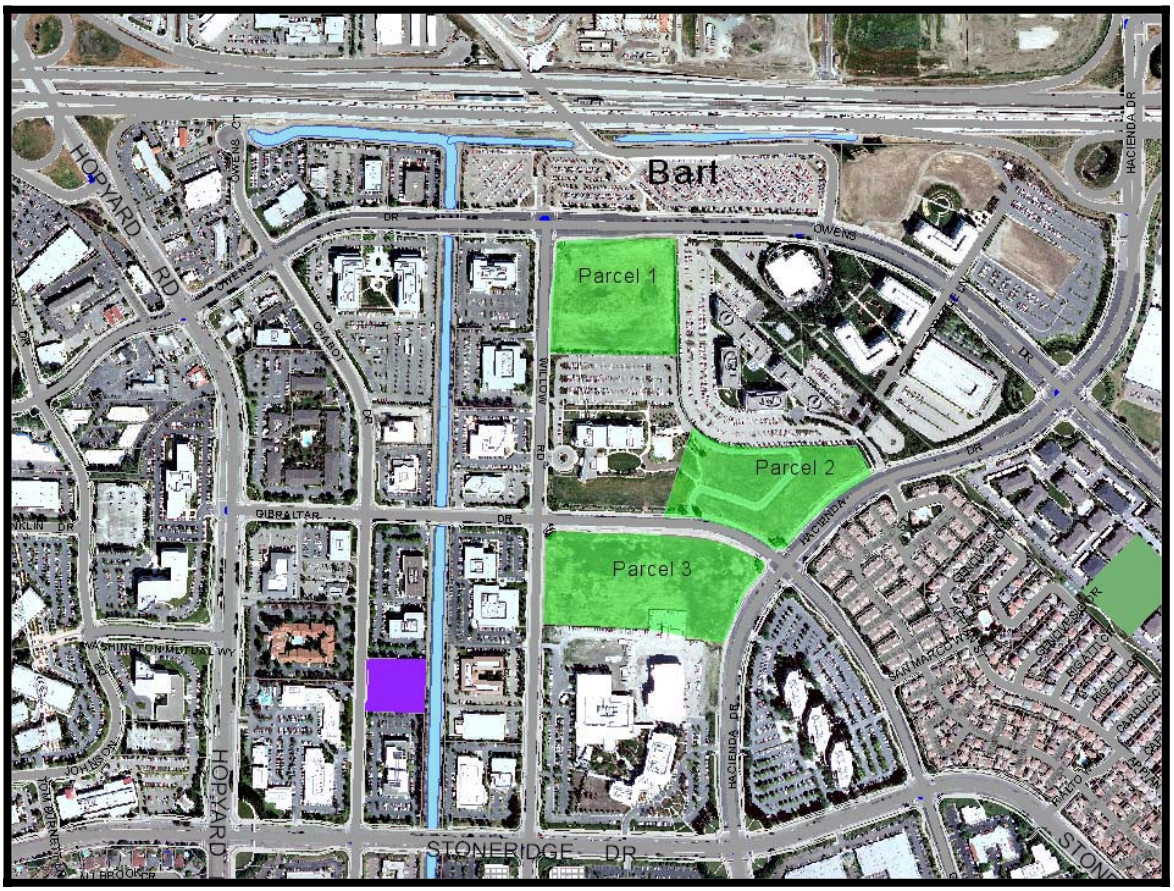
Owens Drive is a predominately east-west arterial that extends from Johnson Drive in the west to West Las Positas Boulevard in the east. Owens Drive provides 6 travel lanes with no on-street parking permitted. The speed limit is 40 mph from Johnson Drive to the Chabot Canal, 45 mph from the Chabot Canal to Rosewood Drive and 40 mph from Rosewood Drive to West Las Positas Boulevard

Willow Road is a north-south arterial that extends from Owens Drive in the north to West Las Positas Boulevard in the south. There are 4 travel lanes with no on-street parking permitted. The speed limit is 40 mph north of Stoneridge Drive and 35 mph south of Stoneridge Drive.

Hacienda Drive is predominately a north-south arterial that extends from I-580 in the north to West Las Positas Boulevard in the south. There are 6 travel lanes separated by a landscaped median with no on-street parking. The speed limit is 40 mph on the entirety of this roadway. This roadway provides direct access to I-580 for the Hacienda Business Park.

Gibraltar Drive is a 4 lane arterial that forms a half loop roadway intersecting with Hopyard Road in the north and Willow Road in the south. On-street parking is prohibited and the speed limit is 35 mph on the entirety of this roadway.

Stoneridge Drive is an east-west arterial that extends from Foothill Road in the west to Trevor Parkway in the east and provides direct access to I-680. There are 6 travel lanes between Foothill Road and Willow Road, 5 travel lanes (2 for eastbound and 3 for westbound) between Willow Road and West Las Positas Boulevard and 4 travel lanes for between West Las Positas Boulevard and Trevor Parkway. The speed limit is 40 mph between Foothill Road and Stoneridge Mall Road, 45 mph between Stoneridge Mall Road and Hopyard Road, 40 mph between Hopyard Road and Santa Rita Road and 35 mph between Santa Rita Road and Trevor Parkway. On-street parking is prohibited on this roadway. The City of Pleasanton plans on extending Stoneridge Drive to the east to connect with El Charro Road as part of the Staples Ranch Development.



EXISTING LOS

The level of service baseline used for this analysis is the General Plan Model Existing Conditions. Intersection level of service (LOS) was analyzed for the weekday morning (AM) and evening (PM) peak-hours, using methodologies described in the 2000 Highway Capacity Manual by the Transportation Research Board and the volumes used are based on modeled intersection vehicle turning movements. Signalized intersection analyses were conducted using the operational methodology outlined in the Highway Capacity Manual. This procedure calculates an average stopped delay in seconds per vehicle at a signalized intersection and assigns a level of service designation based upon the delay.

Pleasanton's General Plan, Chapter III, Policy 2, Program 2.2, states that a significant impact will occur when the Project causes an intersection to operate at LOS E or worse.

The level of service for each roadway is included in Appendix A. The three intersections listed in Table 2 are the three intersections within Hacienda Business Park that experience unacceptable levels of service today.

Table 2 - Existing Intersections – unacceptable Level of Service

NS Street	EW Street	AM PEAK		PM PEAK	
		Existing		Existing	
		LOS	Delay	LOS	Delay
Hacienda	Owens Drive	C	22.5	F	96.4
Hopyard	Owens Drive	D	36.2	F	345.5
Hopyard	Stoneridge	D	44.2	E	78.4

The City of Pleasanton General Plan has identified mitigations for each of these intersections that will return the intersections to an acceptable level of service at build out. (see page 3-22 of Pleasanton General Plan).

TRANSIT SERVICE

Several forms of transit and transit agencies operate within the City of Pleasanton. The Livermore Amador Valley Transit Authority (LAVTA) operates Wheels, which provides local bus service within Pleasanton. The regional heavy rail system, BART (Bay Area Rapid Transit District), operates a single station within the city and connects Pleasanton with the rest of the Bay area.

The Altamont Commuter Express (ACE) also has a stop in Pleasanton and provides commuter rail service from Stockton to San Jose.

Wheels Transit

Wheels is a service of the greater LAVTA which provides public transit to Dublin, Livermore, and Pleasanton. Wheels provides bus service to the Hacienda Business Park via routes 1, 3, 8, 9, 10, and 54.

Route 1A/1B provides service from the east Dublin/Pleasanton BART station to the Rosewood Pavilion shopping center, Carr America Corporate Center, and the City of Dublin.

Route 3/3V provides service from the east Dublin/Pleasanton BART station to Stoneridge Mall and Dublin. Route 3/3V routing includes Owens Drive along the BART frontage.

Route 8 connects the east Dublin/Pleasanton BART station and the Hacienda Business Park with downtown Pleasanton. The primary routing is along Hopyard Road to the Bart station using Owens Drive along the BART frontage.

Route 9 provides weekday peak hour service from the east Dublin/Pleasanton BART station to employment destinations in the Hacienda Business Park. Route 9 uses both Willow Road and Owens Drive along the BART frontage.

Route 10 provides service between Stoneridge Mall, the east Dublin/Pleasanton BART station, and Livermore.

Route 54 provides connection from the Pleasanton Ace Train Station to the east Dublin/Pleasanton BART station and travels on both Willow Road and Owens Drive along the BART frontage.

All the routes listed have bus stops at the east Dublin/Pleasanton BART station. There is an existing unused bus stop with shelter and bus pullout on eastbound Gibraltar Drive east of Willow Road, adjacent to the site. There is an existing bus stop on eastbound Owens Drive east of Willow Road adjacent to the site and serves Route 9.

Cumulative Conditions without Project

The 2005 General Plan Land Use and Circulation network was used to determine the level service within the City of Pleasanton at build out. The 2005 General Plan allowed residential development on these properties in addition to office development and the General Plan EIR evaluated both office and residential on the three project parcels at buildout. The table below shows the assumed development in the General Plan EIR.

Table 3 - 2005 General Plan – future development

Development	LandUse	Future development	
Parcel 1 and 2	Office	368700	sf
	Apartments	333	units
Parcel 3	Office	364132	sf

These anticipated land uses account for 1306 future AM Peak hour trips and 1298 future PM peak hour trips. The Calculations of the trips are shown in the tables below.

Table 4 – 2005 General Plan trip generation rates

		AM Peak-Hour			PM Peak-Hour			Daily
Land Use	**Units**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	
Office	KSF	1.36	0.19	1.55	0.25	1.24	1.49	11.01
Apartments	units	0.10	0.41	0.51	0.40	0.22	0.62	6.65

Table 5 - 2005 General Plan trip generation

				AM Peak-Hour			PM Peak-Hour			Daily
Development	LandUse	Additional development		**In**	**Out**	**Total**	**In**	**Out**	**Total**	
Parcel 1 and 2	Office	368.7	ksf	502.9	68.6	571.5	93.4	456.0	549.4	4059.4
	Apartments	333.0	units	34.0	135.9	169.8	134.2	72.3	206.5	2214.5
Parcel 3	Office	364.1	ksf	496.7	67.7	564.4	92.2	450.3	542.6	4009.1
			Total	1034	272	1306	320	979	1298	10283

In addition to these assumptions, the cumulative no project analysis added development on the East Dublin/Pleasanton Bart parking area.

- Bart parking lot assumption:
  - 1303 parking spaces (existing number of spaces 1303)
  - 289.2 ksf office
  - 15K neighborhood retail
  - 200 room hotel

Table 6 - Future BART parking lot development trip generation rates

		AM Peak-Hour			PM Peak-Hour			Daily
Land Use	Units	In	Out	Total	In	Out	Total	
Office	KSF	1.36	0.19	1.55	0.25	1.24	1.49	11.01
Shopping Center	KSF	0.61	0.39	1.00	1.83	1.90	3.73	42.94
Hotel	Rooms	0.34	0.22	0.56	0.31	0.28	0.59	8.17

Table 7 - Future BART parking lot development trip generation

				AM Peak-Hour			PM Peak-Hour			Daily
Development	LandUse	Additional development		In	Out	Total	In	Out	Total	
Bart	Office	289.2	KSF	394.5	53.8	448.3	73.3	357.7	430.9	3184.1
Bart	Retail	15.0	KSF	9.2	5.9	15.0	27.4	28.5	56.0	644.1
Bart	Hotel	200.0	rooms	68.3	43.7	112.0	62.5	55.5	118.0	1634.0
			Total	472	103	575	163	442	605	5462

The City of Pleasanton Traffic Model was used to determine the level of service at each signalized intersection within the City at buildout without the proposed changes to the Hacienda PUD. Nine intersections are identified with failing levels of service at buildout.

All of these intersections are identified in the General Plan or in the Pleasanton Traffic Impact fee and have mitigations that will restore the service level to an acceptable range. The mitigations for these intersections are listed in Table 9.

Table 8 - Cumulative no project Intersection failing LOS intersections

		AM Peak Hour LOS		PM Peak Hour LOS	
		2005 GP + Bart dev - No Project		2005 GP + Bart dev - No Project	
Intersection		LOS	Delay	LOS	Delay
Bernal	I-680 NB Off	C	23.2	E	59.1
Bernal	Valley	F	88.1	E	75.0
Owens Drive	Hopyard	D	37.6	F	279.4
Stoneridge	Hopyard	D	37.9	E	67.1
Owens Drive	Hacienda	C	31.7	E	60.7
Stoneridge	W Las Positas	C	27.9	F	88.3
EB off to Santa Rita	Santa Rita	D	35.1	F	83.1
Valley	Santa Rita	D	44.9	E	61.5
Stanley Blvd	Valley	D	44.0	F	142.7

Table 9 - Cumulative no project Intersection Mitigations

Hacienda TOD - no Project + BART Development - Mitigations		
Intersection		**Mitigation**
Bernal	I-680 NB Off	construct Westbound through + right lane
Bernal	Valley*	construct free southbound right turn
Owens Drive	Hopyard*	Provide 2 NBL, 3 NBT, 1 NBR; 3 SBL, 3 SBT, 1 SBR (free); 2 EBL, 2 EBT, 1 EBR; 2 WBL, 2 WBT, 1 WBR (free). Unsplit EB/WB, narrow lane to reduce ped clearance to 20 seconds, and change cycle length to 130 seconds (PM).**Gateway**
Stoneridge	Hopyard*	Free EB Right Turn. Remove SB through
Owens Drive	Hacienda*	construct third EB LT lane
Stoneridge	W Las Positas	convert nb and sb WLP through lane to left turn lane
EB off to Santa Rita	Santa Rita	construct second sb lt lane
Valley	Santa Rita*	construct second wb lt lane
Stanley Blvd	Valley*	construct eb through lane

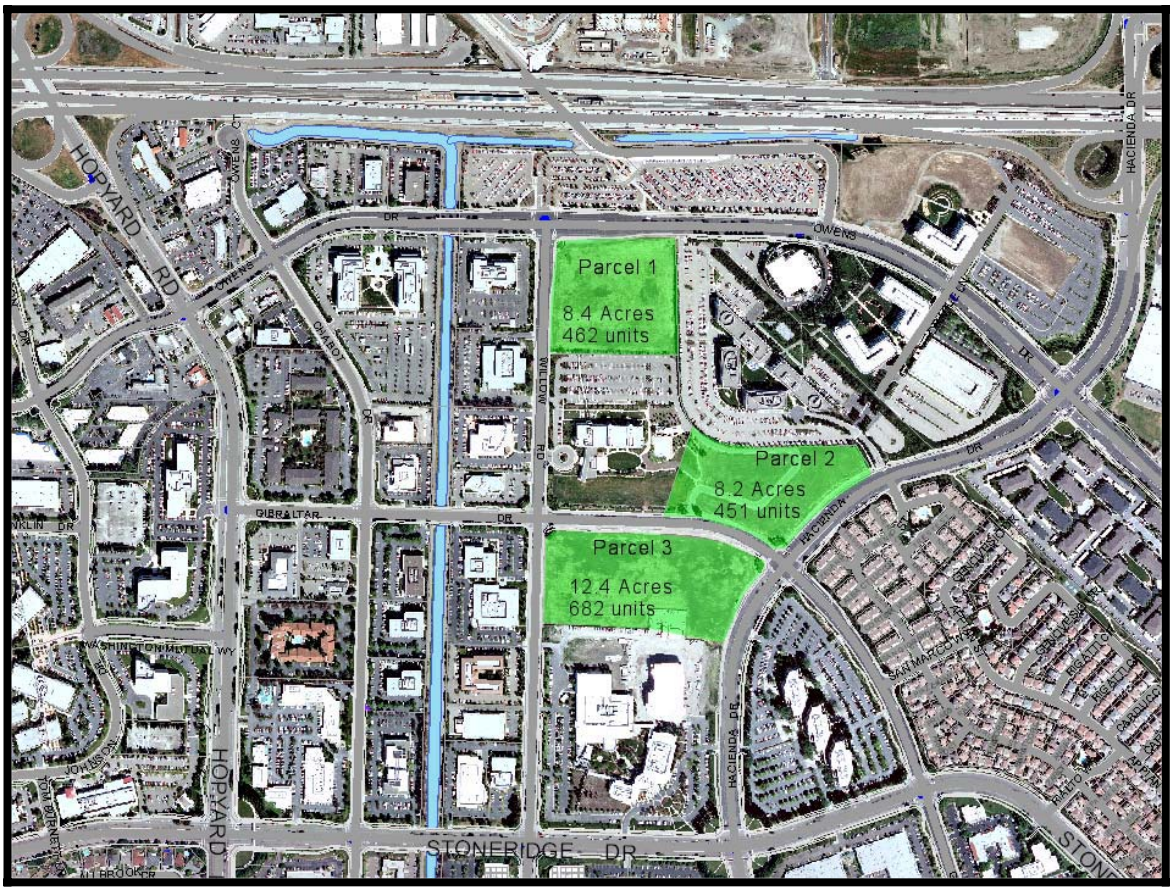
* General Plan mitigation

Table 10 - Cumulative no project Intersection LOS with Mitigations

		AM Peak Hour LOS		PM Peak Hour LOS	
		2005 GP + Bart dev - No Project		2005 GP + Bart dev - No Project	
Intersection		LOS	Delay	LOS	Delay
Bernal	I-680 NB Off to Bernal	C	23.2	C	33.4
Bernal	Valley	C	31.0	D	38.8
Owens Drive	Hopyard	D	37.6	D	53.7
Stoneridge	Hopyard	D	37.9	D	40.0
Owens Drive	Hacienda	C	31.7	D	38.4
Stoneridge	W Las Positas	C	27.9	D	46.7
EB off to Santa Rita	Santa Rita	D	35.1	D	37.2
Valley	Santa Rita	D	44.9	D	47.9
Stanley Blvd	Valley	D	44.0	D	50.9

Proposed Project

The proposed project contemplates the change in land use from 732,832 square feet of office that is spread across three parcels, to mixed use residential and retail. The density of the residential development ranges from 30 units to the acre up to 55 units to the acre. For the purposes of this report, it will be assumed that the maximum density of 55 units to the acre is used on all three parcels. This density allows for a total number of 1595 housing units on the 29 acres. In addition to the housing a small amount of retail is assumed on the three parcels. This study assumes that 10,000 square feet of retail will be constructed on each parcel for a total of 30,000 square feet of retail.



The proposed project would have the following land uses:

- Parcel 1
  - 8.4 Acres
  - 462 Apartment Units
  - 10k Neighborhood Shopping Center
- Parcel 2
  - 8.2 Acres
  - 451 Apartment Units

    - 10k Neighborhood Shopping Center
- Parcel 3
    - 12.4 Acres
    - 682 Apartment Units
    - 10k Neighborhood Shopping Center

Table 11 - Proposed Project Land Uses

Parcel	Development	LandUse	Proposed Project	
Parcel 1	Shaklee	Apartments	462	units
		Shopping Ctr.	10	ksf
Parcel 2	Shaklee	Apartments	451	units
		Shopping Ctr.	10	ksf
Parcel 3	Roche Molecular Systems	Apartments	682	units
		Shopping Ctr.	10	ksf

Project Trip Generation

The AM and PM vehicular trips for the proposed project were developed based on trip generation rates contained in the Institute of Transportation Engineers (ITE) publication Trip Generation, 8th Edition. This is a standard reference used by jurisdictions throughout the country and is based on actual trip generation studies at numerous locations in areas of various populations.

The land use trip generation rates are shown in Table 8. The proposed project is estimated to generate 843 AM peak hour trips and 1101 PM peak hour trips.

Table 12 - Proposed Project Trip Generation Rates

Project Trip Generation Rates

		AM Peak-Hour			PM Peak-Hour			Daily
Land Use	**Units**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	
Apartments	units	0.10	0.41	0.51	0.40	0.22	0.62	6.65
Shopping Center	KSF	0.61	0.39	1.00	1.83	1.90	3.73	42.94

Table 13 - Proposed Project Trip Generation

				AM Peak-Hour			PM Peak-Hour			Daily
Parcel	LandUse	Proposed Project		In	Out	Total	In	Out	Total	
Parcel 1	Apartments	462	units	47.1	188.5	235.6	186.2	100.3	286.4	3072.3
	Shopping Ctr.	10	ksf	6.1	3.9	10.0	18.3	19.0	37.3	429.4
Parcel 2	Apartments	451	units	46.0	184.0	230.0	181.8	97.9	279.6	2999.2
	Shopping Ctr.	10	ksf	6.1	3.9	10.0	18.3	19.0	37.3	429.4
Parcel 3	Apartments	682	units	69.6	278.3	347.8	274.8	148.0	422.8	4535.3
	Shopping Ctr.	10	ksf	6.1	3.9	10.0	18.3	19.0	37.3	429.4
			Total	181	662	843	698	403	1101	11895

Transit oriented development trip reduction

The ITE *Trip Generation, 8th Edition* was developed to establish trip rates based on single use destination land uses that are not in close proximity to transit. Several studies have been completed to measure the reduction in vehicle trips that result from development adjacent or in close proximity to transit. The Hacienda Owners Association funded a literature review in 2004 to summarize these various studies and the review found that between 20 and 40 percent fewer trips have been recorded at locations where development occurred next to transit.

For the purposes of this report, the lower end of the trip reduction will be used to account for the projects proximity to the East Dublin/ Pleasanton Bart station and LAVTA bus system. A 20% vehicle reduction would produce variations shown in the table below and result in the project generating 675 trips in the AM peak and 881 trips in the PM peak.

Table 14 - Proposed Project Trip Generation with TOD reduction

20.00% trip reduction				AM Peak-Hour			PM Peak-Hour			Daily
Parcel	LandUse	Proposed Project		In	Out	Total	In	Out	Total	
Parcel 1	Apartments	462	units	37.7	150.8	188.5	148.9	80.2	229.2	2457.8
	Shopping Ctr.	10	ksf	4.9	3.1	8.0	14.6	15.2	29.8	343.5
Parcel 2	Apartments	451	units	36.8	147.2	184.0	145.4	78.3	223.7	2399.3
	Shopping Ctr.	10	ksf	4.9	3.1	8.0	14.6	15.2	29.8	343.5
Parcel 3	Apartments	682	units	55.7	222.6	278.3	219.9	118.4	338.3	3628.2
	Shopping Ctr.	10	ksf	4.9	3.1	8.0	14.6	15.2	29.8	343.5
			Total	145	530	675	558	323	881	9516

Project Circulation Network

The proposed project includes roadway changes to Owens Drive, Willow Road and Gibraltar Drive. These changes include lane reductions to the three roadways. The travel lanes are replaced by a combination of parking lanes, frontage roads, bike lanes and sidewalks.

This report analyzes the proposed project impacts with the changes in the roadway network that include:

- Owens Drive between Willow Road and the East Bart Traffic Signal –
  - Reduction from a six lane roadway down to a two lane roadway (one lane in each direction).
    - Frontage road on both sides.
- Willow Road between Owens Drive and Gibraltar Drive –
  - reduced from a 4 lane roadway to a 2 lane roadway
    - parallel parking on both sides.
- Gibraltar Drive between Hacienda Drive and Willow Road
  - reduced from a 4 lane roadway to a 2 lane roadway

- angle parking northeastern segment
- parallel parking on all remaining sections

Proposed Project Level of Service Analysis

For the three project parcels, the General Plan land use included 732,832 square feet of office and 333 apartments. These land uses generate 1306 AM peak hour trips and 1298 PM peak hour trips. The Proposed Project replaces the land uses with 1595 apartments and 30,000 square feet of neighborhood shopping center. These new land uses, with the assumed 20% trip reduction, generate 675 AM peak hour trips and 881 PM peak hour trips. **The proposed project reduces the AM trip generation by 631 vehicles and reduces the PM peak hour trip generation by 417 vehicles**.

The city of Pleasanton Traffic Model was used to distribute the Proposed Project trips onto the 2005 General Plan roadway network. Prior to distribution, the lane geometries of Owens Drive, Willow Road and Gibraltar Drive were reduced as described in the previous section.

The traffic model identified 8 intersections with an unacceptable level of service. All eight of the intersections were identified as having a failing level of service without the project and the mitigations identified on Page 11 of this report are sufficient to mitigate all intersection impacts. Table 8 (no project LOS) is included next to Table 15 below to provide a direct comparison between the existing General Plan and the Proposed Project.

Table 15 - Cumulative + project Intersections failing LOS

		AM Peak Hour LOS		PM Peak Hour LOS	
		Hacienda TOD - lane reduction			
Intersection		LOS	Delay	LOS	Delay
Bernal	I-680 NB Off	C	23.7	E	68.2
Bernal	Valley	F	89.7	E	79.8
Owens Drive	Hopyard	D	38.6	F	280.6
Stoneridge	Hopyard	D	36.7	E	60.7
Owens Drive	Hacienda	D	43.8	D	52.7
Stoneridge	W Las Positas	C	28.2	F	91.2
EB off to Santa Rita	Santa Rita	C	34.6	F	81.9
Valley	Santa Rita	D	46.2	E	66.6
Stanley Blvd	Valley	D	47.7	F	150.6

Table 8 - Cumulative no project LOS

AM Peak Hour LOS		PM Peak Hour LOS	
DATA FROM TABLE 8 - BUILDOUT OFFICE			
LOS	Delay	LOS	Delay
C	23.2	E	59.1
F	88.1	E	75.0
D	37.6	F	279.4
D	37.9	E	67.1
C	31.7	E	60.7
C	27.9	F	88.3
D	35.1	F	83.1
D	44.9	E	61.5
D	44.0	F	142.7

Owens Drive at Hacienda, with the proposed project changes from LOS E in the PM Peak to LOS D and would not require the General Plan mitigation of a third eastbound left turn lane.

Proposed Project Mitigations

Bernal at I-680 Northbound off ramp – convert westbound number two through lane to westbound through + right lane. Widen northbound on ramp to accommodate second right turn lane.

This project is included in the Pleasanton Traffic Fee and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Bernal at Valley – Construct free southbound right turn lane.

This project is included in the Pleasanton Traffic Fee and is identified in the City of Pleasanton General Plan as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Hopyard at Owens – reconstruct intersection to provide 2 NBL, 3 NBT, 1 NBR; 3 SBL, 3 SBT, 1 SBR (free); 2 EBL, 2 EBT, 1 EBR; 2 WBL, 2 WBT, 1 WBR (free). Unsplit EB/WB, narrow lane to reduce pedestrian clearance to 20 seconds, and change cycle length to 130 seconds (PM).

This project is included in the Pleasanton Traffic Fee and is identified in the City of Pleasanton General Plan as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Hopyard at Stoneridge - Construct free eastbound right turn lane and remove southbound through lane.

This project is included in the Pleasanton Traffic Fee and is identified in the City of Pleasanton General Plan as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Stoneridge at West Las Positas – convert northbound and southbound through lanes (WLP) to second left turn lane.

This project is included in the Pleasanton Traffic Fee as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Santa Rita at Pimlico/ 580 EB Off ramp – construct second southbound left turn lane.

This project is included in the Pleasanton Traffic Fee as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*

Santa Rita at Valley - Construct second westbound left turn lane.

This project is included in the Pleasanton Traffic Fee and is identified in the City of Pleasanton General Plan as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Stanley at Valley - Construct third eastbound through lane.

This project is included in the Pleasanton Traffic Fee and is identified in the City of Pleasanton General Plan as a future mitigation and is required with and without the project. *Project Developer shall pay TIF to mitigate impact*.

Proposed Project Circulation Analysis

Vehicle Circulation

The combination of the change in roadway geometries, volume reduction and changes to the inbound and outbound travel patterns that occur as a result of the project, contributes to the alteration of travel patterns in the Hacienda Business Park.

The roadway lane reductions on Owens Drive, and to a lesser degree, Willow Road and Gibraltar Drive, shift vehicle trips away from these roadways.

Owens Drive is an arterial roadway and serves the primary purpose of carrying vehicles to and from the East Dublin/Pleasanton BART station. The section of Owens Drive that the project reduces in the number of lanes occurs between the two BART station entrances. This section of roadway carries the fewest vehicles of any segment of roadway on Owens Drive. As a result of the lane reduction, approximately 150 vehicles in the PM peak hour alter their travel pattern to use Stoneridge Drive, Gibraltar Drive, West Las Positas and I-580 instead of Owens Drive. **Because the overall diversion volume is low, and there are several alternate parallel roadways available, the overall increase to any of the parallel arterials is minimal and does not reduce the level of service along any of these roadways.**

The Pleasanton Traffic Model predicts a small amount of diversion from Willow Road and Gibraltar Drive with the lane reductions on these roadways. The General Plan buildout volumes without the project indicate that these two roadways do not carry enough traffic to require four lane roadways. Because the traffic model assumptions included a speed reduction along these two sections, (the change in on street parking interaction will induce slower travel speeds), the model predicts a small percentage of vehicles will choose an alternate path (Hacienda, Chabot, Hopyard or Stoneridge Drive). This diversion is under 50 vehicles in the peak hour and has no impact on level of service.

The shift in travel patterns is not sufficient to reduce the levels of service at any location below the levels identified by the No Project traffic model analysis.

The lane reductions, however, do impact the traffic signal operation at the signalized intersections by increasing the queue lengths. The intersection of Willow at Gibraltar is

designed to have permissive left turns (left turn vehicles must yield to oncoming traffic and wait for gaps in traffic to make their left turn). With the reduction of travel lanes on Willow Road, all northbound and southbound through movements will occur in a single lane. This increases the line of vehicles crossing the roadway and reduces the number of available gaps in traffic for the opposing left turn. The traffic volumes at this location do not suggest that a protected left turn is necessary, but the project should provide left turn pockets on Willow Road to allow for the left turn vehicles to wait for a gap in traffic outside of the through traffic stream.

Project Mitigation *– provide 150 foot left turn storage for the northbound and southbound left turns on Willow Road.*

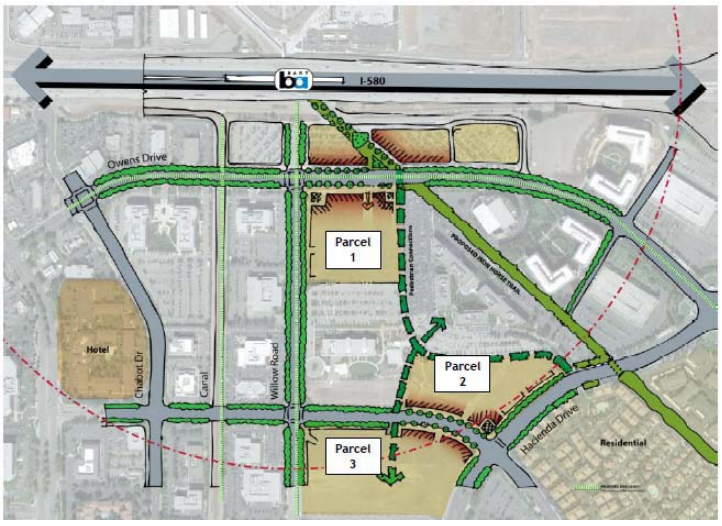
The intersection of Gibraltar at Hacienda has a similar permissive left turn design. The number of eastbound left turn vehicles and opposing westbound through and right vehicles that are present with the proposed project indicate that that a protected left turn movement is necessary.

Project Mitigation *– Install protected left turn phasing for the eastbound and westbound left turn movements at the intersection of Gibraltar Drive at Hacienda Drive.*

Bicycle Circulation

The Proposed Project adds Class II bike lanes to Owens Drive and Willow Road. These two roadways are identified in the City of Pleasanton Pedestrian and Bicycle Master Plan as future Class II bike lanes. The six foot bike lane width conforms to the Pleasanton Pedestrian and Bicycle Master Plan's recommended design of bike lanes. The project does not include bike lanes on Gibraltar Drive. With the inclusion of on street parking combined with narrow travel lanes on this roadway, bicycle access to parcel 2 and 3 will be difficult on Gibraltar Drive. The roadway design characteristics are discussed in greater detail in the safety analysis section later in this report.

The Iron Horse Trail is located at the northeastern corner of Parcel 1. The project design anticipates a connection to the Iron Horse trail. In addition to this connection, the project will construct a class I bike/pedestrian trail along the eastern edge of Parcel 1 and along the north side and west side of parcel 2 to provide access to parcel 3 and Hacienda Drive.



The project provides weather protected and secure bike parking spaces for a minimum of 30% of the maximum

occupants per dwelling unit. Bike parking can be grouped into one structures or located in private garages.

Pedestrian Circulation

The Hacienda TOD Standards and Design Guidelines provide a comprehensive system of walkways around and through the project. The project will construct sidewalks along Owens Drive, Willow Road Gibraltar Drive where gaps currently exist. The design width of the walkways depend on the adjacent land use and vary from a 5 foot minimum on internal streets and next to residential, up to 33 feet next to commercial developments.

In addition to the interconnection of sidewalks next to roadways, the project will construct a system of 16 feet wide shared use paths to connect the three parcels.

Transit Circulation

Multiple transit routes use Willow Road and Owens Drive and will provide direct access to the project. The majority of the bus routes travel along Willow Road or Owens Drive where the proposed lane reductions occur. This change in the circulation network may alter the bus travel time schedules, however, it is not clear to what level, if any, the bus routes and schedules will need to be altered.

Consideration may be given to provide a bus access option from the Owens Drive at Willow Road entrance to the East Dublin/ Pleasanton Bart Station. This would eliminate or reduce the need for buses to travel through the reduced roadway section of Owens Drive.

Internal Circulation

The Design Guidelines briefly outline the potential internal street structures with roadways that vary in width from 29 to 36 feet. This provides sufficient roadway width for the low volume residential traffic anticipated in the internal circulation. The internal circulation does not provide parking or drop off areas for the retail sections of the project. It is assumed that vehicular access to the commercial uses will be from the external roadways only. A more detailed project design review will be needed at the time of plan submittal.

Proposed Project Safety Analysis

The Proposed Project introduces a Transit Oriented Development (TOD) to the Hacienda Business Park. The purpose of a TOD is to create an infrastructure that promotes alternate transportation (walking, biking and transit).

The Design Guidelines introduce several new concepts to the Hacienda Business Park. These concepts include:

- Reduced roadway widths on arterial streets
- On street parking on arterial streets
- Bicycle facilities
- Pedestrian facilities

The purpose of this section is to review and summarize the safety aspects of the new concepts.

Owens Drive

The Hacienda TOD Design Guidelines provides two options for the Owens Drive Lane reduction.

Option A1a reduces the number of travel lanes on Owens Drive from 6 lanes to 2 lanes. The area previously used by vehicle lanes will be converted into diagonal parking along a new frontage road.

The frontage road design provides one way vehicular access that is separated from through traffic by a landscaped island.

This landscaped island provides a buffer that allows easier entry and exit from the on street parking. The bike lane is located away from the angle parking on the "through" section of Owens Drive. This separation of the bike lane from the on street angle parking eliminates a safety hazard that exists between vehicles backing out of angle parking and cyclists riding adjacent to the parking lane.

The east side of the Owens Drive and Willow Road intersection contains curb extensions to reduce the pedestrian crossing and limit the pedestrian's exposure to vehicular traffic. This design also improves the visibility of pedestrians waiting to cross. In addition to this crossing enhancement, a new mid-block crossing will be constructed at the Iron Horse Trail. This crossing will be signalized to provide a controlled crossing location for pedestrians and cyclists.

The sidewalk cross section shows 20 to 33 feet of walkway adjacent to the proposed buildings. This provides sufficient pathway for walking as well as the potential for outdoor dining and other on sidewalk uses that are commonly found in mixed use TOD designs.

Option A1b reduces the number of travel lanes on Owens Drive, from 6 lanes to 4 lanes. The area previously used by vehicle lanes will be converted into diagonal parking. This option does not include the frontage road to separate through movements and bicycle traffic from the parking movements.

The result of this design creates a safety concern related to the interaction between the parking and the through vehicles and bicycles. Vehicle speeds on the arterial roadway will likely resemble other similar multilane arterial roadways in Pleasanton. These

vehicle speeds range between 30 and 40 miles per hour. Vehicles exiting diagonal parking spaces have limited visibility and this design would force parked vehicles to back directly into arterial traffic. Any type of on street parking that has direct access to the arterial decreases the through capacity, impedes traffic flow and increases crash potential.[1]

In addition to this increased crash potential, the design in Option A1b installs a bike lane adjacent to the diagonal parking. Drivers backing out have poor visibility of oncoming cyclists and parked vehicles obscure the bicyclist's vision of other vehicles backing out. Detailed angle parking dimensions were not specified in the Hacienda TOD Design Guidelines, but, stall length should be considered so that larger vehicles and delivery vehicles do not park such that the end of the vehicle extends into the bike lane.

Given the sight distance and safety concerns present with on street angle parking, Option A1b is not recommended.

Willow Road

The Hacienda TOD Design Guidelines provide one option for the Willow Road Design. The design changes the current 5 lane design (4 travel lanes and a two way left turn lane) by eliminating the outside travel lane, creating a roadway design that includes a single northbound and a single southbound travel lane (13 feet wide) with a two way left turn lane or landscaped median. There is an 8 foot parallel parking lane and a 6 foot bike lane on both sides of the roadway.

Addition of on street parking will increase the number of vehicle conflict points on Willow Road. The increased parking maneuvers could impact the operational characteristics of the roadway. The proposed design includes a 13 foot travel lane, 6 foot bike lane and an 8 foot parking lane. This design could provide drivers with the opportunity to drive around vehicles that are conducting parking maneuvers, as the 13 foot travel lane and 6 foot bike lane provide a 19 foot driving surface that provides the ability for a car traveling on the roadway to pass a vehicle in the process of parking.

Gibraltar Drive

The Hacienda TOD Design Guidelines outline two designs for Gibraltar Drive. The eastern segment of Gibraltar drive is identified as the commercial design. It reduces Gibraltar Drive in the westbound direction from two lanes down to one and the curb lane

[1] *A Policy on the Geometric Design of Highways and Streets*. American Association of State Highway and Transportation Officials (AASHTO), Washington D.C., 1994 . pg 412.

is replaced with angle parking. The eastbound travel lane is also reduced from two travel lanes to a single travel lane. The curb lane is replaced with parallel parking. The left turn pocket approaching Hacienda Drive is retained. The Gibraltar Drive design presented in the Guidelines does not include bicycle lanes on Gibraltar Drive.

The angle parking in the westbound travel direction creates the same conflict as described in Option A1b of Owens Drive. Although the travel speed and volume of traffic is lower on Gibraltar Drive which reduces the number of conflicts, the same sight distance and safety concerns are present with angle parking at this location.

In addition to the previously identified conflict with sight distance, the angle parking design identifies a 14 foot travel lane and an 18 foot parking lane. This design would require parked vehicles to overhang the curb to ensure that the vehicle does not extend into the travel lane. If vehicles do not park and overhang the walkway, cyclists that use the edge of the roadway will have to move away from the edge of the roadway into the center of the travel lane to avoid the parked vehicles.

The parallel parking in the eastbound travel lane is shown to have an 8 foot parking lane and a 12 foot travel lane. The City of Pleasanton's Pedestrian and Bicycle Master Plan provides bicycle design guidelines that recommend a 6 foot bike lane (although 5 foot is also acceptable) adjacent to parallel parking lanes to provide roadway width to avoid car doors and motorists entering and exiting their vehicles.

The western segment of Gibraltar Drive is identified as the residential design. This section is also reduced from four travel lanes to two travel lanes. The curb lane is replaced by parallel parking and designed the same as the commercial segment with 8 foot parking lane and a 12 foot travel lane. Cyclists will have to share the 12 foot travel lane with vehicles to avoid door openings and other parking related events.

While Gibraltar Drive is not identified in the Pedestrian and Bicycle Master Plan as a proposed bike route, the roadway should be designed to encourage bicycle usage.

There are several alternatives that would improve the bicycle circulation and safety on Gibraltar Drive and encourage bicycle usage.

Provide 5 foot bike lanes on Gibraltar Drive

- Angle Parking could be removed and replaced with parallel parking along the commercial frontage. This would provide 10 additional feet of roadway that could be marked as 5 foot bike lanes in each direction.
- Median Island, travel lanes and landscaped frontages could be slightly reduced to provide necessary width for 5 foot bike lanes in each direction

Provide internal circulation within the development that creates safe and convenient access from the residential units to Willow Road and Hacienda Drive.

Summary of Impacts and Mitigations

Eight intersections were identified as having a failing level of service with or without the proposed project. Each of these intersections are identified in the Traffic Impact Fee and most are included in the General Plan as future intersection improvements.

The project developer will pay fees to mitigate the project's impact.

- **Bernal at I-680 Northbound off ramp** – convert westbound number two through lane to westbound through + right lane. Widen northbound on ramp to accommodate second right turn lane.
- **Bernal at Valley** – Construct free southbound right turn lane.
- **Hopyard at Owens –** reconstruct intersection to provide 2 NBL, 3 NBT, 1 NBR; 3 SBL, 3 SBT, 1 SBR (free); 2 EBL, 2 EBT, 1 EBR; 2 WBL, 2 WBT, 1 WBR (free). Unsplit EB/WB, narrow lane to reduce pedestrian clearance to 20 seconds, and change cycle length to 130 seconds (PM).
- **Hopyard at Stoneridge -** Construct free eastbound right turn lane and remove southbound through lane.
- **Stoneridge at West Las Positas –** convert northbound and southbound through lanes (WLP) to second left turn lane.
- **Santa Rita at Pimlico/ 580 EB Off ramp –** construct second southbound left turn lane.
- **Santa Rita at Valley -** Construct second westbound left turn lane.
- **Stanley at Valley -** Construct third eastbound through lane.

The project potentially reduces the number of travel lanes on Owens Drive, Willow Road and Gibraltar Drive. The lane reductions on Willow Road and Gibraltar Drive create additional vehicle queuing at the intersections and require the following mitigations to address the impacts:

Willow Road at Gibraltar Drive *– provide 150 foot left turn storage for the northbound and southbound left turns on Willow Road.*

Gibraltar Drive at Hacienda Drive *– Install protected left turn phasing for the eastbound and westbound left turn movements at the intersection of Gibraltar Drive at Hacienda Drive.*

Appendix A –Existing LOS

City Of Peasanton - 2006 Baseline LOS Summary					
Existing LOS					
		AM PEAK		PM PEAK	
NS Street	EW Street	Existing		Existing	
		LOS	Delay	LOS	Delay
Bernal	Hearst	A	4.1	A	2.1
Bernal	Kottinger	B	12.2	C	19.8
Bernal	Nevada	A	0.7	A	1.1
Bernal	Vineyard	C	28.3	B	16.7
Bernal	Vineyard	C	28.6	C	21.8
Blackbird	Valley	C	15.3	D	32.6
Busch	Valley	B	12.5	A	7.9
Case	Junpero	C	19.1	A	7.8
Chabot Dr	Gibraltar Dr (N)	A	4.9	A	5.7
Chabot Dr	Owens Drive	A	6.7	A	9.9
Chabot Dr	Stoneridge	A	8.3	B	11.2
Coronado	W Las Positas	A	1.0	A	3.1
Crestline	Valley	B	12.1	C	15.9
Division	Del Valle Pwy	A	9.4	C	20.8
Dorman	W Las Positas	C	33.7	B	11.5
East Bart	Owens Drive	B	15.3	C	21.6
Fabian	Stoneridge Mall	B	15.5	D	41.2
First	Neal St	B	16.8	B	16.1
First	Ray St	F	81.1	F	117.9
First	Spring	D	42.9	D	49.6
First St	Bernal	D	49.5	D	42.1
Foothill Rd	Bernal	C	24.3	B	18.7
Foothill Rd	Deodar	A	5.7	B	12.5
Foothill Rd	Dublin Cyn	C	27.5	C	20.3
Foothill Rd	Foothill High School	F	224.8	B	10.0
Foothill Rd	Highland Oaks	A	2.8	A	0.8
Foothill Rd	I-580 WB Off to Foothill	B	12.1	B	10.1
Foothill Rd	Laurel Creek	B	10.1	A	9.1
Foothill Rd	Muirwood (S)	A	1.8	A	0.8
Foothill Rd	Stoneridge	B	18.8	B	19.8
Foothill Rd	W Las Positas	C	23.0	B	12.2
Franklin	Stoneridge	C	23.6	B	14.8
Gibraltar Dr	Stoneridge	A	7.5	B	15.3
Greenwood Dr	Valley	C	28.7	B	16.8

Hacienda	Gibraltar Dr (N)	B	10.8	B	15.9
Hacienda	Gibraltar Dr (S)	A	8.2	A	7.2
Hacienda	I-580 EB Off	B	12.7	C	23.5
Hacienda	I-580 WB Off to Hacienda	A	8.2	A	8.6
Hacienda	Owens Drive	C	22.5	F	96.4
Hacienda	Stoneridge	C	28.9	C	33.8
Hacienda	W Las Positas	C	32.2	C	22.7
Hopyard	Black Ave.	B	17.3	B	16.0
Hopyard	Coronado Ln	A	3.0	A	0.7
Hopyard	Gibraltar Dr (N)	A	7.4	A	10.0
Hopyard	I-580 EB Off	B	13.7	D	52.0
Hopyard	I-580 WB Off	A	9.4	C	24.9
Hopyard	Inglewood Dr	C	26.5	B	11.7
Hopyard	Owens Drive	D	36.2	F	345.5
Hopyard	Providian	A	2.9	A	4.8
Hopyard	Stoneridge	D	44.2	E	78.4
Hopyard	Valley	C	27.3	C	28.3
Hopyard	Valley Trails (North)	B	13.2	A	8.4
Hopyard	Valley Trails (South)	B	10.5	C	31.9
Hopyard	W Las Positas	C	28.2	C	24.7
I-680 NB	Bernal	B	16.7	C	21.3
I-680 NB	Stoneridge	D	45.1	C	25.3
I-680 SB	Stoneridge	C	26.8	B	17.3
Independence	Bernal	B	13.8	D	47.7
Johnson	Owens Drive	B	14.7	C	27.0
Johnson	Providian	A	5.6	A	6.1
Johnson	Stoneridge	B	17.2	C	32.6
Kamp	Stoneridge	A	7.8	A	6.1
Koll Ctr Dr	Bernal	A	5.8	A	6.2
Kolln	Valley	B	18.8	B	12.9
Main St	Bernal	F	120.3	A	7.1
Main St	Del Valle Pwy	B	12.1	B	14.0
Main St	Ray St	F	192.9	F	87.5
Main St	Rose	C	25.7	A	8.6
Main St	St Mary	B	11.7	C	15.6
Main St	St. John ST	B	15.5	F	106.5
Main St	Stanley Blvd	C	29.9	C	28.2
Meadowlark	Bernal	B	18.0	B	11.6
Montevino	Vineyard	B	15.5	C	20.8
Muirwood (N)	W Las Positas	C	22.2	D	28.7
Old Bernal	Bernal	D	46.5	D	38.3
Oracle Lane	Owens Drive	B	14.1	A	9.7
Owens Drive	W Las Positas	B	15.0	C	23.5
Payne	W Las Positas	A	1.2	A	1.5

Pleasanton Ave	Bernal	B	14.1	B	19.5
Quarry	Valley	A	8.4	B	16.2
Reflection	Stanley Blvd	B	15.7	B	13.0
Rheem	Stoneridge	A	7.7	A	6.9
Rosewood	Owens Drive	A	9.4	A	9.1
Rosewood	Rose Pav	A	6.5	B	10.8
Rosewood	Walmart	A	7.1	B	11.8
Ruby Hill	Vineyard	B	13.7	B	13.9
Santa Rita	Amador High School	A	2.6	A	2.6
Santa Rita	Black Ave.	D	35.7	C	34.8
Santa Rita	Francisco	A	0.5	A	9.4
Santa Rita	I-580 WB	B	14.5	B	18.3
Santa Rita	Mohr Avenue	C	26.4	C	31.9
Santa Rita	Old Santa Rita Rd	A	5.1	A	5.8
Santa Rita	Rosewood Dr	B	13.6	C	23.3
Santa Rita	Stoneridge	D	50.5	D	36.0
Santa Rita	Sutter Gate	D	25.1	A	1.0
Santa Rita	Valley	D	39.8	E	59.3
Santa Rita	W Las Positas	C	30.8	C	34.1
Santa Rita	Pimlico/ I-580 EB Off	C	25.1	C	31.5
Springdale	Stoneridge	B	13.3	C	21.1
Stoneridge Mall	Canyon Way	A	7.8	A	7.9
Stoneridge Mall	Embarcadero	A	9.9	B	13.8
Stoneridge Mall	McWilliams	A	9.4	B	12.1
Stoneridge Mall	Stoneridge	B	10.5	B	14.9
Sunol	Arlington Dr	B	12.4	B	15.9
I-680 SB	Sunol	A	8.0	A	6.1
Sunol	Junpero	D	46.7	B	14.0
Sunol	Sycamore Rd	B	11.6	B	14.5
I-680 NB	Sunol	A	1.3	A	2.0
Sunol Blvd	Mission Dr	A	9.8	A	9.7
Vallecitos	Ruby Hill East	A	7.0	A	6.0
Valley	Bernal	C	25.1	D	40.6
Valley	Boulder	B	13.2	B	15.6
Valley	Hansen	B	11.9	B	12.0
Valley	Koll Center (N)	B	16.8	C	25.3
Valley	Koll Center (S)	A	2.5	F	83.0
Valley	Paseo Santa Cruz (N)	C	15.8	B	14.6
Valley	Paseo Santa Cruz (S)	B	14.9	B	12.9
Valley	Stanley Blvd	D	51.8	D	43.7
W Las Positas	Stoneridge	C	30.6	C	33.6
Willow	Gibraltar Dr (N)	B	11.8	B	13.3
Willow	Stoneridge	B	12.1	B	10.6
Willow	W Las Positas	C	31.9	B	13.5

Willow Rd	Owens Drive	A	9.8	B	10.5
El Charro	Stanley Blvd				
El Charro	Busch				
El Charro	I-580 EB off	A	4.5	F	249.9
El Charro	Stoneridge				
Fallon	I-580 WB Off	A	4.8	A	1.2
Foothill Rd	Muirwood (N)	B	16.2	A	7.9
I-680 SB	Bernal	E	37.5	E	48.7
Old Stanley	Stanley Blvd/ First Street	B	19.3	D	41.4

Appendix B –Cumulative No Project LOS

Intersection			AM Peak Hour LOS 2005 GP + Bart dev - No Project		PM Peak Hour LOS 2005 GP + Bart dev - No Project	
			LOS	Delay	LOS	Delay
1	Dublin Cyn	Foothill Rd	C	30.7	D	48.6
2	Deodar	Foothill Rd	B	13.8	B	16.4
3	Laurel Creek	Foothill Rd	B	14.7	B	14.0
4	Laurel Creek Drive	Foothill Rd	C	22.5	C	22.9
5	Serenity Terrace	Foothill Rd	A	8.6	A	6.6
6	W Las Positas	Foothill Rd	C	21.8	B	17.6
7	Foothill High School (Circle Dwy) OUT	Foothill Rd	A	0.0	A	0.0
8	Bernal	Foothill Rd	B	13.0	B	13.8
9	Canyon Way	Stoneridge Mall	A	8.4	A	8.4
10	Stoneridge Mall	Fabian	B	13.8	E	73.6
11	McWilliams	Stoneridge Mall	A	7.3	B	11.2
12	Stoneridge	Springdale	C	23.8	C	35.0
13	Stoneridge	Stoneridge Mall	B	13.9	C	31.6
14	Stoneridge	I-680 SB	D	39.3	C	22.2
15	Stoneridge	I-680 NB Off to Stoneridge	B	14.9	D	43.5
16	Stoneridge	Johnson	B	12.1	C	33.5
17	Stoneridge	Franklin	C	32.1	C	27.6
18	W Las Positas	Dorman	C	21.5	B	13.2
19	Bernal	Meadowlark	A	7.9	A	6.0
20	Bernal	SB On from Bernal	A	0.0	A	1.4
21	Bernal	I-680 NB Off to Bernal	C	23.2	E	59.1
22	Bernal	Koll Ctr Dr	A	7.3	A	9.1
23	Bernal	Valley	F	88.1	E	75.0
24	Bernal	Fire Station No. 4	A	0.0	A	0.0
25	Bernal	Pleasanton Ave	B	19.7	B	16.1
26	Bernal	Old Bernal	D	39.2	D	54.8
27	I-580 WB Off	Hopyard	C	32.8	D	44.2
28	I-580 EB Off	Hopyard	C	23.1	C	29.9
29	Owens Drive	Hopyard	D	37.6	F	279.4
30	Gibraltar Dr (N)	Hopyard	B	11.9	B	13.0
31	Washington Mutual	Hopyard	A	6.5	B	10.3
32	Stoneridge	Hopyard	D	37.9	E	67.1

33	Inglewood Dr	Hopyard	C	21.1	B	15.6
34	Coronado Ln	Hopyard	A	6.2	A	2.7
35	W Las Positas	Hopyard	C	29.5	D	54.2
36	Valley Trails (North)	Hopyard	A	6.6	C	23.6
37	Valley Trails (South)	Hopyard	A	6.3	B	17.2
38	Valley	Hopyard	C	32.1	D	45.7
39	Black Ave.	Hopyard	B	18.2	B	15.7
40	Owens Drive	Johnson	B	17.9	C	20.6
41	Washington Mutual	Johnson	A	6.0	A	5.8
42	Koll Center (N)	Valley	C	29.8	D	38.4
43	Valley	Case	A	0.0	A	0.0
44	Owens Drive	Chabot Dr	B	11.1	B	17.2
45	Owens Drive	BART Entrance	B	15.0	B	16.6
46	Owens Drive	East Bart	A	7.3	B	13.5
47	Owens Drive	Oracle Lane	B	16.1	B	16.7
48	Gibraltar Dr (N)	Chabot Dr	A	5.5	A	5.7
49	Gibraltar Dr (N)	Willow	B	10.4	B	12.1
50	Stoneridge	Chabot Dr	B	11.8	B	16.1
51	Stoneridge	Willow	B	18.1	B	19.5
52	W Las Positas	Willow	B	15.0	A	9.6
53	I-580 WB Off to Hacienda	Hacienda	B	10.9	B	13.3
54	I-580 EB Off	Hacienda	B	18.6	C	26.0
55	Owens Drive	Hacienda	C	31.7	E	60.7
56	Gibraltar Dr (N)	Hacienda	B	13.1	C	21.1
57	Stoneridge	Hacienda	C	31.5	D	36.2
58	Gibraltar Dr (S)	Hacienda	A	8.0	A	6.1
59	W Las Positas	Hacienda	B	19.6	B	12.6
60	Owens Drive	Rosewood	B	10.5	A	9.8
61	Walmart	Rosewood	A	7.7	B	12.2
62	Rose Pav	Rosewood	A	5.3	A	9.3
63	Stoneridge	Gibraltar Dr	B	11.3	B	12.9
64	Stoneridge	W Las Positas	C	27.9	F	88.3
65	W Las Positas	Owens Drive	B	15.9	B	15.7
66	Valley	Greenwood Dr	C	28.3	B	16.7
67	I-580 WB	Santa Rita	B	10.3	C	26.2
68	EB off to Santa Rita	Santa Rita	D	35.1	F	83.1
69	Rosewood	Santa Rita	A	7.1	B	19.6
70	Old Santa Rita Rd	Santa Rita	B	16.3	B	11.5
71	W Las Positas	Santa Rita	D	47.1	D	53.2
72	Stoneridge	Santa Rita	D	38.4	D	45.9
73	Mohr Avenue	Santa Rita	C	21.3	C	23.1
74	Valley	Santa Rita	D	44.9	E	61.5

75	Francisco	Santa Rita	0.0	0.0	0.0	0.0
76	Black Ave.	Santa Rita	C	26.5	D	40.0
77	Amador High School	Santa Rita	A	2.9	A	3.9
78	Stanley Blvd	Main St	C	26.6	B	15.4
79	Ray St	Main St	F	101.7	F	137.6
80	Rose	Main St	C	21.4	A	9.7
81	Stoneridge	Rheem	A	7.3	A	7.2
82	Stoneridge	Kamp	B	10.1	A	8.9
83	Hansen	Valley	0.0	0.0	0.0	0.0
86	Valley	Kolln	B	14.6	B	13.1
87	Valley	Quarry	A	9.5	C	20.9
88	Valley	Busch	B	15.6	C	32.2
89	Boulder	Valley	B	10.4	B	13.2
90	Stanley Blvd	Valley	D	44.0	F	142.7
91	Stanley Blvd	Reflection	B	18.5	D	54.0
92	Stanley Blvd	Driveway	B	10.1	B	13.3
93	Ray St	First	D	41.5	F	132.3
94	Spring	First	D	38.2	F	130.4
95	Neal St	First	C	32.6	D	39.0
96	Bernal	First St	E	58.7	E	65.8
97	Mission Dr	Sunol Blvd	A	8.8	A	7.8
98	Valley	Sunol	F	99.8	D	44.8
99	Sycamore Rd	Sunol	C	23.0	C	32.8
100	Arlington Dr	Sunol	C	23.2	B	17.1
101	Bernal	Main St	0.0	0.0	0.0	0.0
103	Busch	Ironwood	A	0.0	A	0.0
105	Driveway	Bernal	B	15.5	B	15.0
106	Vineyard	Bernal	D	40.6	C	23.9
107	Bernal	Independence	B	12.3	D	52.6
108	Vineyard	Montevino	A	6.0	A	5.4
109	Vineyard	Pietronave	A	0.0	A	0.0
110	Vineyard	Ruby Hill	B	11.4	B	14.0
118	Bernal		0.0	0.0	0.0	0.0
125	Castlewood	Sunol	0.0	0.0	0.0	0.0
126	W Las Positas	Fairlands	0.0	0.0	0.0	0.0
138	I-580	I-580 EB Off to Hacienda	0.0	0.0	0.0	0.0
139	Amador valley	Hopyard	A	0.0	A	0.0
141	I-580	I-580 WB Off to Hopyard	0.0	0.0	0.0	0.0
146	St Mary	Main St	0.0	0.0	0.0	0.0
157	Paseo Santa Cruz (N)	Valley	0.0	0.0	0.0	0.0
162	Stoneridge		0.0	0.0	0.0	0.0

171	I-580 WB Off to Foothill	Foothill Rd	0.0	0.0	0.0	0.0
178	Valley	Driveway	0.0	0.0	0.0	0.0
183	Koll Ctr Pkwy	Valley	0.0	0.0	0.0	0.0
184	I-680 SB Off to Bernal	I-680	0.0	0.0	0.0	0.0
187	Black Ave.	Crestline	0.0	0.0	0.0	0.0
190	I-580 WB On	Hopyard	0.0	0.0	0.0	0.0
192	SB Off to I-580 EB		0.0	0.0	0.0	0.0
197	Old Bernal	Peters	0.0	0.0	0.0	0.0
198	Inglewood Dr	Chabot Dr	0.0	0.0	0.0	0.0
200	Gleason	Tasajara	A	0.0	A	0.0
204	Santa Rita		0.0	0.0	0.0	0.0
205	I-580 WB Off to Foothill	Off to NB Foothill	0.0	0.0	0.0	0.0
209	I-580 EB	Foothill Rd	0.0	0.0	0.0	0.0
214	I-580 WB Off to Foothill	On from SB Foothill	0.0	0.0	0.0	0.0
220	Mission Dr	Dolores	0.0	0.0	0.0	0.0
225	Stoneridge Mall	Laurel Creek	0.0	0.0	0.0	0.0
231	Stoneridge Mall	Springdale	0.0	0.0	0.0	0.0
233	Embarcadero	Stoneridge Mall	C	25.4	0.0	0.0
243	Stoneridge	Pleasant Hill	0.0	0.0	0.0	0.0
245	Oak Creek	Foothill Rd	0.0	0.0	0.0	0.0
246	I-580	I-680 to I-580 EB On Ramp	0.0	0.0	0.0	0.0
248	Highland Oaks	Foothill Rd	0.0	0.0	0.0	0.0

Appendix C –Cumulative No Project LOS - mitigated

Intersection			AM Peak Hour LOS 2005 GP + Bart dev - No Project		PM Peak Hour LOS 2005 GP + Bart dev - No Project	
			LOS	Delay	LOS	Delay
1	Dublin Cyn	Foothill Rd	C	30.7	D	48.6
2	Deodar	Foothill Rd	B	13.8	B	16.4
3	Laurel Creek	Foothill Rd	B	14.7	B	14.0
4	Laurel Creek Drive	Foothill Rd	C	22.5	C	22.9
5	Serenity Terrace	Foothill Rd	A	8.6	A	6.6
6	W Las Positas	Foothill Rd	C	21.8	B	17.6
7	Foothill High School (Circle Dwy) OUT	Foothill Rd	A	0.0	A	0.0
8	Bernal	Foothill Rd	B	13.0	B	13.8
9	Canyon Way	Stoneridge Mall	A	8.4	A	8.4
10	Stoneridge Mall	Fabian	B	13.8	E	73.6
11	McWilliams	Stoneridge Mall	A	7.3	B	11.2
12	Stoneridge	Springdale	C	23.8	C	35.0
13	Stoneridge	Stoneridge Mall	B	13.9	C	31.6
14	Stoneridge	I-680 SB	D	39.3	C	22.2
15	Stoneridge	I-680 NB Off to Stoneridge	B	14.9	D	43.5
16	Stoneridge	Johnson	B	12.1	C	33.5
17	Stoneridge	Franklin	C	32.1	C	27.6
18	W Las Positas	Dorman	C	21.5	B	13.2
19	Bernal	Meadowlark	A	7.9	A	6.0
20	Bernal	SB On from Bernal	A	0.0	A	1.4
21	Bernal	I-680 NB Off to Bernal	C	23.2	C	33.4
22	Bernal	Koll Ctr Dr	A	7.3	A	9.1
23	Bernal	Valley	C	31.0	D	38.8
24	Bernal	Fire Station No. 4	A	0.0	A	0.0
25	Bernal	Pleasanton Ave	B	19.7	B	16.1
26	Bernal	Old Bernal	D	39.2	D	54.8
27	I-580 WB Off	Hopyard	C	32.8	D	44.2
28	I-580 EB Off	Hopyard	C	23.1	C	29.9
29	Owens Drive	Hopyard	D	37.6	D	53.7
30	Gibraltar Dr (N)	Hopyard	B	11.9	B	13.0
31	Washington Mutual	Hopyard	A	6.5	B	10.3
32	Stoneridge	Hopyard	D	37.9	D	40.0

33	Inglewood Dr	Hopyard	C	21.1	B	15.6
34	Coronado Ln	Hopyard	A	6.2	A	2.7
35	W Las Positas	Hopyard	C	29.5	D	54.2
36	Valley Trails (North)	Hopyard	A	6.6	C	23.6
37	Valley Trails (South)	Hopyard	A	6.3	B	17.2
38	Valley	Hopyard	C	32.1	D	45.7
39	Black Ave.	Hopyard	B	18.2	B	15.7
40	Owens Drive	Johnson	B	17.9	C	20.6
41	Washington Mutual	Johnson	A	6.0	A	5.8
42	Koll Center (N)	Valley	C	29.8	D	38.4
43	Valley	Case	A	0.0	A	0.0
44	Owens Drive	Chabot Dr	B	11.1	B	17.2
45	Owens Drive	BART Entrance	B	15.0	B	16.6
46	Owens Drive	East Bart	A	7.3	B	13.5
47	Owens Drive	Oracle Lane	B	16.1	B	16.7
48	Gibraltar Dr (N)	Chabot Dr	A	5.5	A	5.7
49	Gibraltar Dr (N)	Willow	B	10.4	B	12.1
50	Stoneridge	Chabot Dr	B	11.8	B	16.1
51	Stoneridge	Willow	B	18.1	B	19.5
52	W Las Positas	Willow	B	15.0	A	9.6
53	I-580 WB Off to Hacienda	Hacienda	B	10.9	B	13.3
54	I-580 EB Off	Hacienda	B	18.6	C	26.0
55	Owens Drive	Hacienda	C	31.7	D	38.4
56	Gibraltar Dr (N)	Hacienda	B	13.1	C	21.1
57	Stoneridge	Hacienda	C	31.5	D	36.2
58	Gibraltar Dr (S)	Hacienda	A	8.0	A	6.1
59	W Las Positas	Hacienda	B	19.6	B	12.6
60	Owens Drive	Rosewood	B	10.5	A	9.8
61	Walmart	Rosewood	A	7.7	B	12.2
62	Rose Pav	Rosewood	A	5.3	A	9.3
63	Stoneridge	Gibraltar Dr	B	11.3	B	12.9
64	Stoneridge	W Las Positas	C	27.9	D	46.7
65	W Las Positas	Owens Drive	B	15.9	B	15.7
66	Valley	Greenwood Dr	C	28.3	B	16.7
67	I-580 WB	Santa Rita	B	10.3	C	26.2
68	EB off to Santa Rita	Santa Rita	D	35.1	D	37.2
69	Rosewood	Santa Rita	A	7.1	B	19.6
70	Old Santa Rita Rd	Santa Rita	B	16.3	B	11.5
71	W Las Positas	Santa Rita	D	47.1	D	53.2
72	Stoneridge	Santa Rita	D	38.4	D	45.9
73	Mohr Avenue	Santa Rita	C	21.3	C	23.1
74	Valley	Santa Rita	D	44.9	D	47.9

75	Francisco	Santa Rita	0.0	0.0	0.0	0.0
76	Black Ave.	Santa Rita	C	26.5	D	40.0
77	Amador High School	Santa Rita	A	2.9	A	3.9
78	Stanley Blvd	Main St	C	26.6	B	15.4
79	Ray St	Main St	F	101.7	F	137.6
80	Rose	Main St	C	21.4	A	9.7
81	Stoneridge	Rheem	A	7.3	A	7.2
82	Stoneridge	Kamp	B	10.1	A	8.9
83	Hansen	Valley	0.0	0.0	0.0	0.0
86	Valley	Kolln	B	14.6	B	13.1
87	Valley	Quarry	A	9.5	C	20.9
88	Valley	Busch	B	15.6	C	32.2
89	Boulder	Valley	B	10.4	B	13.2
90	Stanley Blvd	Valley	D	44.0	D	50.9
91	Stanley Blvd	Reflection	B	18.5	D	54.0
92	Stanley Blvd	Driveway	B	10.1	B	13.3
93	Ray St	First	D	41.5	F	132.3
94	Spring	First	D	38.2	F	130.4
95	Neal St	First	C	32.6	D	39.0
96	Bernal	First St	E	58.7	E	65.8
97	Mission Dr	Sunol Blvd	A	8.8	A	7.8
98	Valley	Sunol	F	99.8	D	44.8
99	Sycamore Rd	Sunol	C	23.0	C	32.8
100	Arlington Dr	Sunol	C	23.2	B	17.1
101	Bernal	Main St	0.0	0.0	0.0	0.0
103	Busch	Ironwood	A	0.0	A	0.0
105	Driveway	Bernal	B	15.5	B	15.0
106	Vineyard	Bernal	D	40.6	C	23.9
107	Bernal	Independence	B	12.3	D	52.6
108	Vineyard	Montevino	A	6.0	A	5.4
109	Vineyard	Pietronave	A	0.0	A	0.0
110	Vineyard	Ruby Hill	B	11.4	B	14.0
118	Bernal		0.0	0.0	0.0	0.0
125	Castlewood	Sunol	0.0	0.0	0.0	0.0
126	W Las Positas	Fairlands	0.0	0.0	0.0	0.0
138	I-580	I-580 EB Off to Hacienda	0.0	0.0	0.0	0.0
139	Amador valley	Hopyard	A	0.0	A	0.0
141	I-580	I-580 WB Off to Hopyard	0.0	0.0	0.0	0.0
146	St Mary	Main St	0.0	0.0	0.0	0.0
157	Paseo Santa Cruz (N)	Valley	0.0	0.0	0.0	0.0
162	Stoneridge		0.0	0.0	0.0	0.0

171	I-580 WB Off to Foothill	Foothill Rd	0.0	0.0	0.0	0.0
178	Valley	Driveway	0.0	0.0	0.0	0.0
183	Koll Ctr Pkwy	Valley	0.0	0.0	0.0	0.0
184	I-680 SB Off to Bernal	I-680	0.0	0.0	0.0	0.0
187	Black Ave.	Crestline	0.0	0.0	0.0	0.0
190	I-580 WB On	Hopyard	0.0	0.0	0.0	0.0
192	SB Off to I-580 EB		0.0	0.0	0.0	0.0
197	Old Bernal	Peters	0.0	0.0	0.0	0.0
198	Inglewood Dr	Chabot Dr	0.0	0.0	0.0	0.0
200	Gleason	Tasajara	A	0.0	A	0.0
204	Santa Rita		0.0	0.0	0.0	0.0
205	I-580 WB Off to Foothill	Off to NB Foothill	0.0	0.0	0.0	0.0
209	I-580 EB	Foothill Rd	0.0	0.0	0.0	0.0
214	I-580 WB Off to Foothill	On from SB Foothill	0.0	0.0	0.0	0.0
220	Mission Dr	Dolores	0.0	0.0	0.0	0.0
225	Stoneridge Mall	Laurel Creek	0.0	0.0	0.0	0.0
231	Stoneridge Mall	Springdale	0.0	0.0	0.0	0.0
233	Embarcadero	Stoneridge Mall	C	25.4	0.0	0.0
243	Stoneridge	Pleasant Hill	0.0	0.0	0.0	0.0
245	Oak Creek	Foothill Rd	0.0	0.0	0.0	0.0
246	I-580	I-680 to I-580 EB On Ramp	0.0	0.0	0.0	0.0
248	Highland Oaks	Foothill Rd	0.0	0.0	0.0	0.0

Appendix D –Cumulative + Hacienda TOD Project LOS

	Intersection		AM Peak Hour LOS Hacienda TOD - lane red		PM Peak Hour LOS Hacienda TOD - lane red	
			LOS	Delay	LOS	Delay
1	Dublin Cyn	Foothill Rd	C	31.1	D	47.6
2	Deodar	Foothill Rd	B	13.8	B	16.5
3	Laurel Creek	Foothill Rd	B	14.9	B	14.0
4	Laurel Creek Drive	Foothill Rd	C	21.2	C	24.5
5	Serenity Terrace	Foothill Rd	A	8.6	A	6.6
6	W Las Positas	Foothill Rd	C	20.8	B	16.6
7	Foothill High School (Circle Dwy) OUT	Foothill Rd	A	0.0	A	0.0
8	Bernal	Foothill Rd	B	13.6	B	14.5
9	Canyon Way	Stoneridge Mall	A	8.3	A	8.6
10	Stoneridge Mall	Fabian	B	13.5	F	80.1
11	McWilliams	Stoneridge Mall	A	7.4	B	12.4
12	Stoneridge	Springdale	C	23.4	D	35.2
13	Stoneridge	Stoneridge Mall	B	14.6	C	32.6
14	Stoneridge	I-680 SB	D	39.5	C	23.8
15	Stoneridge	I-680 NB Off to Stoneridge	B	14.9	D	43.8
16	Stoneridge	Johnson	B	12.1	C	31.9
17	Stoneridge	Franklin	D	35.9	C	27.2
18	W Las Positas	Dorman	C	21.8	B	13.6
19	Bernal	Meadowlark	A	7.8	A	7.2
20	Bernal	SB On from Bernal	A	5.5	A	2.5
21	Bernal	I-680 NB Off to Bernal	C	23.7	E	68.2
22	Bernal	Koll Ctr Dr	A	7.6	A	9.9
23	Bernal	Valley	F	89.7	E	79.8
24	Bernal	Fire Station No. 4	A	0.0	A	0.0
25	Bernal	Pleasanton Ave	B	19.1	B	16.5
26	Bernal	Old Bernal	E	56.0	E	55.6
27	I-580 WB Off	Hopyard	C	27.3	D	47.2
28	I-580 EB Off	Hopyard	B	16.6	D	51.0
29	Owens Drive	Hopyard	D	38.6	F	280.6
30	Gibraltar Dr (N)	Hopyard	A	7.8	B	13.0
31	Washington Mutual	Hopyard	A	6.4	B	10.6
32	Stoneridge	Hopyard	D	36.7	E	60.7
33	Inglewood Dr	Hopyard	C	20.5	B	16.3

34	Coronado Ln	Hopyard	A	6.4	A	2.7
35	W Las Positas	Hopyard	C	28.5	D	51.6
36	Valley Trails (North)	Hopyard	A	6.5	C	24.2
37	Valley Trails (South)	Hopyard	A	6.4	B	17.3
38	Valley	Hopyard	C	32.2	D	47.2
39	Black Ave.	Hopyard	C	20.0	B	15.8
40	Owens Drive	Johnson	B	17.5	C	21.2
41	Washington Mutual	Johnson	A	5.9	A	5.9
42	Koll Center (N)	Valley	C	30.0	D	42.5
43	Valley	Case	A	0.0	A	0.0
44	Owens Drive	Chabot Dr	B	12.9	B	16.9
45	Owens Drive	BART Entrance	B	15.1	B	14.0
46	Owens Drive	East Bart	A	7.2	B	13.4
47	Owens Drive	Oracle Lane	B	16.0	B	17.5
48	Gibraltar Dr (N)	Chabot Dr	A	4.9	A	5.6
49	Gibraltar Dr (N)	Willow	A	8.2	A	7.3
50	Stoneridge	Chabot Dr	B	12.2	B	16.4
51	Stoneridge	Willow	C	21.5	C	20.1
52	W Las Positas	Willow	B	15.1	A	9.6
53	I-580 WB Off to Hacienda	Hacienda	B	10.6	B	11.7
54	I-580 EB Off	Hacienda	B	18.5	C	20.2
55	Owens Drive	Hacienda	D	43.8	D	52.7
56	Gibraltar Dr (N)	Hacienda	B	13.1	B	17.7
57	Stoneridge	Hacienda	C	31.2	C	30.6
58	Gibraltar Dr (S)	Hacienda	A	8.7	A	5.6
59	W Las Positas	Hacienda	B	18.5	B	14.4
60	Owens Drive	Rosewood	B	10.5	A	9.9
61	Walmart	Rosewood	A	7.7	B	12.2
62	Rose Pav	Rosewood	A	5.3	A	9.4
63	Stoneridge	Gibraltar Dr	B	10.9	B	14.0
64	Stoneridge	W Las Positas	C	28.2	F	91.2
65	W Las Positas	Owens Drive	B	16.0	B	15.9
66	Valley	Greenwood Dr	C	28.9	B	17.1
67	I-580 WB	Santa Rita	B	10.3	C	25.5
68	EB off to Santa Rita	Santa Rita	C	34.6	F	81.9
69	Rosewood	Santa Rita	A	7.1	B	19.1
70	Old Santa Rita Rd	Santa Rita	B	15.8	B	11.5
71	W Las Positas	Santa Rita	D	46.2	D	53.1
72	Stoneridge	Santa Rita	D	40.2	D	47.2
73	Mohr Avenue	Santa Rita	C	21.7	C	24.2
74	Valley	Santa Rita	D	46.2	E	66.6
75	Francisco	Santa Rita	0.0	0.0	0.0	0.0

76	Black Ave.	Santa Rita	C	27.0	D	39.8
77	Amador High School	Santa Rita	A	2.9	A	3.9
78	Stanley Blvd	Main St	C	30.3	B	16.7
79	Ray St	Main St	F	102.6	F	138.0
80	Rose	Main St	C	22.0	A	9.5
81	Stoneridge	Rheem	A	7.4	A	7.2
82	Stoneridge	Kamp	B	10.4	A	9.4
83	Hansen	Valley	0.0	0.0	0.0	0.0
86	Valley	Kolln	B	14.6	B	13.1
87	Valley	Quarry	B	10.1	C	21.0
88	Valley	Busch	B	16.9	C	20.3
89	Boulder	Valley	B	10.3	B	12.7
90	Stanley Blvd	Valley	D	47.7	F	150.6
91	Stanley Blvd	Reflection	B	18.0	D	54.6
92	Stanley Blvd	Driveway	B	10.8	B	14.0
93	Ray St	First	F	80.3	F	136.1
94	Spring	First	D	41.2	F	137.6
95	Neal St	First	C	27.9	D	43.8
96	Bernal	First St	E	58.4	E	74.8
97	Mission Dr	Sunol Blvd	A	9.0	A	7.9
98	Valley	Sunol	D	50.4	D	46.6
99	Sycamore Rd	Sunol	C	23.9	C	32.9
100	Arlington Dr	Sunol	C	23.2	B	17.1
101	Bernal	Main St	0.0	0.0	0.0	0.0
103	Busch	Ironwood	A	0.0	A	0.0
105	Driveway	Bernal	B	16.2	B	15.2
106	Vineyard	Bernal	D	42.2	C	26.8
107	Bernal	Independence	B	12.1	D	53.4
108	Vineyard	Montevino	A	6.0	A	5.7
109	Vineyard	Pietronave	A	0.0	A	0.0
110	Vineyard	Ruby Hill	B	11.2	B	14.2
118	Bernal		0.0	0.0	0.0	0.0
125	Castlewood	Sunol	0.0	0.0	0.0	0.0
126	W Las Positas	Fairlands	0.0	0.0	0.0	0.0
138	I-580	I-580 EB Off to Hacienda	0.0	0.0	0.0	0.0
139	Amador valley	Hopyard	A	0.0	A	0.0
141	I-580	I-580 WB Off to Hopyard	0.0	0.0	0.0	0.0
146	St Mary	Main St	0.0	0.0	0.0	0.0
157	Paseo Santa Cruz (N)	Valley	0.0	0.0	0.0	0.0
162	Stoneridge		0.0	0.0	0.0	0.0
171	I-580 WB Off to Foothill	Foothill Rd	0.0	0.0	0.0	0.0

178	Valley	Driveway	0.0	0.0	0.0	0.0
183	Koll Ctr Pkwy	Valley	0.0	0.0	0.0	0.0
184	I-680 SB Off to Bernal	I-680	0.0	0.0	0.0	0.0
187	Black Ave.	Crestline	0.0	0.0	0.0	0.0
190	I-580 WB On	Hopyard	0.0	0.0	0.0	0.0
192	SB Off to I-580 EB		0.0	0.0	0.0	0.0
197	Old Bernal	Peters	0.0	0.0	0.0	0.0
198	Inglewood Dr	Chabot Dr	0.0	0.0	0.0	0.0
200	Gleason	Tasajara	A	0.0	A	0.0
204	Santa Rita		0.0	0.0	0.0	0.0
205	I-580 WB Off to Foothill	Off to NB Foothill	0.0	0.0	0.0	0.0
209	I-580 EB	Foothill Rd	0.0	0.0	0.0	0.0
214	I-580 WB Off to Foothill	On from SB Foothill	0.0	0.0	0.0	0.0
220	Mission Dr	Dolores	0.0	0.0	0.0	0.0
225	Stoneridge Mall	Laurel Creek	0.0	0.0	0.0	0.0
231	Stoneridge Mall	Springdale	0.0	0.0	0.0	0.0
233	Embarcadero	Stoneridge Mall	C	25.4	0.0	0.0
243	Stoneridge	Pleasant Hill	0.0	0.0	0.0	0.0
245	Oak Creek	Foothill Rd	0.0	0.0	0.0	0.0
246	I-580	I-680 to I-580 EB On Ramp	0.0	0.0	0.0	0.0
248	Highland Oaks	Foothill Rd	0.0	0.0	0.0	0.0

Appendix E –Cumulative + Hacienda TOD Project LOS Mitigated

	Intersection		AM Peak Hour LOS Hacienda TOD - lane red		PM Peak Hour LOS Hacienda TOD - lane red	
			LOS	Delay	LOS	Delay
1	Dublin Cyn	Foothill Rd	C	31.1	D	47.6
2	Deodar	Foothill Rd	B	13.8	B	16.5
3	Laurel Creek	Foothill Rd	B	14.9	B	14.0
4	Laurel Creek Drive	Foothill Rd	C	21.2	C	24.5
5	Serenity Terrace	Foothill Rd	A	8.6	A	6.6
6	W Las Positas	Foothill Rd	C	20.8	B	16.6
7	Foothill High School (Circle Dwy) OUT	Foothill Rd	A	0.0	A	0.0
8	Bernal	Foothill Rd	B	13.6	B	14.5
9	Canyon Way	Stoneridge Mall	A	8.3	A	8.6
10	Stoneridge Mall	Fabian	B	13.5	F	80.1
11	McWilliams	Stoneridge Mall	A	7.4	B	12.4
12	Stoneridge	Springdale	C	23.4	D	35.2
13	Stoneridge	Stoneridge Mall	B	14.6	C	32.6
14	Stoneridge	I-680 SB	D	39.5	C	23.8
15	Stoneridge	I-680 NB Off to Stoneridge	B	14.9	D	43.8
16	Stoneridge	Johnson	B	12.1	C	31.9
17	Stoneridge	Franklin	D	35.9	C	27.2
18	W Las Positas	Dorman	C	21.8	B	13.6
19	Bernal	Meadowlark	A	7.8	A	7.2
20	Bernal	SB On from Bernal	A	5.5	A	2.5
21	Bernal	I-680 NB Off to Bernal	C	23.7	C	34.4
22	Bernal	Koll Ctr Dr	A	7.6	A	9.9
23	Bernal	Valley	C	31.2	D	39.0
24	Bernal	Fire Station No. 4	A	0.0	A	0.0
25	Bernal	Pleasanton Ave	B	19.1	B	16.5
26	Bernal	Old Bernal	E	56.0	E	55.6
27	I-580 WB Off	Hopyard	C	27.3	D	47.2
28	I-580 EB Off	Hopyard	B	16.6	D	51.0
29	Owens Drive	Hopyard	D	38.6	D	53
30	Gibraltar Dr (N)	Hopyard	A	7.8	B	13.0
31	Washington Mutual	Hopyard	A	6.4	B	10.6

32	Stoneridge	Hopyard	D	36.7	D	38.1
33	Inglewood Dr	Hopyard	C	20.5	B	16.3
34	Coronado Ln	Hopyard	A	6.4	A	2.7
35	W Las Positas	Hopyard	C	28.5	D	51.6
36	Valley Trails (North)	Hopyard	A	6.5	C	24.2
37	Valley Trails (South)	Hopyard	A	6.4	B	17.3
38	Valley	Hopyard	C	32.2	D	47.2
39	Black Ave.	Hopyard	C	20.0	B	15.8
40	Owens Drive	Johnson	B	17.5	C	21.2
41	Washington Mutual	Johnson	A	5.9	A	5.9
42	Koll Center (N)	Valley	C	30.0	D	42.5
43	Valley	Case	A	0.0	A	0.0
44	Owens Drive	Chabot Dr	B	12.9	B	16.9
45	Owens Drive	BART Entrance	B	15.1	B	14.0
46	Owens Drive	East Bart	A	7.2	B	13.4
47	Owens Drive	Oracle Lane	B	16.0	B	17.5
48	Gibraltar Dr (N)	Chabot Dr	A	4.9	A	5.6
49	Gibraltar Dr (N)	Willow	A	8.2	A	7.3
50	Stoneridge	Chabot Dr	B	12.2	B	16.4
51	Stoneridge	Willow	C	21.5	C	20.1
52	W Las Positas	Willow	B	15.1	A	9.6
53	I-580 WB Off to Hacienda	Hacienda	B	10.6	B	11.7
54	I-580 EB Off	Hacienda	B	18.5	C	20.2
55	Owens Drive	Hacienda	D	43.8	D	52.7
56	Gibraltar Dr (N)	Hacienda	B	13.1	B	17.7
57	Stoneridge	Hacienda	C	31.2	C	30.6
58	Gibraltar Dr (S)	Hacienda	A	8.7	A	5.6
59	W Las Positas	Hacienda	B	18.5	B	14.4
60	Owens Drive	Rosewood	B	10.5	A	9.9
61	Walmart	Rosewood	A	7.7	B	12.2
62	Rose Pav	Rosewood	A	5.3	A	9.4
63	Stoneridge	Gibraltar Dr	B	10.9	B	14.0
64	Stoneridge	W Las Positas	C	28.2	D	48.7
65	W Las Positas	Owens Drive	B	16.0	B	15.9
66	Valley	Greenwood Dr	C	28.9	B	17.1
67	I-580 WB	Santa Rita	B	10.3	C	25.5
68	EB off to Santa Rita	Santa Rita	C	34.6	D	37.2
69	Rosewood	Santa Rita	A	7.1	B	19.1
70	Old Santa Rita Rd	Santa Rita	B	15.8	B	11.5
71	W Las Positas	Santa Rita	D	46.2	D	53.1
72	Stoneridge	Santa Rita	D	40.2	D	47.2
73	Mohr Avenue	Santa Rita	C	21.7	C	24.2

74	Valley	Santa Rita	D	46.2	D	51.4
75	Francisco	Santa Rita	0.0	0.0	0.0	0.0
76	Black Ave.	Santa Rita	C	27.0	D	39.8
77	Amador High School	Santa Rita	A	2.9	A	3.9
78	Stanley Blvd	Main St	C	30.3	B	16.7
79	Ray St	Main St	F	102.6	F	138.0
80	Rose	Main St	C	22.0	A	9.5
81	Stoneridge	Rheem	A	7.4	A	7.2
82	Stoneridge	Kamp	B	10.4	A	9.4
83	Hansen	Valley	0.0	0.0	0.0	0.0
86	Valley	Kolln	B	14.6	B	13.1
87	Valley	Quarry	B	10.1	C	21.0
88	Valley	Busch	B	16.9	C	20.3
89	Boulder	Valley	B	10.3	B	12.7
90	Stanley Blvd	Valley	D	47.7	D	51.5
91	Stanley Blvd	Reflection	B	18.0	D	54.6
92	Stanley Blvd	Driveway	B	10.8	B	14.0
93	Ray St	First	F	80.3	F	136.1
94	Spring	First	D	41.2	F	137.6
95	Neal St	First	C	27.9	D	43.8
96	Bernal	First St	E	58.4	E	74.8
97	Mission Dr	Sunol Blvd	A	9.0	A	7.9
98	Valley	Sunol	D	50.4	D	46.6
99	Sycamore Rd	Sunol	C	23.9	C	32.9
100	Arlington Dr	Sunol	C	23.2	B	17.1
101	Bernal	Main St	0.0	0.0	0.0	0.0
103	Busch	Ironwood	A	0.0	A	0.0
105	Driveway	Bernal	B	16.2	B	15.2
106	Vineyard	Bernal	D	42.2	C	26.8
107	Bernal	Independence	B	12.1	D	53.4
108	Vineyard	Montevino	A	6.0	A	5.7
109	Vineyard	Pietronave	A	0.0	A	0.0
110	Vineyard	Ruby Hill	B	11.2	B	14.2
118	Bernal		0.0	0.0	0.0	0.0
125	Castlewood	Sunol	0.0	0.0	0.0	0.0
126	W Las Positas	Fairlands	0.0	0.0	0.0	0.0
138	I-580	I-580 EB Off to Hacienda	0.0	0.0	0.0	0.0
139	Amador valley	Hopyard	A	0.0	A	0.0
141	I-580	I-580 WB Off to Hopyard	0.0	0.0	0.0	0.0
146	St Mary	Main St	0.0	0.0	0.0	0.0
157	Paseo Santa Cruz (N)	Valley	0.0	0.0	0.0	0.0

162	Stoneridge		0.0	0.0	0.0	0.0
171	I-580 WB Off to Foothill	Foothill Rd	0.0	0.0	0.0	0.0
178	Valley	Driveway	0.0	0.0	0.0	0.0
183	Koll Ctr Pkwy	Valley	0.0	0.0	0.0	0.0
184	I-680 SB Off to Bernal	I-680	0.0	0.0	0.0	0.0
187	Black Ave.	Crestline	0.0	0.0	0.0	0.0
190	I-580 WB On	Hopyard	0.0	0.0	0.0	0.0
192	SB Off to I-580 EB		0.0	0.0	0.0	0.0
197	Old Bernal	Peters	0.0	0.0	0.0	0.0
198	Inglewood Dr	Chabot Dr	0.0	0.0	0.0	0.0
200	Gleason	Tasajara	A	0.0	A	0.0
204	Santa Rita		0.0	0.0	0.0	0.0
205	I-580 WB Off to Foothill	Off to NB Foothill	0.0	0.0	0.0	0.0
209	I-580 EB	Foothill Rd	0.0	0.0	0.0	0.0
214	I-580 WB Off to Foothill	On from SB Foothill	0.0	0.0	0.0	0.0
220	Mission Dr	Dolores	0.0	0.0	0.0	0.0
225	Stoneridge Mall	Laurel Creek	0.0	0.0	0.0	0.0
231	Stoneridge Mall	Springdale	0.0	0.0	0.0	0.0
233	Embarcadero	Stoneridge Mall	C	25.4	0.0	0.0
243	Stoneridge	Pleasant Hill	0.0	0.0	0.0	0.0
245	Oak Creek	Foothill Rd	0.0	0.0	0.0	0.0
246	I-580	I-680 to I-580 EB On Ramp	0.0	0.0	0.0	0.0
248	Highland Oaks	Foothill Rd	0.0	0.0	0.0	0.0