

TJKM
Transportation
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Vision That Moves Your Community

Final Report

Traffic Circulation Study for the El Cerrito Plaza Shopping Center

In the City of El Cerrito

September 16, 2010



Pleasanton
Fresno
Sacramento
Santa Rosa



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Introduction and Summary

Introduction

The focus of the project is to perform a comprehensive traffic and circulation study to establish workable measures to improve traffic circulation to and from the proposed Creekside project in the El Cerrito Plaza and land use in the surrounding area. Due to the already congested existing internal roadway circulation, it is necessary to explore alternative means to improve the circulation. The site vicinity is shown in Figure 1.

TJKM's approach is directed towards providing a complete picture of existing and future conditions starting with comprehensive data collection of the four major modes of travel (bike pedestrian, autos and truck traffic) and then working through the implications of possible improvement alternatives to arrive at a preferred alternative.

There are several important considerations in analyzing the potential traffic and circulation improvements for the proposed Creekside project and El Cerrito Plaza.

These issues include:

- Available roadway constraints and ease of access to accommodate the four modes of travel
- Roadway right-of-way constraints
- Implications on traffic safety
- Provision for access by bicyclists and pedestrians



El Cerrito Plaza Shopping Center

The City Council Condition of Approval for the Creekside project includes the following key elements:

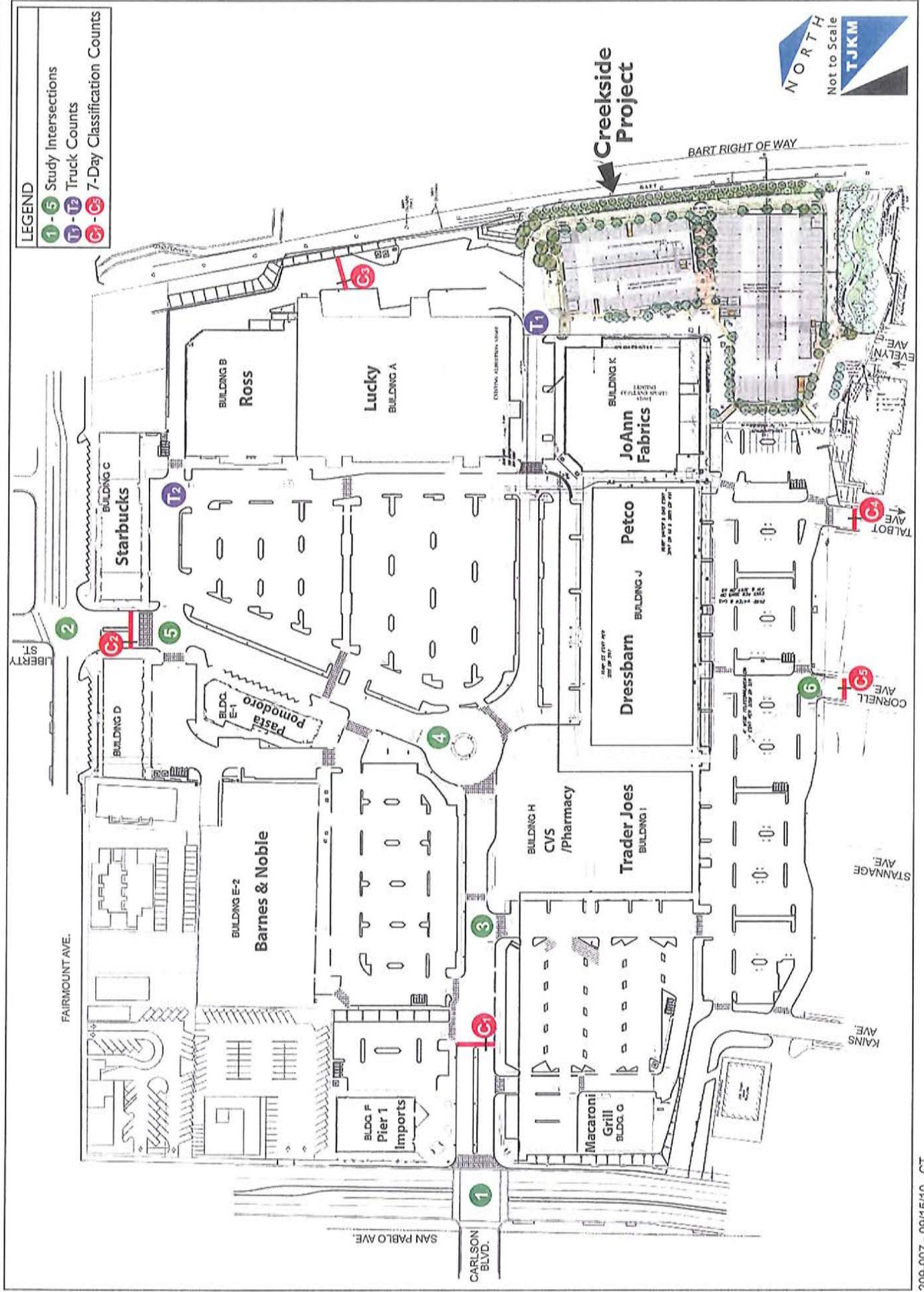
1. Provide improvement for traffic to and from the project
2. Provide clearly delineated path from the project to San Pablo Avenue
3. Analyze truck movements and conflicts with auto traffic in the area adjacent to the Albertson's loading dock

TJKM's study considered all of the issues detailed above. We have developed a workable transportation plan that will ease the traffic concerns associated with the proposed Creekside project. The existing on-site circulation of the El Cerrito Plaza and the proposed Creekside project is shown in Figure 2.



City of El Cerrito - Comprehensive Traffic and Circulation Study for El Cerrito Plaza
 El Cerrito Plaza and Creekside Project Site Plan

Figure 2



Summary

Traffic Characteristics

San Pablo Avenue Entrance

Daily traffic volumes data on the San Pablo Avenue entrance showed the midday peak on a typical weekday to occur around noon and the p.m. peak hour to occur after 5:00 p.m. The weekday peak hour volumes are generally less than 750 vehicles per hour.

The midday and p.m. peak hours of a typical weekday are generally less than an hour while the Saturday midday peak period begins earlier at 11:30 a.m. and lasted for more than three hours till 2:30 p.m. This is likely due to the Farmers Market which takes place at the plaza on Saturdays.

Fairmount Avenue Entrance

Based on the collected data, there is no distinct midday peak hour during a typical weekday. The midday peak hour volume is generally less than 600 vehicles per hour (or 20 percent less than the volume on San Pablo Avenue).

Truck Characteristics

The highest amount of trucks (single unit or higher) access the shopping plaza through Fairmount Avenue. It is estimated that the daily average is approximately 957 trucks (13 percent) that enter and exit the shopping plaza through Fairmount Avenue. Compared to the San Pablo Avenue truck volumes of approximately 541 trucks this amount is nearly doubled.

Proposed Project

It is estimated that the proposed Creekside project will generate approximately 65 a.m. peak hour trips and 79 p.m. peak hour trips.

Levels of Service Analysis

It is estimated that the all study intersections will operate with acceptable LOS D or better for Existing plus Project and 2025 Cumulative plus Project scenarios. However, the study evaluates means to improve queuing and enhance circulation in the shopping center.

Improvements to the Circulation System

Based on field observations, review of collected data and discussions with staff, roadway improvements have been recommended at more than eight locations in the shopping center. In addition, a clearly delineated path from the proposed Creekside Project to San Pablo Avenue has been recommended.

Data Collection, Existing Condition, and Analysis

Data Collection

TJKM collected peak hour counts focusing on the following locations where conflicts may be an issue:

I. Manual Peak Period Turning Movement Ped/Bike/Vehicle Counts (Midday and p.m.)

- Carlson Boulevard/San Pablo Avenue
- Fairmont Avenue/Liberty Street
- Internal All-Way STOP near Longs
- Internal Traffic Circle
- Internal Plaza Roadway/Starbucks
- South Roadway/Cornell Street

II. Manual Peak Period Turning Truck Counts (Midday and p.m.)

- Center Roadway/East Roadway (T1)
- Intersection next to Ross (Building B) and Building C (T2)

The location is shown in Figure 3.

III. 7-Day Classification Machine Counts

In addition to the manual turn counts, 7-day classification machine counts were obtained at several study segments. These are directional, 15-minute counts for seven days to understand daily and hourly variations. The roadway segments are:

- Central Plaza roadway near Carlson Boulevard/San Pablo Avenue
- Central Plaza roadway near Fairmont Avenue/Liberty Street
- East Roadway behind Ross and Lucky's
- South Roadway near Cornell Street

The classification counts will help establish the percentage and amount of truck traffic and will reveal any major truck movement locations and times of such occurrences.

TJKM conducted field observations and investigations during midday and p.m. peak hours, which include:

- The Circle at the Plaza,
- Identification of all crosswalks and pedestrian path of travel,
- Long queues at Stop signs near Longs Drugs,
- Blocking of the intersection near Liberty exit, and
- Mapping efficient path of travel for bikes and pedestrian connections from the Ohlone Greenway to the shopping center and the Cerrito Creek Greenway.

Existing Conditions

Key roadways serving the project site are shown in Figure 1. The study area is bounded on the west by San Pablo Avenue, a major north-south arterial and on the north by Fairmount Avenue, a two lane minor arterial.

Vehicles can access the popular shopping plaza through either the San Pablo Avenue or Fairmount Avenue entrances. Once inside the shopping center from San Pablo Avenue, there is a main access road that runs roughly east-west and then north-easterly to connect with Fairmount Avenue as shown on the aerial photo to the right.



El Cerrito Plaza Aerial View

In addition, vehicles, pedestrians and bicyclists can also access the shopping center through Albany as indicated in the Albany Traffic Calming Study¹ which evaluated traffic coming to and from the shopping center.

Existing Traffic Volumes

Midday and p.m. peak hour turning movement volumes were collected at the following intersections.

1. Carlson Boulevard/San Pablo Avenue (signalized)
2. Fairmont Avenue/Liberty Street (signalized)
3. Internal All-Way STOP near Longs
4. Internal Traffic Circle (All-Way Stop control)
5. Internal Plaza Roadway/Starbucks (two-way Stop control)
6. South Roadway/Cornell Street (two-way Stop control)

The existing volumes for the six study intersections are shown in Figure 3.

Level of Service Analysis Methodology

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays.

¹ Ms. Ann Chaney, City of Albany, February 22, 2008

The *2000 Highway Capacity Manual (HCM)* is the standard reference published by the Transportation Research Board, and contains the specific criteria and methods to be used in assessing LOS. In this study the Synchro software was used to calculate the LOS at the study intersections. A detailed description of the methodology is provided in Appendix A.

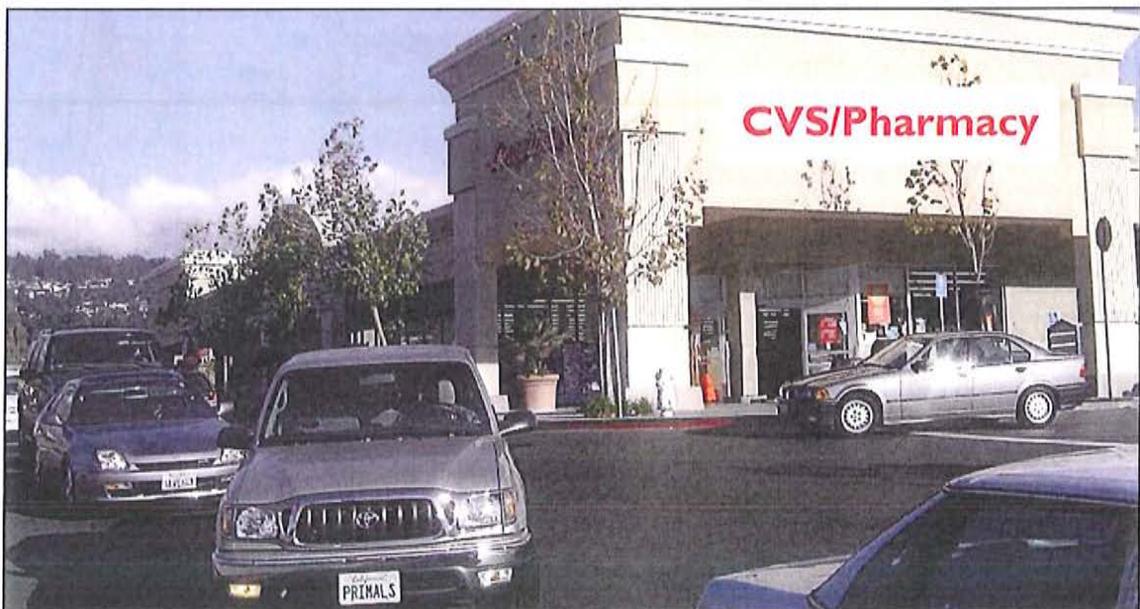
Level of Service Analysis

Table I summarizes the results of the LOS analysis at the study intersections. Detailed calculations are contained in Appendix B.

Table I: Intersection Levels of Service – Existing Conditions

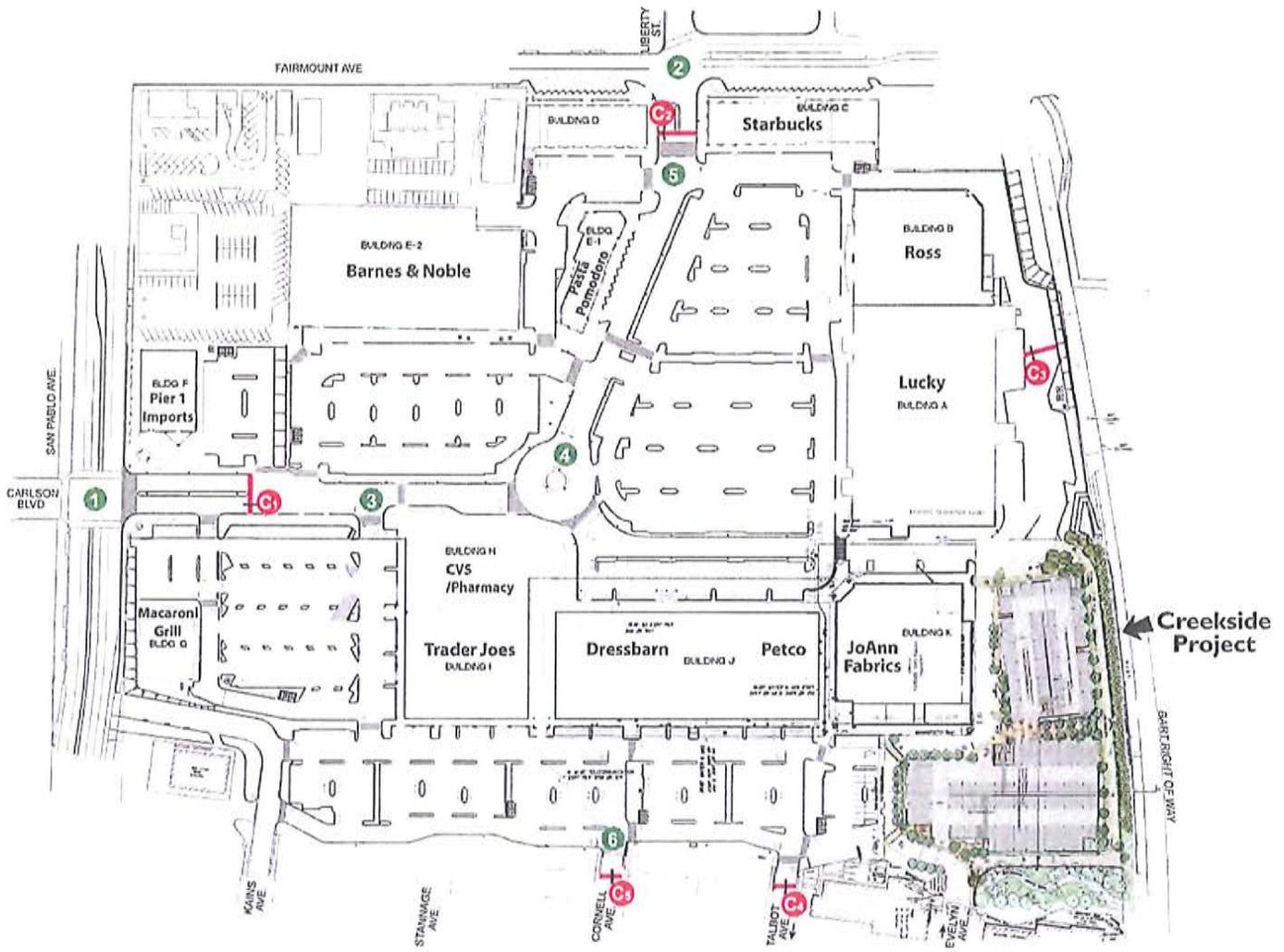
No.	Intersection	Control Type	Midday Peak Hour		P.M. Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Signal	28.1	C	30.7	C
2	Fairmont Ave./Liberty St.	Signal	20.7	C	22.6	C
3	El Cerrito Plaza/CVS/Pharmacy Dwy.	All-way Stop	12.9	B	12.1	B
5	El Cerrito Plaza/Starbucks Dwy.	Two-way Stop	16.9	C	22.2	C
No.	Intersection	Control Type	V/C Ratio	ICU LOS	V/C Ratio	ICU LOS
4	El Cerrito Plaza/Internal Traffic Circle	Circle	0.23	A	0.26	A

All the intersections currently operate at levels of service (LOS) D or better. The criterion of LOS, however, does not give the full picture. Even with acceptable LOS, queuing and vehicle conflicts with pedestrians and trucks represent an overall operating condition that could be improved.



**Congested P.M. Peak Hour Traffic Condition near
CVS/Pharmacy**

Intersection #1 San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Intersection #2 Fairmont Ave./ Liberty St.	Intersection #3 El Cerrito Plaza/ Internal All-Way Stop	Intersection #4 El Cerrito Plaza/ Internal Traffic Circle	Intersection #5 El Cerrito Plaza/ Starbucks Roadway
<p>Northbound: 17 (16), 685 (742), 164 (127), 215 (120), 174 (127), 150 (105)</p> <p>Southbound: 19 (16), 234 (200), 223 (270), 259 (247), 755 (1,090), 198 (149)</p>	<p>Northbound: 11 (15), 62 (67), 11 (13), 9 (14), 188 (285), 120 (157)</p> <p>Southbound: 9 (2), 192 (231), 134 (119), 97 (123), 53 (60), 141 (194)</p>	<p>Northbound: 178 (215), 122 (120)</p> <p>Southbound: 212 (233), 154 (109), 125 (130), 76 (86)</p>	<p>Northbound: 208 (235), 31 (31), 2 (1), 21 (24), 44 (40)</p> <p>Southbound: 168 (187), 8 (13), 89 (119), 73 (62), 47 (52), 1 (1)</p>	<p>Northbound: 7 (15), 227 (222), 75 (105), 94 (130), 2 (2), 14 (18)</p> <p>Southbound: 9 (21), 6 (2), 5 (6), 15 (4), 195 (222), 17 (20)</p>
<p>Intersection #6 Cornell St./Location along South Roadway</p> <p>Northbound: 6 (2), 42 (34), 3 (1), 3 (3), 16 (26), 8 (9)</p> <p>Southbound: 3 (2), 21 (19), 47 (67), 16 (18), 21 (25), 17 (22)</p>	<p>Intersection #T₁ East Roadway/ Center Roadway</p> <p>Northbound: 4 (3), 20 (26), 4 (5), 64 (92), 44 (63), 38 (44)</p>	<p>Intersection #T₂ Intersection next to Ross/Starbucks</p> <p>Northbound: 36 (49), 2 (2), 16 (22), 73 (55), 54 (78), 4 (2)</p>	<p>LEGEND</p> <ul style="list-style-type: none"> ● - Study Intersections ● - 7-Day Classification Counts XX Midday Peak Hour Volume (XX) PM Peak Hour Volume <p>NORTH Not to Scale TJKM</p>	



Existing Pedestrian and Bike Peak Hour Volumes

Bike and pedestrian volumes were also collected during the midday and p.m. peak hour at the six study intersections. The highest pedestrian volume of 41 was recorded crossing San Pablo Avenue to the south of Carlson Boulevard. The highest bike volume of six was recorded during the midday at the intersection of San Pablo Avenue/Carlson Boulevard and at the Central Plaza Roadway/Starbucks intersection. The results are shown in Figure 4.

Existing Pedestrians and Bike Circulation

The existing pedestrian and bike facilities are also shown in Figure 4. Pedestrian crosswalk and bike crossings are generally located throughout the shopping center. Textured crosswalks are located at all key intersections, including entry points on Carlson Boulevard and Fairmount Avenue. In addition, raised crosswalks are also located at several busy pedestrian crossing points including near Starbucks, Trader Joes, Ross and Petco. Field observations showed these locations generally being used.

The Ohlone Greenway is a landscaped linear park that includes a separate bike and pedestrian paths and in the study area it runs parallels to the BART tracks. Pedestrian and bike users can use the existing ramp off the Ohlone Greenway to the south of the Creekside Project and connect up with the Cerrito Creek Greenway which is located adjacent to the Southern Roadway between Talbot Avenue and Kains Avenue. The Cerrito Creek Greenway is a bicycle and pedestrian greenway that link the Ohlone Greenway in El Cerrito with the Bay Trail in Albany.

And through Cerrito Creek Greenway, the pedestrian path leads to Kains Avenue which connects to San Pablo Avenue. Alternatively, pedestrians and bicyclists can also use Cerrito Creek Greenway and cut across to the main shopping center through the textured crosswalk near Cornell Avenue. The sidewalk provided by the shopping center buildings would eventually lead to San Pablo Avenue and Carlson Boulevard. Field observations showed that most pedestrians and bicyclists coming in from this plaza entry are provided with clearly marked textured crosswalks at key locations for ease of access to various key buildings of the shopping center as shown in Figure 4.

From the north, pedestrian and bike users from the Ohlone Greenway generally access the shopping center through the entrance at Fairmount Avenue and Liberty Street. Pedestrians and bicyclists from the Creekside Project have access to the BART station through the ramp to the north of the project site (east of Lucky) or to the south of the project site just to the east of Evelyn Avenue. Convenient pedestrian and bike access are provided from the Creekside Project at three locations to connect up with the rest of the shopping plaza: to the north with a crosswalk between Lucky and JoAnn; midpoint access near JoAnn and crosswalk in the south between Evelyn Avenue and Talbot Avenue.

Daily Traffic Patterns and Characteristics

As mentioned earlier, 7-day classification machine counts were conducted at five locations. These directional, 15-minute counts for seven days were collected in order to understand daily and hourly variations. The roadway segments are:

- Central Plaza roadway near Carlson Boulevard/San Pablo Avenue
- Central Plaza roadway near Fairmont Avenue/Liberty Street

- East Roadway behind Ross and Lucky's
- South Roadway near Talbot Avenue
- South Roadway near Cornell Avenue

Detailed classification data for the five roadway segments are contained in Appendix C. The average daily traffic (ADT) data showed the highest volumes near the entrance on San Pablo Avenue of approximately 9,140 vehicles per day (vpd), approximately 7,520 vpd near Fairmount Avenue, slightly less than 780 behind Lucky's and approximately 1,150 vpd on the Southern Roadway at Talbot Avenue and Cornell Avenue.

The data showed that access to the shopping center is highest at San Pablo Avenue with approximately 9,140 vpd which is 20 percent more than the daily traffic at the Fairmount Avenue entrance.

Traffic Peaking Characteristics

San Pablo Avenue Entrance

Daily traffic volume data on the San Pablo Avenue entrance showed the midday peak on a typical weekday to occur around noon and the p.m. peak hour to occur after 5:00 p.m. The weekday peak hour volumes are generally less than 750 vehicles per hour.

The midday and p.m. peak hours of a typical weekday are quite short while the Saturday midday peak traffic begins earlier at 11:30 a.m. and lasts for more than three hours till 2:30 p.m. This is likely due to the Farmers Market which takes place at the plaza on Saturdays. The Saturday peak hour volume is also higher at more than 850 vehicles per hour. The Sunday peak of more than 860 vehicles per hour occurs at a later time of 2:30 p.m. for less than an hour. Graphical plots of the parking channelization are contained in Appendix C.

Fairmount Avenue Entrance

Based on the collected data, there is no distinct midday peak hour during a typical weekday. The midday peak hour volume is generally less than 600 vehicles per hour (or 20 percent less than the volume on San Pablo Avenue). The p.m. peak hour generally occurs after 5:30 p.m. at nearly 650 vehicles per hour. This might be a reflection that Fairmount Avenue is closer to the BART station and therefore serves a higher amount of BART related traffic.

The midday Saturday peak traffic occurs from 11:00 a.m. to 1:00 p.m. A Sunday peak hour of less than 500 vehicles per hour occurs between 12:30 p.m. and 3:00 p.m.

Southern Roadway

The ADT traffic volumes at the Southern Roadway are generally less than 1,100 vpd with the p.m. peak hour occurring after 4:00 p.m.

A summary of the ADT and classification counts are shown in Table C-I of Appendix C.

Truck Characteristics

The highest amount of trucks (single unit or higher) access the shopping plaza through Fairmount Avenue. It is estimated that the daily average is approximately 957 trucks (13 percent) that enters and exit the shopping plaza through Fairmount Avenue. Compared to the San Pablo Avenue truck volumes of approximately 541 trucks this amount is nearly doubled. The data suggests that nearly

twice as many trucks use the Liberty Street/Fairmount Avenue to access the shopping plaza. It is likely most of the trucks use this entrance to access many of the shops including Starbucks, Ross, Lucky, JoAnn, Petco and Barnes & Noble.

Based on proximity, it is likely truck traffic will use the entrance at San Palo Avenue/Carlson Boulevard to access Pier I Imports, CVS/Pharmacy, Trader Joes and Macaroni Grill.

Truck Peak Hours

The ADT of the roadway behind Lucky's is approximately 725 vpd, in which approximately 52 (or 7 percent) are trucks. The truck peak hour volumes occur from 5 to 6 a.m. during the a.m. peak hour and 5:30 p.m. during the p.m. peak hour.

The average daily total truck volumes at the shopping center are approximately 1,600 vehicles per day. A summary of the vehicle classification is shown in Table II.

Table II: 7-Day Vehicle Classification Summary

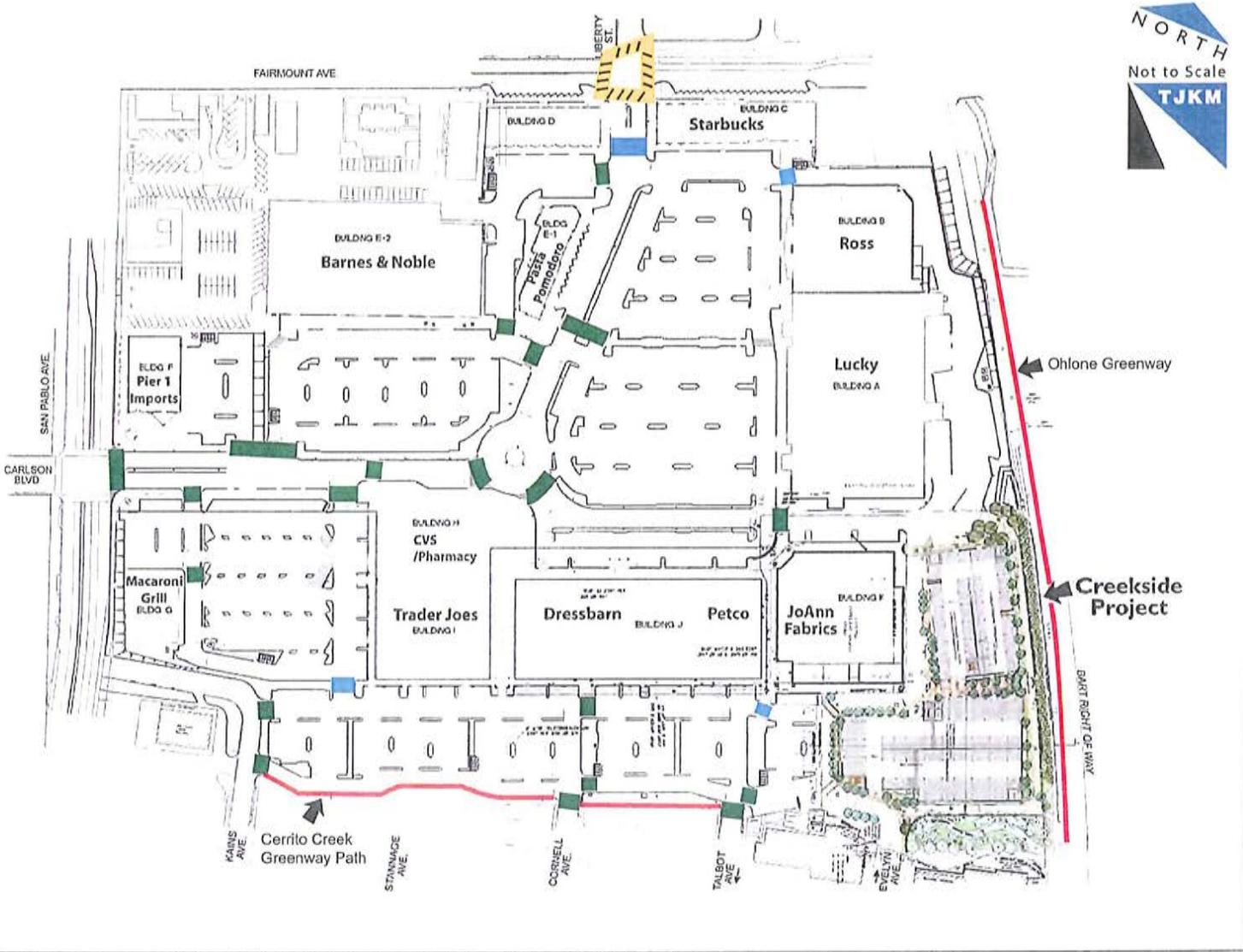
Location	Average	
	Autos %	Trucks %
1. El Cerrito St, e/o SPA	94%	6%
	8,599	541
2. El Cerrito Plaza St, s/o Fairmount	87%	13%
	6,564	957
3. East Roadway behind Lucky's	93%	7%
	725	52
4. South Roadway e/o Talbot Ave	97%	3%
	778	21
5. South Roadway w/o Cornell Ave	96%	4%
	1,102	47

Based on collected data, estimated peak delivery times for major tenants are as follows:

Lucky's, Ross: a.m. peak hour – 5, 6, 9; p.m. peak hour – 5, 6

Joann's Fabrics, Trader Joe's, and CVS/Pharmacy: a.m. peak hour – 6 to 9; p.m. peak hour – noon, 4, 5

Intersection #1 San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Intersection #2 Fairmont Ave./ Liberty St.	Intersection #3 El Cerrito Plaza/ Internal All-Way Stop	Intersection #4 El Cerrito Plaza/ Internal Traffic Circle	Intersection #5 El Cerrito Plaza/ Starbucks Roadway
<p>P-4 (11) B-0 (0)</p> <p>P-25 (28) ↑ P-37 (34) B-1 (3) ↓ B-6 (3)</p> <p>P-41 (31) B-0 (3)</p>	<p>P-3 (2) B-0 (0)</p> <p>P-7 (4) ↑ P-7 (4) B-0 (0) ↓ B-0 (0)</p> <p>P-11 (2) B-0 (0)</p>	<p>P-2 (3) B-0 (0)</p> <p>P-2 (0) B-0 (0)</p>	<p>P-0 (0) B-0 (0)</p> <p>P-1 (1) ↑ P-1 (2) B-0 (0) ↓ B-0 (0)</p> <p>P-1 (2) B-0 (0)</p>	<p>P-0 (2) B-2 (1)</p> <p>P-1 (0) ↑ P-1 (1) B-0 (0) ↓ B-6 (2)</p> <p>P-0 (0) B-0 (0)</p>
<p>Intersection #6 Cornell St./Location along South Roadway</p>	<p>Intersection #T₁ East Roadway/ Center Roadway</p>	<p>Intersection #T₂ Intersection next to Ross/Starbucks</p>	<div data-bbox="1052 682 1425 840"> <p>LEGEND</p> <ul style="list-style-type: none"> Textured Crosswalk Raised Crosswalk "Ladder" Crosswalk </div>	
<p>P-1 (2) B-0 (0)</p> <p>P-1 (1) ↑ P-2 (2) B-0 (0) ↓ B-0 (0)</p> <p>P-4 (3) B-0 (0)</p>	<p>P-0 (1)</p> <p>0 (3) ↓</p> <p>2 (0) ↑</p> <p>0 (1) ↑</p>	<p>0 (1)</p> <p>0 (2) ↓</p> <p>1 (0) ↑</p> <p>1 (0) ↑</p>		



Forecast Future Traffic Impacts

Typically, traffic impact analysis is a process of generating and distributing traffic for conditions expected at the time the project is complete, and for a future planning scenarios.

In this study, besides performing a standard LOS analysis at study intersections that the EIR² already addressed through the intersection LOS analysis, additional analysis focused on improving the overall circulation for pedestrian, bike and autos.

Based on the adopted scenarios, TJKM performed peak hour LOS analysis for the following scenarios:

- Existing + Project Traffic Conditions
- 2025 Cumulative Traffic Conditions with Project

Existing plus Project Traffic Conditions

The proposed Creekside project is a 128 unit residential condominium development project that was approved by the City Council, to be located in the southeast corner of the existing El Cerrito Plaza shopping center. The estimated trip generation is shown in Table III.



Proposed Creekside Project Site Plan

Table III: Proposed Creekside Condominium Trip Generation

Land Use (ITE Code)	Size	Units	Daily Rate	Daily Trips	A.M. Peak Hour Trips					P.M. Peak Hour Trips				
					Trip Rate	In:Out Ratio	In	Out	Total	Trip Rate	In:Out Ratio	In	Out	Total
Condominiums (220)	128	d.u	6.72	860	0.51	20:80	13	52	65	0.62	65:35	52	28	79

Source: ITE Trip Generation, 7th Edition

The projected trips were distributed based on the distribution shown in the approved EIR study. The recommended vehicular access from Creekside Project is shown in Figure 5. The projected Existing plus Project trips are shown in Figure 6. It should be noted that the projected trips are considerably smaller than the total trips shown in the 2004 EIR³. It is estimated that the existing proposed project will generate approximately 65 a.m. peak hour trips and 79 p.m. peak hour trips. Compared to the existing project, the approved EIR includes a child care facility (70 students) and BART parking garage (500 spaces) resulting in 346 a.m. peak hour trips and 406 p.m. peak hour trips. Overall, there would be approximately 281 and 327 less trips in the current project respectively during the a.m. and p.m. peak hour.

² El Cerrito Plaza Mixed-Use Development Project EIR report, 2004

³ Jennifer Carman, AICP, Planning Manager, City of El Cerrito, June 11, 2008 email correspondence

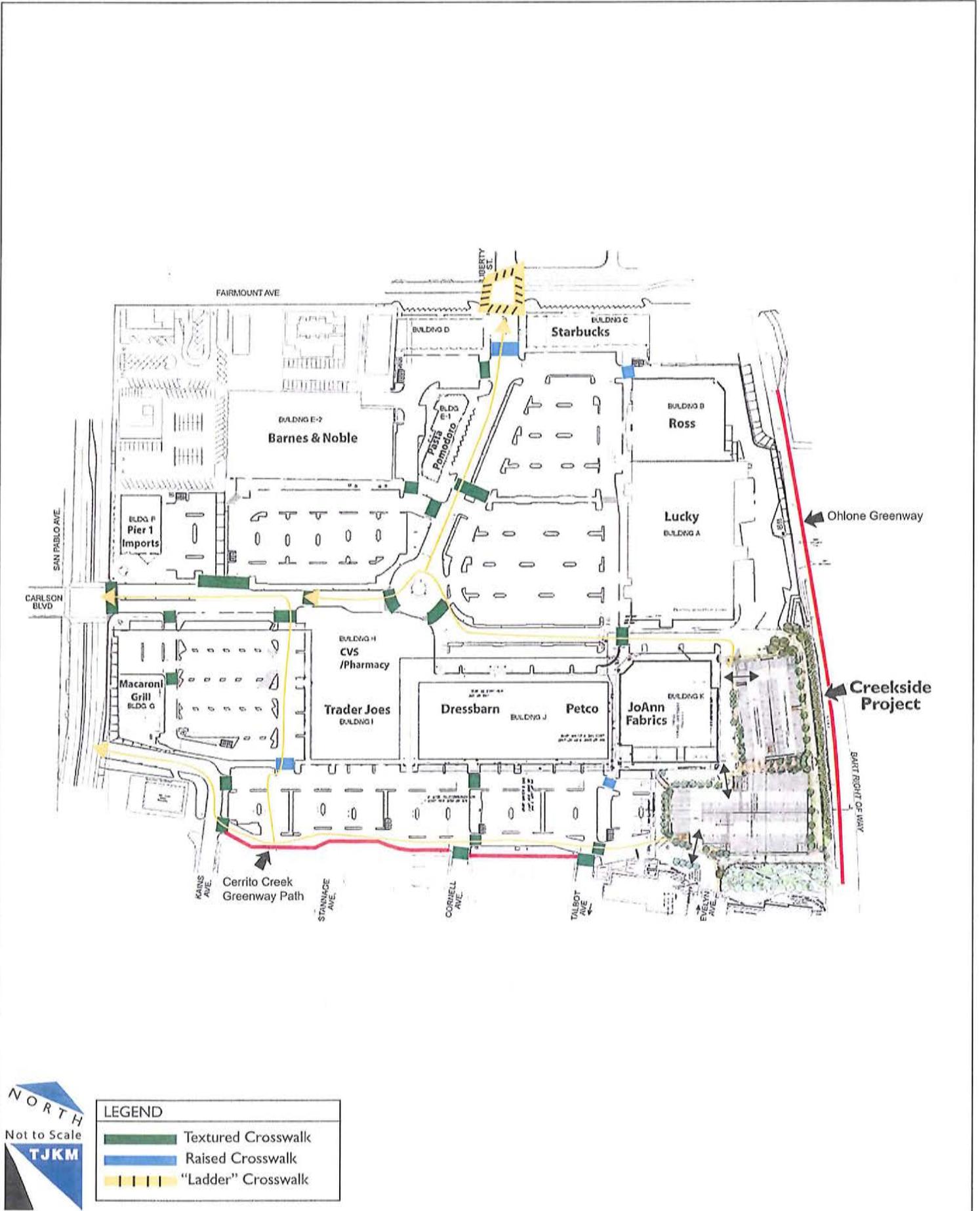
Level of Service Analysis

The results of the intersection LOS analysis for the Existing plus Project scenario are shown in Table IV. All intersections operate at LOS D or better. Detailed calculations are shown in Appendix D.

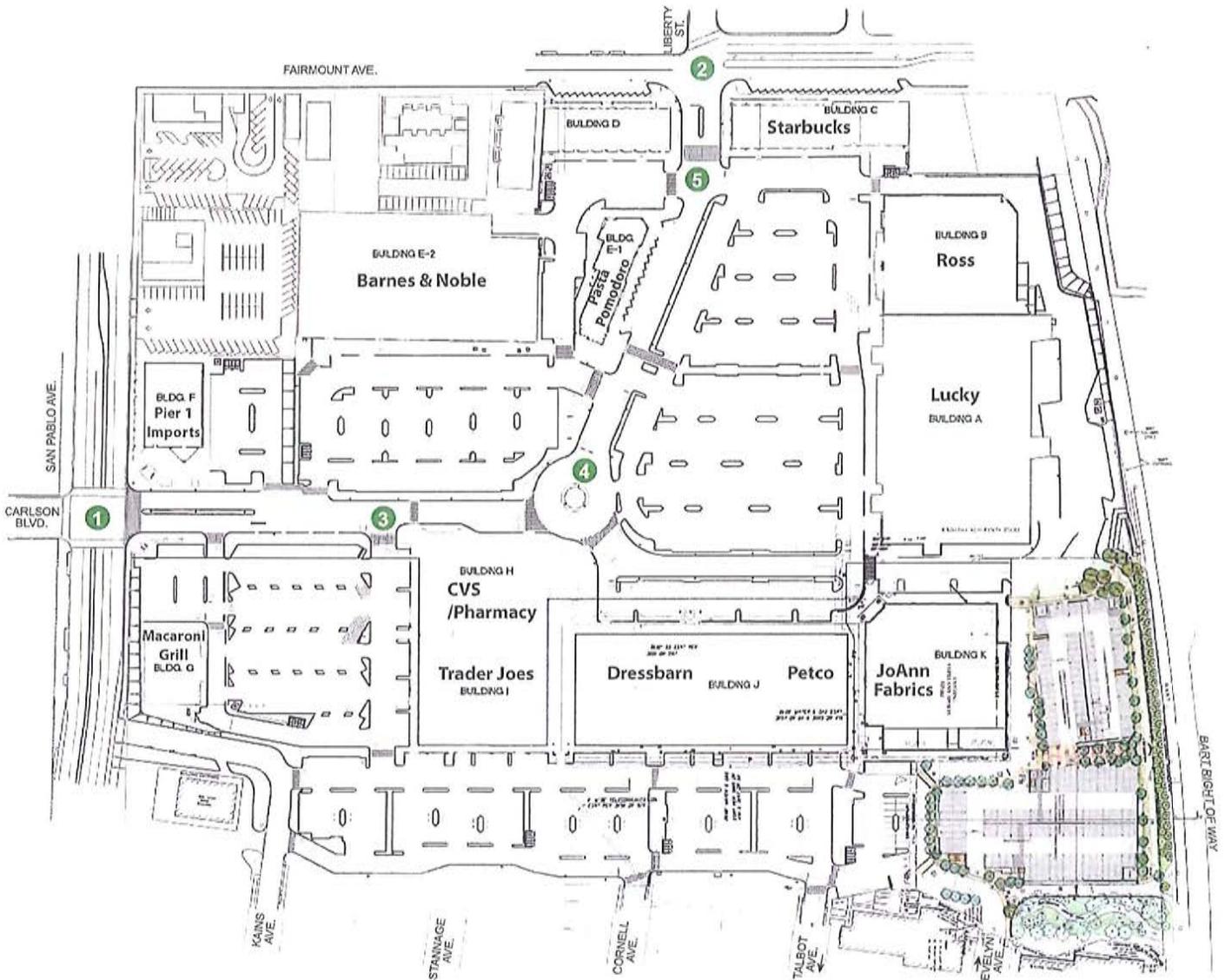
Table IV: Intersection Levels of Service – Existing plus Project Conditions

No.	Intersection	Control Type	Midday Peak Hour		P.M. Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Signal	33.9	C	31.5	C
2	Fairmont Ave./Liberty St.	Signal	27.5	C	50.3	D
3	El Cerrito Plaza/CVS/Pharmacy Dwy.	All-way Stop	11.6	B	12.6	B
	El Cerrito Plaza/ CVS/Pharmacy Dwy.	One-way Stop (Proposed)	22.0	C	24.9	C
5	El Cerrito Plaza/Starbucks Dwy.	Two-way Stop	17.5	C	23.6	C
			V/C Ratio	ICU LOS	V/C Ratio	ICU LOS
4	El Cerrito Plaza/ Internal Traffic Circle	Circle with Stop Control	0.24	A	0.27	A
	El Cerrito Plaza/Internal Roundabout	Roundabout with Yield Control (Proposed)	0.24	A	0.27	A

Also shown in Table IV are the results for two proposed alternate intersection controls at two intersections: the CVS/Pharmacy driveway access and the Traffic Circle.



Intersection #1 San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Intersection #2 Fairmont Ave./ Liberty St.	Intersection #3 El Cerrito Plaza/ Internal All-Way Stop	Intersection #4 El Cerrito Plaza/ Internal Traffic Circle	Intersection #5 El Cerrito Plaza/ Starbucks Roadway
<p> 17 (16) → ← 685 (742) ← 169 (146) 235 (130) → ← 174 (127) ← 158 (109) 19 (16) → 234 (200) → 223 (270) → 259 (247) → 755 (1,090) → 200 (155) → </p>	<p> 11 (15) → ← 64 (74) ← 11 (13) 9 (14) → ← 188 (285) ← 122 (166) 9 (2) → 192 (231) → 135 (121) → 99 (124) → 60 (64) → 149 (199) → </p>	<p> 197 (224) → ← 122 (120) 217 (250) → 155 (114) → 131 (133) → 76 (86) → </p>	<p> 208 (235) → ← 34 (42) ← 2 (1) 21 (24) → ← 44 (40) 168 (187) → 8 (13) → 94 (136) → 92 (71) → 58 (58) → 1 (1) → </p>	<p> 7 (15) → ← 230 (233) ← 77 (112) 101 (134) → ← 2 (2) ← 14 (18) 9 (21) → 6 (2) → 5 (6) → 15 (4) → 206 (228) → 17 (20) → </p>



LEGEND	
●	Study Intersections
XX	Midday Peak Hour Volume
(XX)	PM Peak Hour Volume

CVS/Pharmacy Driveway Access

Currently, the CVS/Pharmacy driveway T's into the shopping center main access roadway and intersection is an All Way Stop control intersection. Crosswalks with special concrete pavers are provided at two of the approaches: one crossing the main shopping center access roadway and the other to the CVS/Pharmacy parking lot. One of the concerns about the existing All Way Stop control intersection is the frequent queuing experienced on all approaches especially during the peak hours. The estimated total queuing for all the approaches based on the 95th percentile is shown in Table V. It is estimated that the total intersection queues are approximately 252 feet and 431 feet respectively for the midday and p.m. peak hours. It was observed that during the p.m. peak hour, sometimes westbound queue backs up into the circle and the eastbound queue backs up to entering traffic from San Pablo Avenue.



CVS/Pharmacy Driveway Access

To reduce the total queuing experienced at the intersection, the All Way Stop control could be changed to One Way Stop control on the CVS/Pharmacy driveway. This will provide free vehicular movements on the east-west plaza main access road. Vehicle stop control will be maintained on the CVS/Pharmacy driveway approach.

With a One Way Stop control it is estimated that there could be an overall queuing increase of approximately 25 feet during the midday and a reduction 26 feet during the p.m. peak hour as shown in Table V.

Pedestrians will continue to have the right of way to cross at the pedestrian crosswalk. It is recommended to install a vertically mounted pedestrian crossing sign on the median (as shown above). An advance warning pedestrian crossing sign utilizing high brightness light emitting diodes (LED) would provide unmatched visibility both day and night. Recommended LED-enhanced signs/flashers should include automatic pedestrian detection. This will improve safety for pedestrians crossing at the intersection.

It is estimated that the intersection will operate at LOS C.



**Yield to
Pedestrian Sign**



**Advance Pedestrian
Crossing Warning Sign**

Table V: CVS/Pharmacy Driveway/Central Plaza Loop, 95th Percentile Queuing Estimates

(I) Existing All-Way Stop							
		Queue Length (ft)					
Approach	CVS/Pharmacy	EB Thru	EB RT	WB	Total		
Midday	64	89	49	50	252		
p.m. Peak Hour	139	183	33	76	431		
(II) Proposed One-Way Stop (CVS/Pharmacy Driveway)							
		Queue Length (ft)					
Approach	CVS/Pharmacy	EB Thru	EB RT	WB	Total		
Midday	93	54	49	81	277		
p.m. Peak Hour	181	72	46	106	405		
(III) Changes in Queue Length Comparison							
(Proposed One-Way Stop - Existing All-Way Stop Control)							
		Queue Length (ft)					Percent Change
Approach	CVS/Pharmacy	EB Thru	EB RT	WB	Total		
Midday	29	-35	0	31	25	10%	
p.m. Peak Hour	42	-111	13	30	-26	-6%	

Traffic Circle vs. Roundabout Operations

Currently the internal traffic circle is Stop controlled at all three approaches. It would be more effective to convert the circle into a modern roundabout with Yield control on all approaches. A discussion of the issues and merits are provided later in the report.

The estimated total queuing at the existing Stop control for all the approaches based on the 95th percentile is shown in Table V. It is estimated that the total queue at the existing intersection are approximately 231 feet and 335 feet, respectively for the midday and p.m. peak hours.

A true roundabout design provides yield control at all approaches. With a proposed roundabout design, it is estimated there would be a reduction in queues of approximate 55 feet during the midday and a reduction of approximately 109 feet during the p.m. peak hour as shown in Table VI. It is estimated that



View of Simulation

queuing will be vastly improved on a daily basis since vehicles need to only yield in a roundabout control.

Table VI: Plaza Circle/Central Plaza Road, 95th Percentile Queuing Estimates

(I) Existing All-Way Stop Circle						
	Queue Length (ft)					
Approach	EB	WB	NB	SB	Total	
Midday	74	33	47	77	231	
p.m.	166	49	29	95	339	
(II) Proposed Yield Control Roundabout						
	Queue Length (ft)					
Approach	EB	WB	NB	SB	Total	
Midday	61	25	30	60	176	
p.m.	81	40	41	68	230	
(III) Changes in Queue Length Comparison						
(Proposed Yield Control Roundabout - Existing All-Way Stop Control)						
	Queue Length (ft)				Total	Percent Change
Approach	EB	WB	NB	SB	Total	Change
Midday	-13	-8	-17	-17	-55	-24%
p.m.	-85	-9	12	-27	-109	-32%

Cumulative 2025 Traffic plus Project Conditions

The LOS analysis of the 2025 Cumulative No Project scenario was based on data provided in the El Cerrito Plaza Mixed-Use Development Project EIR report that was provided by the City. It is our understanding that the 2025 model forecasts were obtained from the travel demand model for West Contra Costa County (CCTA West Contra Costa Model).

The projected traffic was distributed and added onto the background 2025 Cumulative No Project traffic. The projected 2025 Cumulative plus Project trips are shown in Figure 7.

Level of Service Analysis

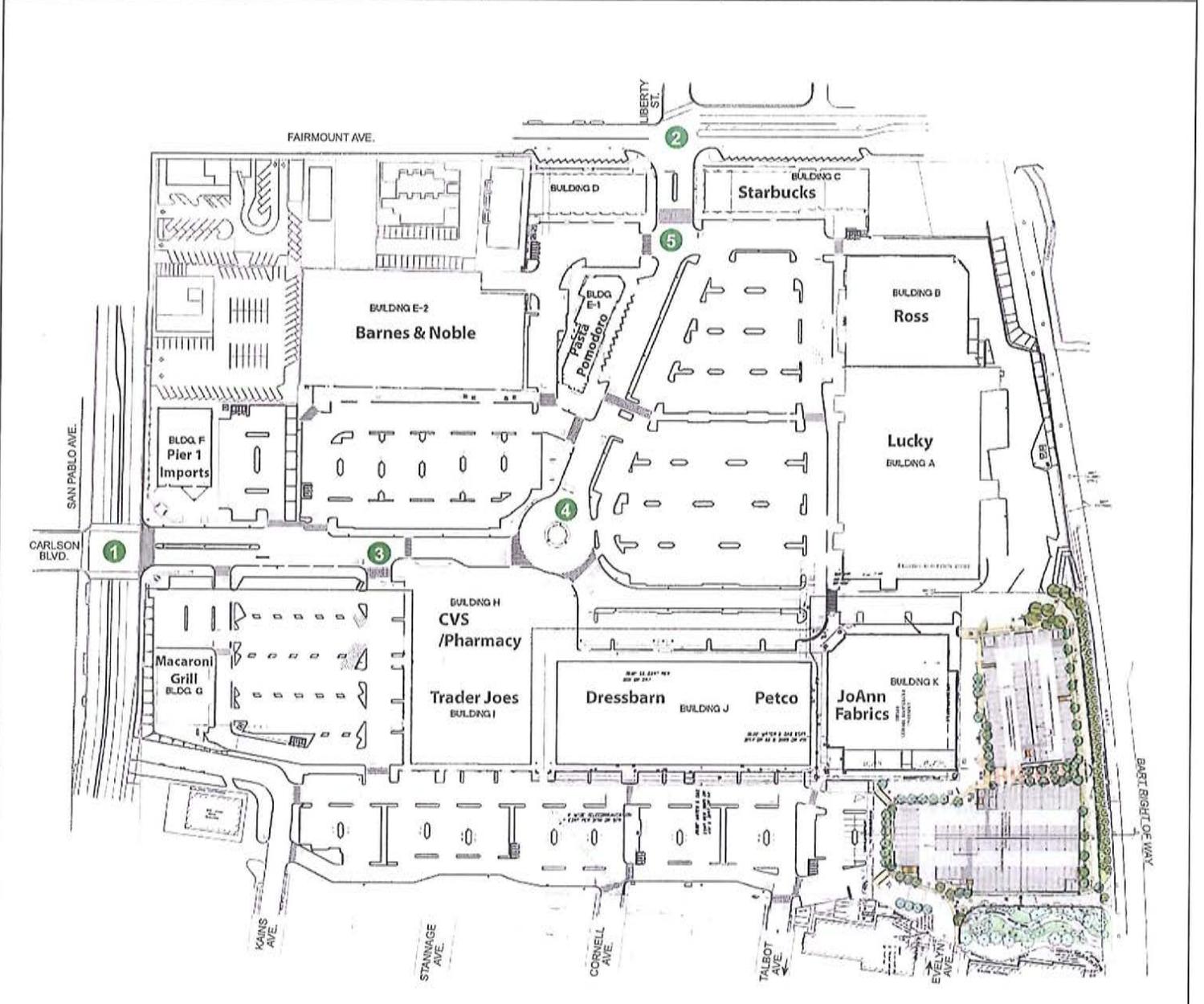
The results of the intersection LOS analysis for the 2025 Cumulative plus Project Traffic scenario are shown in Table VII. All intersections operate at LOS D or better. Detailed calculations are shown in Appendix E.

Table VII: Intersection Levels of Service – 2025 Cumulative Traffic plus Project Conditions

No.	Intersection	Control Type	Midday Peak Hour		P.M. Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Signal	36.6	D	39.9	D
2	Fairmont Ave./Liberty St.	Signal	34.6	C	37.6	D
3	El Cerrito Plaza/CVS/Pharmacy Dwy.	All-way Stop	11.6	B	12.6	B
	El Cerrito Plaza/CVS/Pharmacy Dwy.	One-way Stop (Proposed)	19.6	C	21.8	C
5	El Cerrito Plaza/Starbucks Dwy.	Two-way Stop	17.5	C	23.6	C
	Intersection	Control Type	VIC Ratio	ICU LOS	VIC Ratio	ICU LOS
4	El Cerrito Plaza/Internal Traffic Circle	Circle with Stop Control	0.24	A	0.27	A
	El Cerrito Plaza/Internal Traffic Circle	Roundabout with Yield Control (Proposed)	0.21	B	0.26	B

It is estimated that there will be minimal growth in vehicular queuing of less than one percent per year at the intersection of Fairmont Ave and Liberty Street. Compared to the Existing plus Project scenario, the 2025 p.m. peak hour vehicular queuing at the intersection of San Pablo Avenue/Carlson Blvd is slightly high at approximately 2.5 percent per year. The queuing is expected to occur primarily along San Pablo Avenue and a small overflow of two car length on the westbound, outbound traffic.

Intersection #1 San Pablo Ave./Carlson Blvd./ El Cerrito Plaza	Intersection #2 Fairmont Ave./ Liberty St.	Intersection #3 El Cerrito Plaza/ Internal All-Way Stop	Intersection #4 El Cerrito Plaza/ Internal Traffic Circle	Intersection #5 El Cerrito Plaza/ Starbucks Roadway
<p> Northbound: 17 (16) left, 993 (871) through, 169 (197) right Southbound: 235 (139) left, 174 (127) through, 158 (174) right Eastbound: 26 (31) left, 234 (227) through, 476 (270) right Westbound: 259 (353) left, 755 (1,140) through, 200 (188) right </p>	<p> Northbound: 14 (15) left, 64 (90) through, 25 (24) right Southbound: 46 (23) left, 404 (285) through, 165 (264) right Eastbound: 10 (17) left, 435 (337) through, 135 (138) right Westbound: 99 (134) left, 60 (85) through, 149 (229) right </p>	<p> Northbound: 197 (224) left, 122 (120) right Southbound: 217 (250) left, 155 (114) right Eastbound: 131 (133) left, 76 (86) right </p>	<p> Northbound: 208 (235) left, 34 (42) through, 2 (1) right Southbound: 21 (24) left, 44 (40) right Eastbound: 168 (187) left, 8 (13) through, 94 (136) right Westbound: 92 (71) left, 58 (58) through, 1 (1) right </p>	<p> Northbound: 7 (15) left, 230 (233) through, 77 (112) right Southbound: 101 (134) left, 2 (2) through, 14 (18) right Eastbound: 9 (21) left, 6 (2) through, 5 (6) right Westbound: 15 (4) left, 206 (228) through, 17 (20) right </p>



LEGEND

- Study Intersections
- XX Midday Peak Hour Volume
- (XX) PM Peak Hour Volume

TJKM
 Not to Scale

Improvements to the Circulation System

On a typical weekday TJKM staff performed an in-depth site review of the shopping center and surrounding areas during the midday and afternoon hours.

One of the main purposes of the study is to improve the traffic circulation to and from the proposed Creekside project and the entire El Cerrito Plaza including a clearly delineated path from the proposed Creekside project to San Pablo Avenue, improve safety and circulation, and analyze truck movements and conflicts with auto traffic in the area adjacent to the Luck's loading dock. Some of the specific locations with its issues and recommendations are addressed below.

(I) Intersection near Starbucks

The intersection is located on the northern end of the shipping center near the entrance/exit to Fairmount Avenue/Liberty Street.

A Starbucks store is located on the northeast quadrant. A pedestrian crosswalk is located approximately 70 feet from the signalized intersection.

Observed Issues:

Field observations indicated that due to the close proximity of the crosswalk to the signalized intersection, sometimes inbound vehicles that stop and queue approaching the crosswalk (when pedestrians are present) backup traffic into the intersection of Liberty Avenue and Fairmount Avenue. In addition, inbound vehicles that try to make a left-turn towards Ross might also backup traffic. However, in the latter scenario some vehicles could pull out to the adjacent lane to proceed forward.



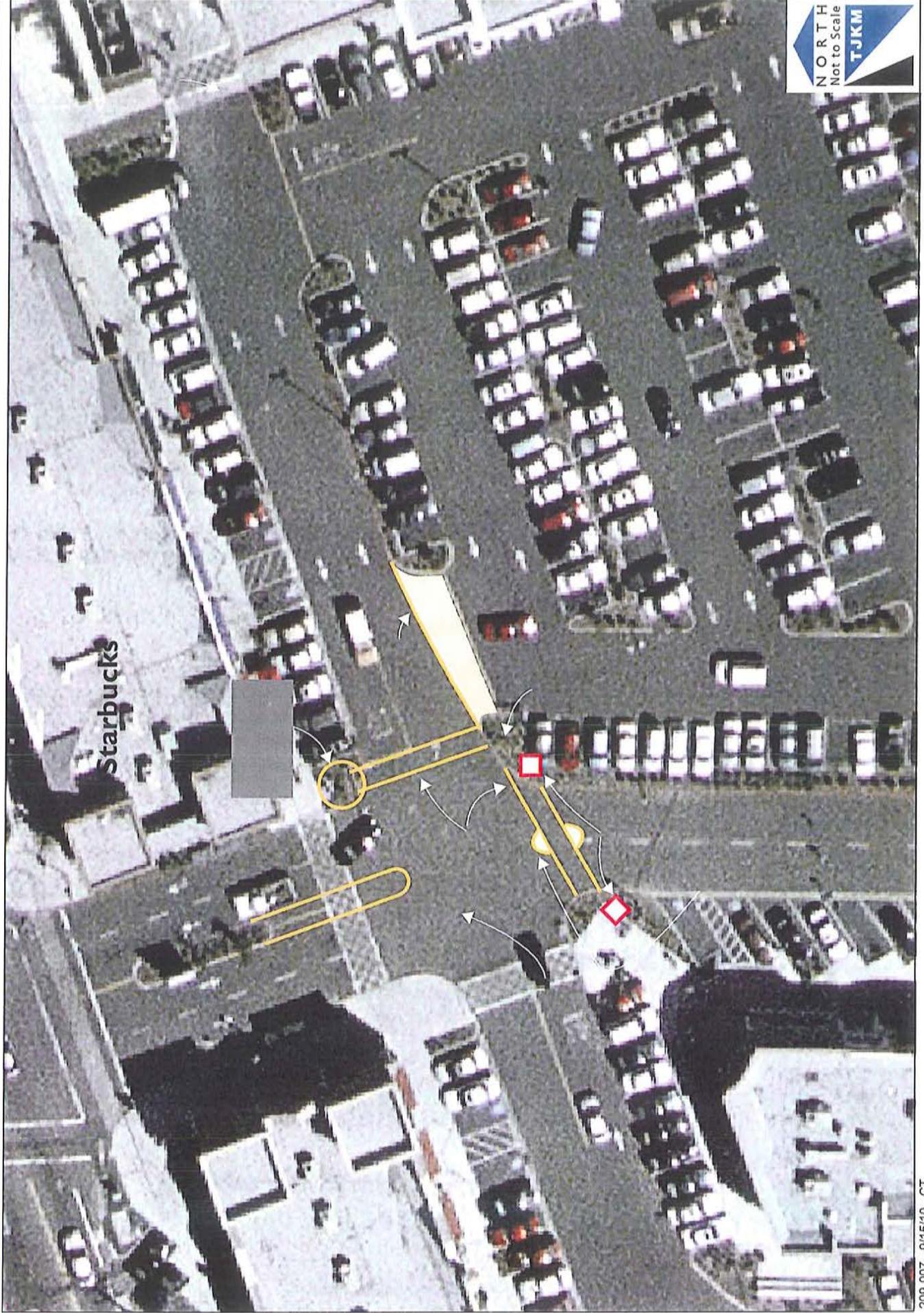
Intersection near Starbucks

Also near the intersection, there are various issues associated with the curb opening of the parking lot driveway being so close to the intersection. It was observed that several vehicles could be jammed right at the driveway opening to the parking lot – some waiting to exit, others trying to get in as they make a left-turn and others making a right-turn. The congestion created could back up traffic that overflows into the adjacent intersection.

Recommendation:

(I) To increase the queuing distance for incoming vehicles as well as added distance and visibility for pedestrians, it is recommended that the pedestrian crosswalk be moved from the current location to the south leg of the approach at approximately 50 feet to the south as shown in Figure 8. Additional enhancements are shown on the figure including automatic pedestrian detection.

(II) To prevent unnecessary congestion at the throat of the entrance to the parking lot, the access near the intersection should be closed as shown in Figure 8. This will create a long driveway throat of nearly 140 feet for vehicle queue and so prevent any overflow into the intersection.



(II) Create Sidewalk near Ross

Observed Issues:

In conversations with City staff, it was our understanding that many BART riders used the slope near the Ohlone Greenway and behind the side alley of Ross as a shortcut to access the shopping center. Instead of using the longer Fairmount Avenue-Liberty Avenue route, this alternate is much shorter. It was observed in the field that many pedestrians do use the shorter route from the Ohlone Greenway to the shopping center.

However, currently there is a steep slope and no sidewalk between the slope and the front of the plaza as shown on the picture.



Side Alley near Ross

Recommendation:

To provide safe access, it is recommended that steps be built near the slope and a four-foot sidewalk constructed as shown in Figure 9. The sidewalk could be constructed along the existing 4-5 foot planter strip when it is reconstructed or along the 25-foot wide two lane alley.

(III) Modification near South Roadway

Observed Issues:

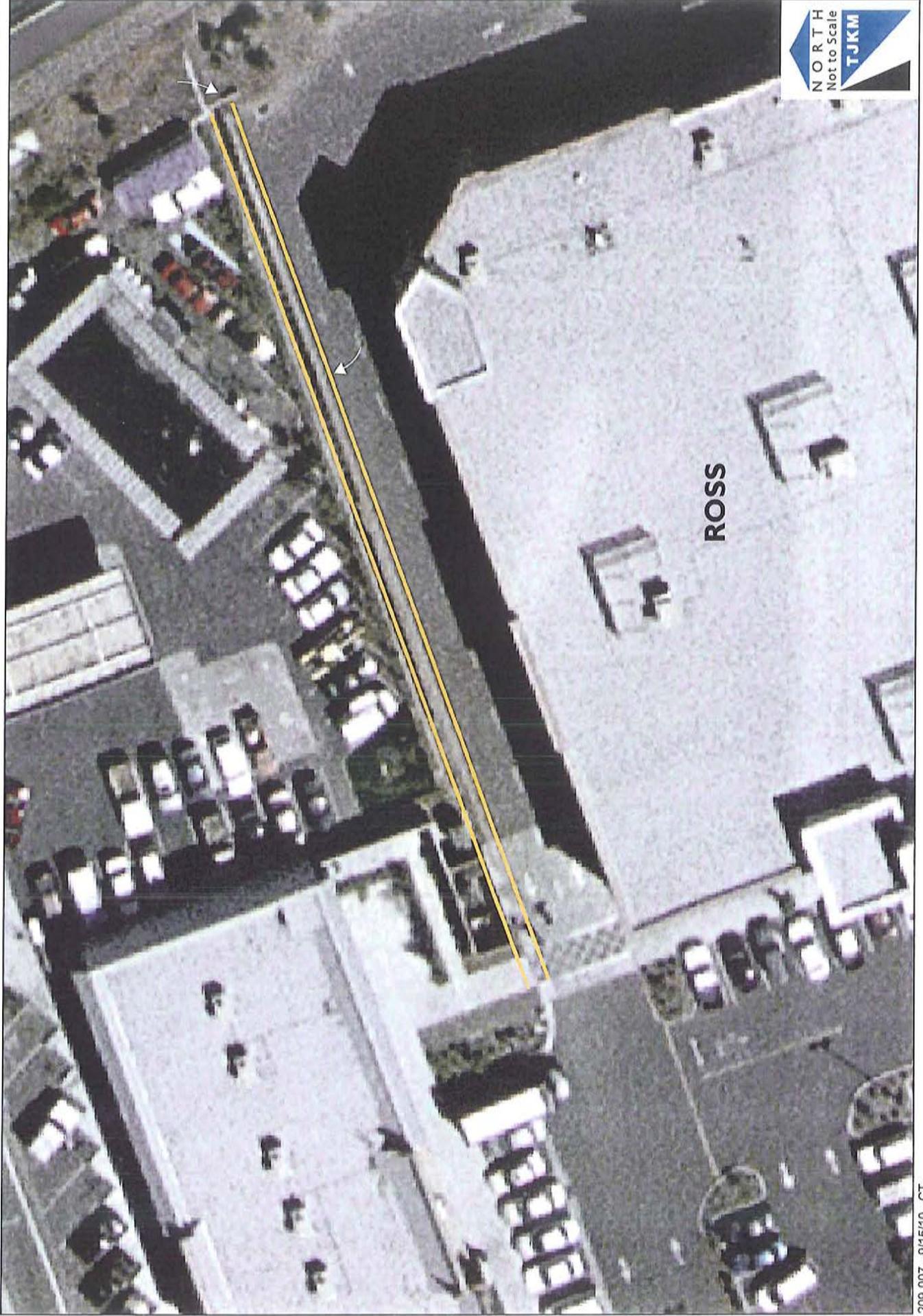
One of the goal of the study is to provide a more direct and safe access from the proposed Creekside project to San Pablo Avenue. Currently the southern roadway stretches from Talbot Avenue on the east to Kanis Avenue in the west, a distance of approximately 700 feet. The two-lane roadway generally hugs the outside boundary of the parking lot as shown below. The width of the roadway is generally 22 to 24 feet wide. There is no centerline on the roadway to guide traffic along the two lane road.

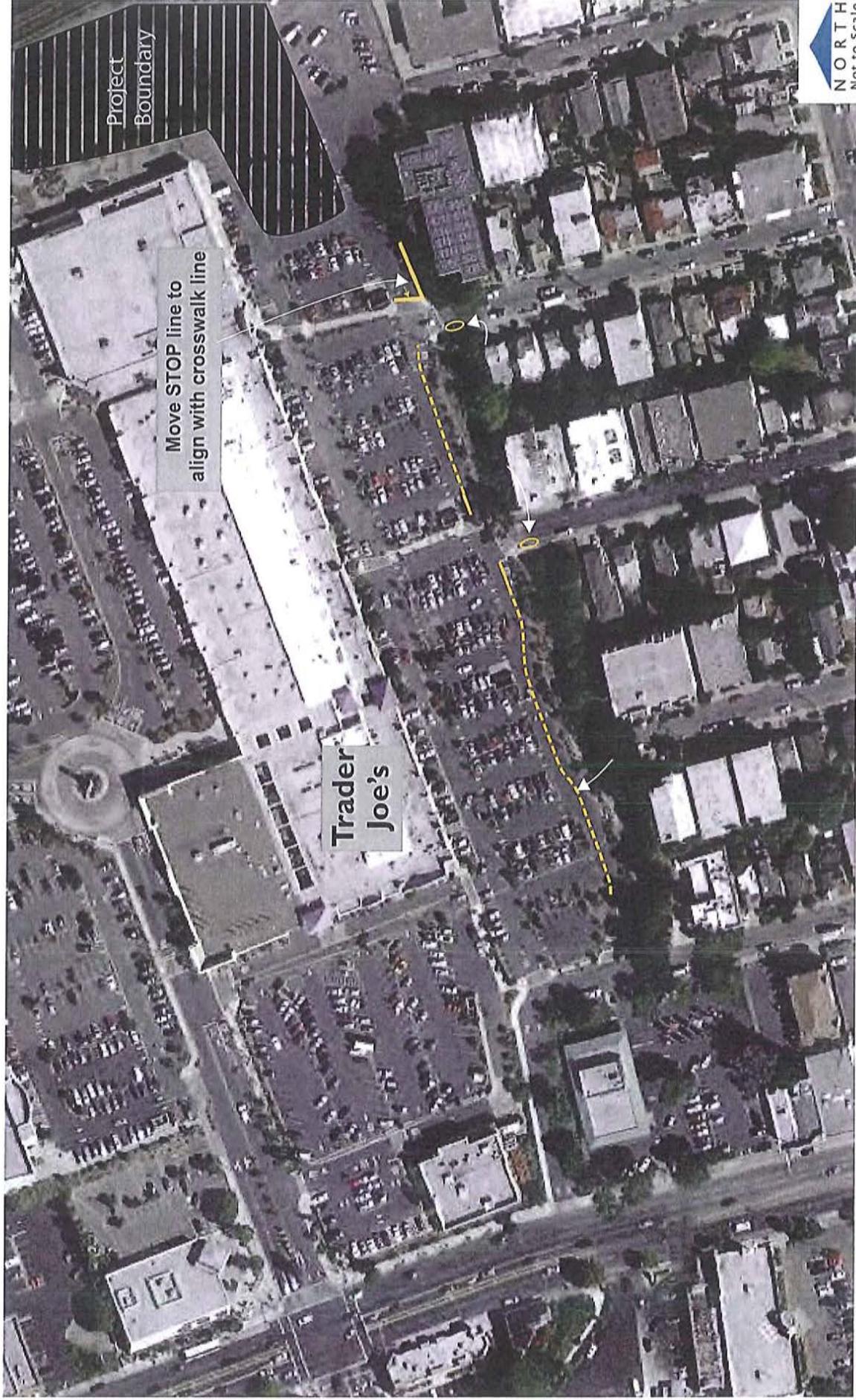
Recommendation:

By adding centerline from Talbot Avenue to Kanis Avenue, it will facilitate the ease of travel from the proposed project site to San Pablo Avenue. A clearly delineated path from the proposed Creekside Project to San Pablo Avenue is shown in Figure 10.



South Roadway and Vicinity





Note: It is recommended to add Creekside Project way finder signs at strategic locations.

(IV) Install Stop Control on Kanis Avenue behind Wells Fargo

Observed Issues:

Kanis Avenue runs north-south and acts as the boundary road between the Trader Joe's parking lot and Wells Fargo Bank on the west. The north-south road bends to form an east-west roadway as it T's into San Pablo Avenue. Currently, inbound drivers from San Pablo Avenue cannot see outbound vehicles as they approach the bend of the roadway due to poor sight visibility. There is a posted Stop sign before the bend in the road. However, the existing stop sign is located too far in advance of the intersection.



Kanis Avenue behind Wells Fargo

Recommendation:

Remove the existing Stop sign and install it closer to the intersection formed by Kanis Avenue and the exit from the parking lot to Trader Joe's as shown in Figure 11.

(V) Install Stop Control near Trader Joe's Parking Lot

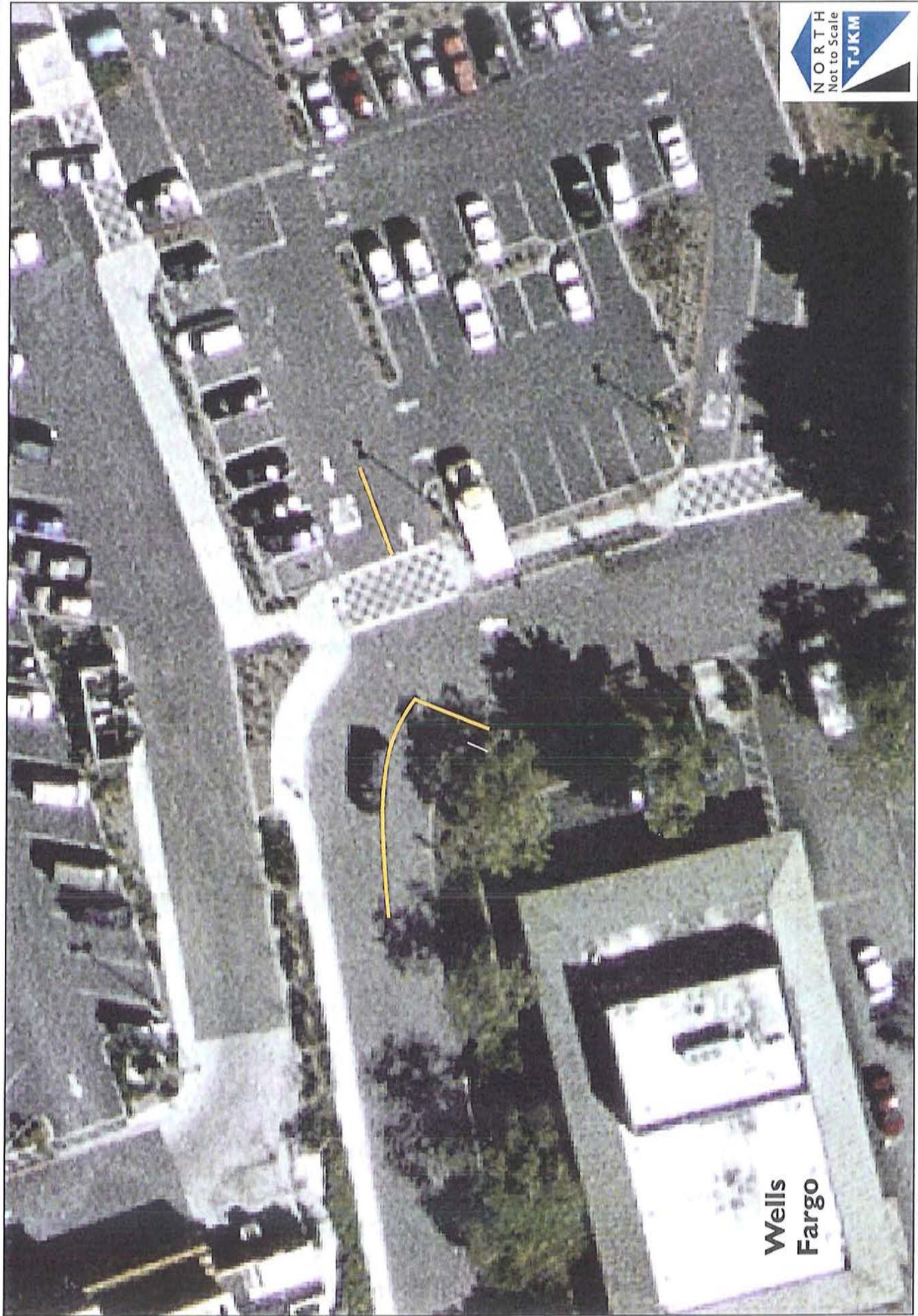
Observed Issues:

Located directly adjacent to Trader Joe's there is a Stop control for southbound traffic. Both eastbound and westbound, and northbound approaches are not stop controlled. Field observations indicate there is some confusion with regards to the assignment of right of way. Normally most motorists expect similar control treatment for both side street approaches – in this case it is more typical for both the northbound and southbound approaches to be Stop controlled.

Recommendation:

Install Stop control for the northbound approach as shown in Figure 12. This will make the intersection control more conventional. The north-south approach is currently slightly offset and having both approaches Stop control will also help improve the operation of the intersection.

City of El Cerrito - Comprehensive Traffic and Circulation Study for El Cerrito Plaza
Install 'STOP' Control on Kanis Avenue Behind Wells Fargo





(VI) Evaluate the Split-Phase Signal Operations at Liberty Street/Fairmount Avenue
Observed Issues:

The intersection of Liberty Street and Fairmount Avenue is currently signalized. The signal operates with split signal phasing for the north-south approach. With split phasing operation, only one approach can proceed at a time. Generally split phase signal operations are not very efficient since the green times are used by only one approach at a time.

On Fairmount Avenue, the one-lane eastbound approach has room for only shared left-through and right-turn lane while the westbound approach is striped with a left-turn lane and shared through and right-turn lane. The eastbound approach is permissive while westbound approach has a protected left-turn.

The northbound approach is striped as shared left-through lane and shared right-through lane, while it is a wide one lane in the southbound approach.



Intersection of Liberty St./Fairmount Ave.

Recommendation:

Due to physical constraints, the split phasing on the north-south approach could remain. However, TJKM also evaluated potential benefits to remove the north-south split phasing and analyzed two potential alternatives:

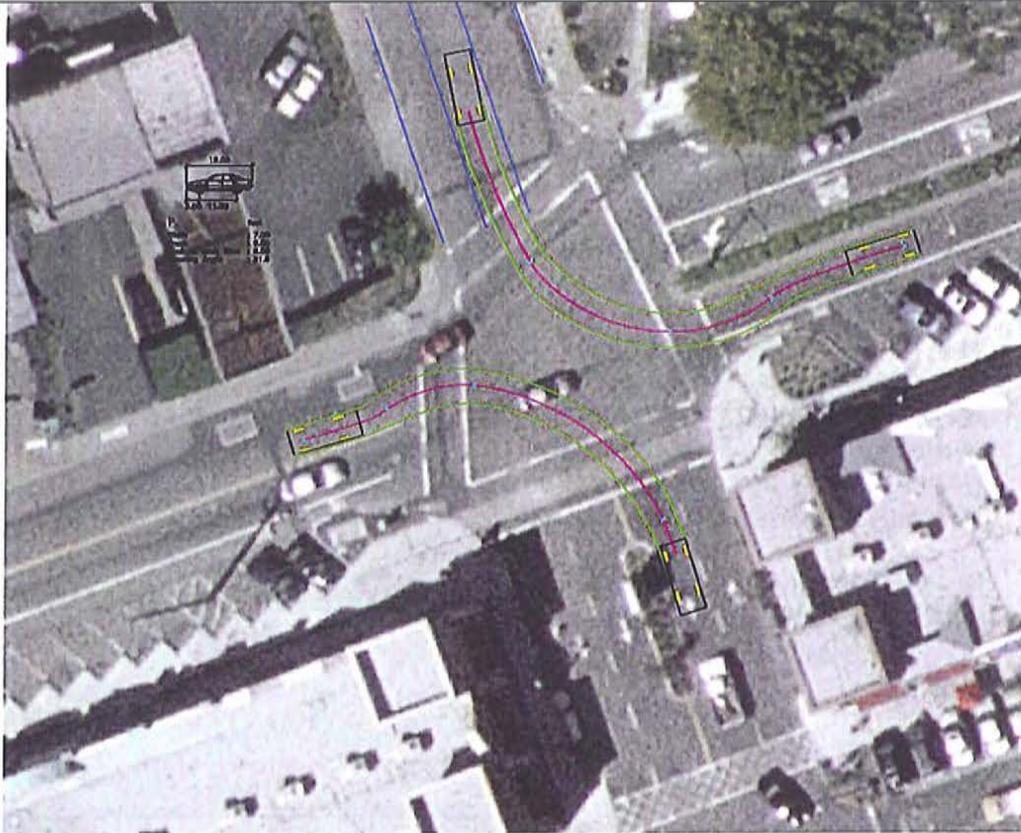
(i) *Provide protected left-turn phasing on the north-south approach.* With a protected north-south left-turn phasing, the level of service will still remain at LOS D but it is estimated that there will be a slight reduction in delays but there will also be an increase in queuing (65 feet).

(ii) *Provide a permissive north-south phasing.* The LOS will improve to LOS C and it is estimated that there will be a reduction in queuing of approximately 33 feet for the northbound left-turn during the p.m. peak hour. Detailed calculations are shown in Appendix E.

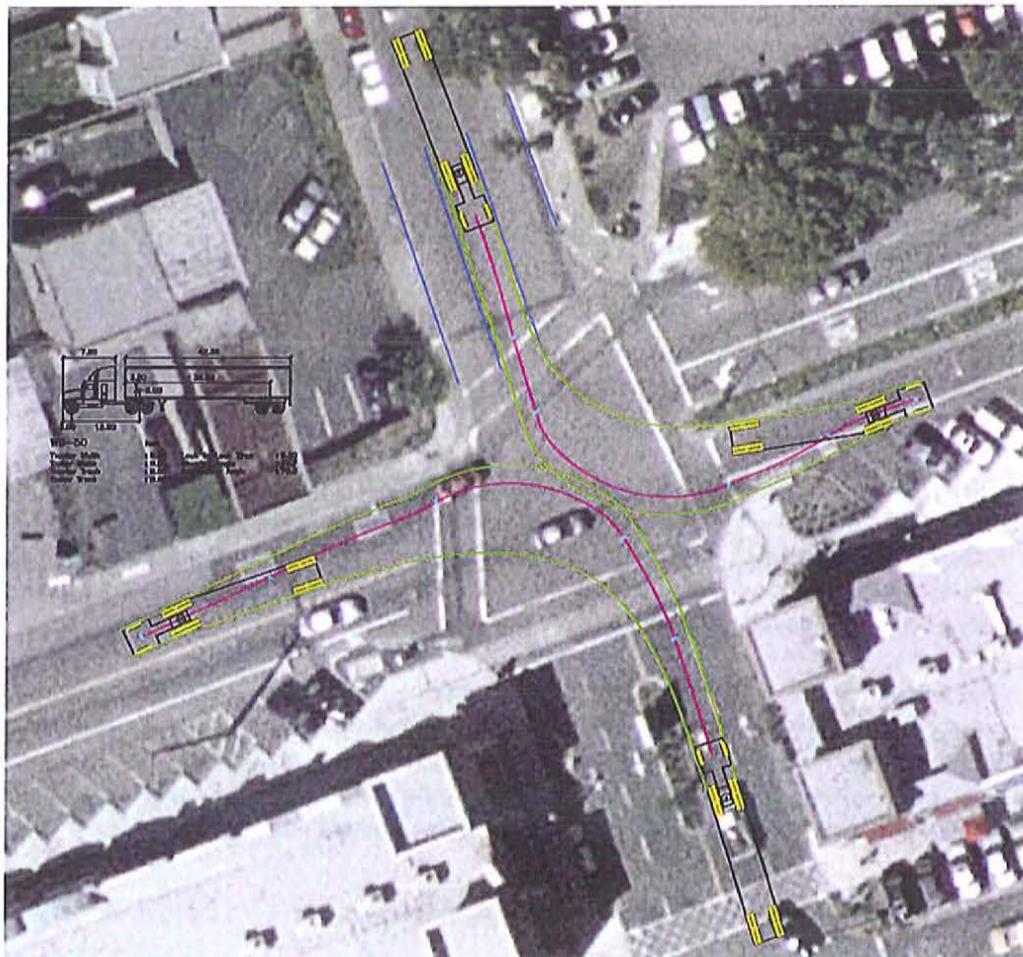
TJKM also evaluated the passenger auto and truck turning template for the north-south approach. As shown in Figure 13, passenger autos would be able to make left turns simultaneously. However, two large WB-50 semi-trailers would not be able to clear the intersection simultaneously. It is our opinion that the occurrence of this event might be very remote. The neighborhood to the north of Fairmount Avenue is a residential area and therefore it is a very unlikely event for a WB-50 truck to be traveling southbound at the same time when a WB-50 truck is traveling northbound exiting the shopping center and making a left-turn at the intersection. Even if that occurs, many times truck drivers would let one of the drivers to proceed first.

Based on the results of the above analysis, TJKM recommends a permissive phasing for the north-south approach. However, the City could weigh the value of the potential benefits before making a decision.

Passenger
 Car Turning
 Template
 on Liberty
 Street



WB-50
 Truck
 Turning
 Template
 on Liberty
 Street



(VII) Changing the Traffic Circle to Roundabout

Observed Issues:

It is observed that the two-lane approach of each leg (3) to the circle could be confusing for some drivers. Technically this is considered a circle instead of a roundabout since all approaches are Stop controlled. Each of the approach lanes is very wide which contributes to sometimes unpredictable and erratic movements through the circle. Changes should be made to provide very clear signage according to FHWA guidelines.

Since the circle is an important focal point of the shopping center, smooth operation is critical for the shopping center.

Recommendation:

Currently the internal traffic circle is Stop controlled at all three approaches. It would be more effective to convert the circle into a modern roundabout with Yield control on all approaches. The two lane approach through the circle and merge into a one-lane departure or receiving lane might be quite confusing or unnerving for some drivers not familiar with driving the intersection. Significant and clear changes to the existing signing and striping should be made to convert the two lane circle into a one lane modern roundabout.

The roadway striping should also be modified to clearly guide drivers (especially those new to the shopping center) through the circle. For example, the current receiving approach in front of the Shoe Pavilion could be unsafe since vehicles exiting from the circle are required to stop right after they leave the circle in front of the Shoe Pavilion exit lane. The poor striping also causes backups into the circle under heavy traffic flow conditions.

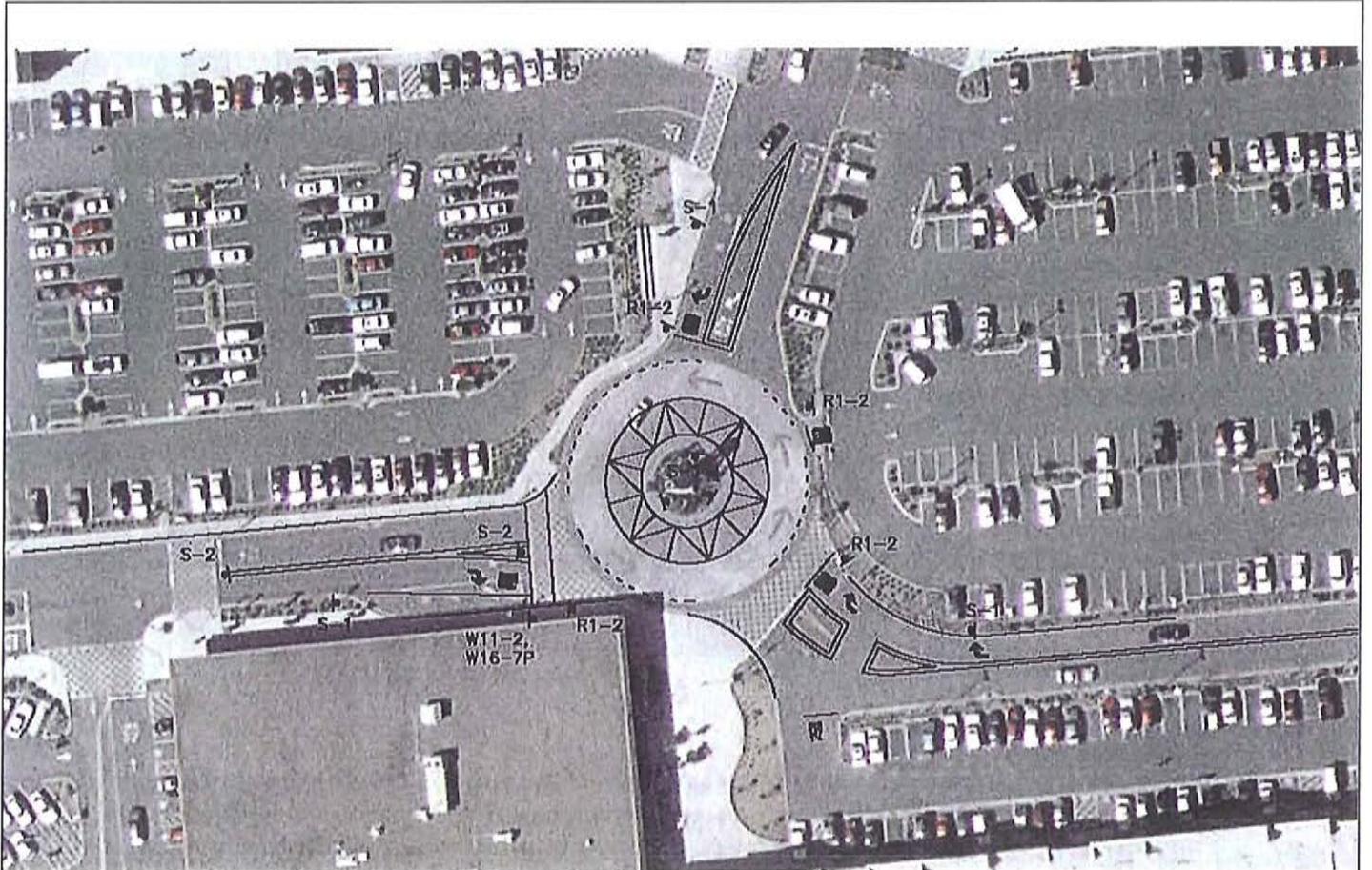
The recommended design is shown in Figure 14. As indicated on the proposed improvement, pedestrian crossings will be further enhanced with installation of a pedestrian crossing warning sign in the median. Furthermore, the exposure of pedestrians to moving vehicles is somewhat reduced since pedestrians will be exposed to one eastbound through lane in the proposed improvement instead of two eastbound through lanes with the existing configuration.



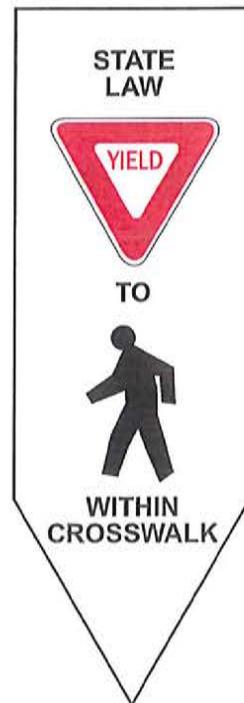
Existing Traffic Circle at the Plaza



Circle Approach near the Shoe Pavilion



Special Roundabout Sign
S-1



Special Pedestrian Sign
S-2



(VIII) Truck Traffic at Albertson's Loading Dock

Observed Issues:

Located to the back of Lucky's and Ross is an area of approximately 550 feet where loading docks for the two stores are located. As observed in the field, this segment is generally very wide and gives any driver "a wide open" feel.

Consequently some drivers might speed through this area while others might not feel very comfortable since there are no traffic controls in the area.

As indicated earlier, only seven (7) percent of the total ADT is truck traffic. Therefore the vast majority are passenger vehicles.



Albertson's Loading Dock

Recommendation:

The narrowest section of the alley is approximately 25 feet and occurs in the boundary section between Ross and Lucky's. Generally the width of the segment averages in the 40-45 feet range. In order to better facilitate orderly flow of traffic, it is recommended that a center line be striped as shown in Figure 15.

Estimated Improvement Costs

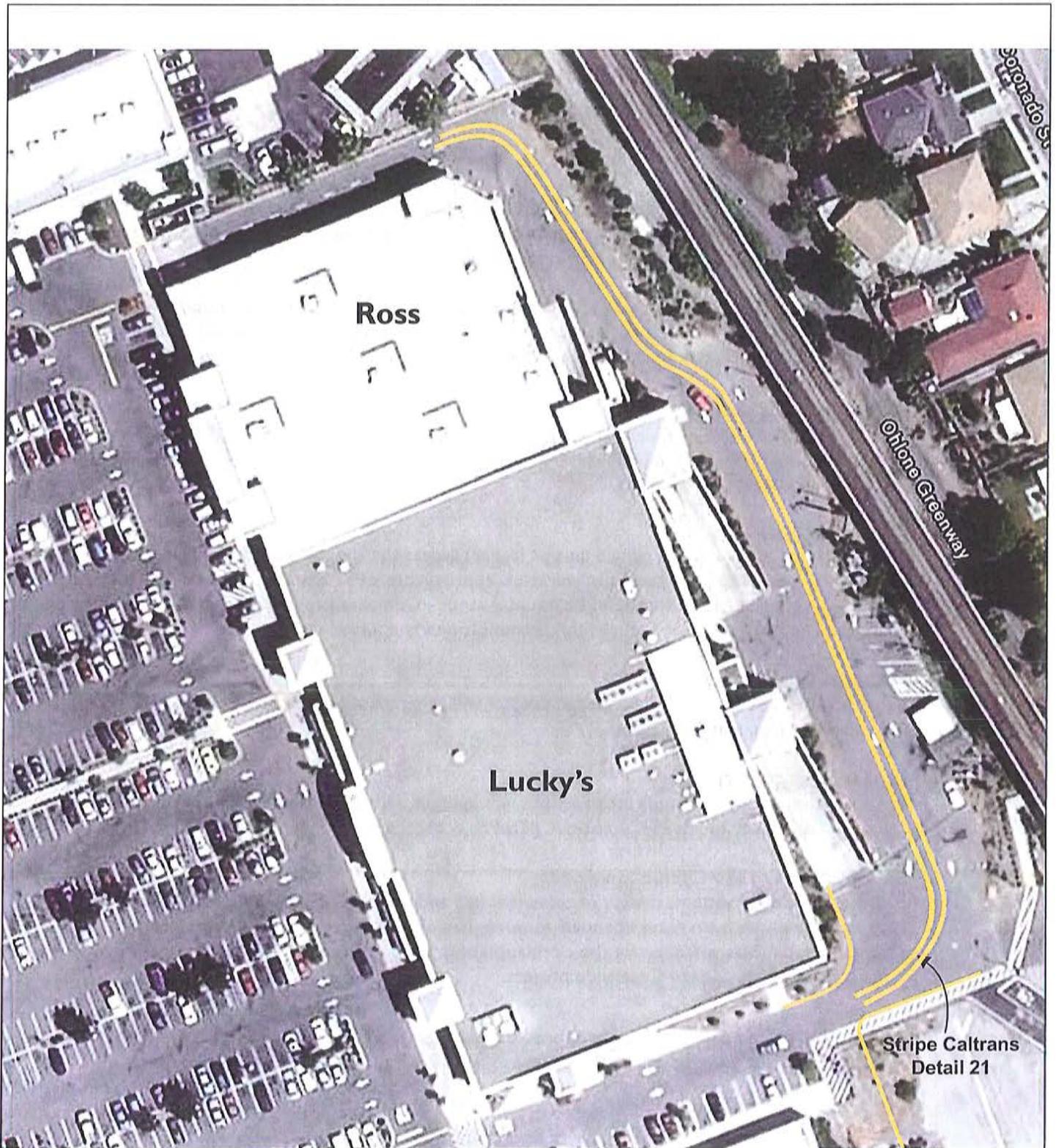
The estimated improvement costs for the above projects are shown in Table VIII. Detailed cost estimates are contained in Appendix F.

Table VIII: Estimated Improvement Costs

Figure	Improvements	Cost Estimates
8	Modification Near Starbucks	\$44,735
9	Create 4-foot Sidewalk near Ross	\$37,950
10	Modification near South Roadway	\$5,918
11	Install stop control on Kanis Avenue Behind Wells Fargo	\$1,357
12	Install stop control near Trader Joe's parking lot	\$1,081
13	N-S Permissive Phase Operations at Fairmount Ave/Liberty Street	\$43,700
14	Create Roundabout: Install signs, pavement marking and striping	\$51,003
15	Centerline striping of alley behind Lucky's	\$5,520
		\$191,263

Note:

Unit Prices Are Based On Caltrans Contract Cost Data



Conclusions

TJKM has reached the following conclusions regarding the proposed project:

Traffic Characteristics

San Pablo Avenue Entrance

Daily traffic volumes data on the San Pablo Avenue entrance showed the midday peak on a typical weekday to occur around noon and the p.m. peak hour to occur after 5:00 p.m. The weekday peak hour volumes are generally less than 750 vehicles per hour.

The midday and p.m. peak hours of a typical weekday are generally less than an hour while the Saturday midday peak traffic begins earlier at 11:30 a.m. and lasts for more than three hours till 2:30 p.m. This is likely due to the Farmers Market which takes place at the plaza on Saturdays.

Fairmount Avenue Entrance

Based on the collected data, there is no distinct midday peak hour during a typical weekday. The midday peak hour volume is generally less than 600 vehicles per hour (or 20 percent less than the peak volume on San Pablo Avenue).

Truck Characteristics

The highest amount of trucks (single unit or higher) access the shopping plaza through Fairmount Avenue. It is estimated that the daily average is approximately 957 trucks (13 percent) that enter and exit the shopping plaza through Fairmount Avenue. Compared to the San Pablo Avenue truck volumes of approximately 541 trucks this amount is nearly doubled.

Proposed Creekside Project

It is estimated that the existing proposed project will generate approximately 65 a.m. peak hour trips and 79 p.m. peak hour trips.

Levels of Service Analysis

It is estimated that the all study intersections will operate with acceptable LOS D or better for Existing plus Project and 2025 Cumulative plus Project scenarios.

Improvements to the Circulation System

Based on field observations, review of collected data and discussions with staff, roadway improvements have been recommended at more than eight locations in the shopping center. These improvements will improve the circulation of the shopping center as well as improving the safe access of the proposed Creekside project.

A clearly delineated path from the proposed Creekside project to San Pablo Avenue is recommended along the Southern Roadway as shown on Figure 10.