3.11 - Transportation/Traffic

3.11.1 - Introduction

This section presents the existing conditions, regulatory setting, and impact analysis for the Solano 360 Public Draft Specific Plan (Plan), related to transportation. The purpose of the transportation impact analysis is to identify the impacts of implementing the Plan on the surrounding transportation system and to recommend measures to mitigate significant impacts, as necessary. The following sections present an overview of existing transportation conditions in the transportation study area; a description of the agencies with jurisdiction over transportation in the study area, including relevant policies; and a description of the impacts of the Plan on transportation systems, including the methodologies used, thresholds of significance, impact identification, and mitigation measures. Transportation technical data are included as Appendix I.

3.11.2 - Environmental Setting

Regional Setting

The Plan area is located in northeast Vallejo, in Solano County (Exhibit 3.11-1). Vallejo is roughly midway between San Francisco and Sacramento on Interstate 80 (I-80), located along the Carquinez Strait and San Pablo Bay. Neighboring cities include American Canyon and Napa to the north, Benicia to the east, and Crockett to the south; to the west is the Mare Island area.

Project Site

The Plan site consists of the Solano County Fairgrounds, located along Fairgrounds Drive at the State Route 37 (SR-37)/I-80 interchange. The site is bounded by SR-37 to the north, I-80 to the east, Fairgrounds Drive to the west, and Coach Lane to the south. The existing fairgrounds will be improved and will continue to operate on the site, while allowing for new mixed-use development on the currently vacant portion of the site. The Plan is an opportunity for infill development on the currently underutilized fairgrounds site and represents the collaborative efforts of the City of Vallejo and Solano County, and Caltrans. The project land use plan is described in more detail in Section 2, Project Description chapter.

The principal existing use of the site is the fairgrounds itself, which hosts the Solano County Fair in August, along with other events throughout the year but particularly in the summer, including off-track horse race viewing, exhibits and shows, tournaments, and golf. The vacant land to the south of the active fairgrounds uses is leased to Six Flags Discovery Kingdom to provide overflow parking.

Surrounding Area

The transportation impact study area is the area in which circulation is most likely to be affected by the Plan. This area extends north along Fairgrounds Drive into the residential area north of SR-37, south along Redwood Boulevard between Tuolumne Street and Oakwood Avenue, west to Tuolumne Avenue and Sereno Drive, and east to Admiral Callaghan Lane and Columbus Parkway. The area includes roadways and intersections under the jurisdictions of the City of Vallejo and Caltrans. The

study area was defined in consultation with transportation planning staff in the City of Vallejo, based on an assessment of the peak-hour traffic volumes that would be added to the roadway network as the distance from the Plan site increased.

Study Area Roadways

The following major roadways provide circulation within the Plan study area. Refer to Exhibit 3.11-1.

I-80 is a major east-west freeway originating in the San Francisco Bay Area to the southwest, continuing east towards Sacramento, and terminating in New Jersey. I-80 crosses Vallejo in a south-to-north direction. In Vallejo, I-80 provides three mixed-flow lanes in each direction, increasing to four lanes in each direction near I-80's intersection with SR-37, and has a posted speed limit of 65 mph.

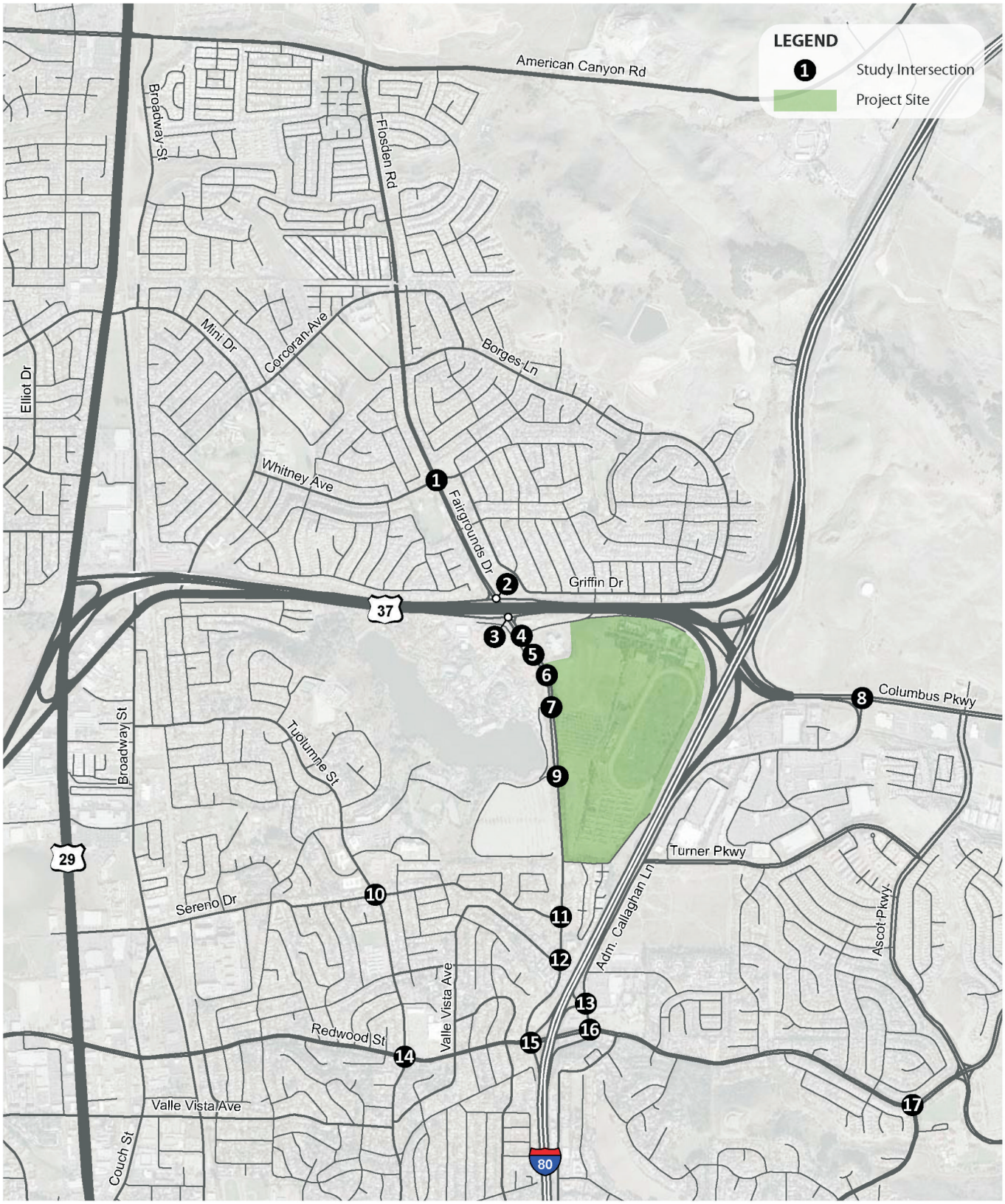
SR-37 is an east-west highway that connects Highway 101 (US-101) in Novato to the west and I-80 in Vallejo to the east. In the vicinity of the Plan Area, SR-37 is a restricted access freeway that provides two travel lanes in each direction. The posted speed limit is 65 mph. Access to Sonoma Boulevard is provided via the SR-37/SR-29 interchange in northern Vallejo. The annual average daily traffic (Caltrans, 2009) is 64,000 west of the SR-37/SR-29 interchange and 29,000 east of the interchange.

Admiral Callaghan Lane is a four-lane, divided north-south roadway that runs from Columbus Parkway to Redwood Parkway. Admiral Callaghan Lane provides access between the various shopping centers located on the east side of I-80. Between Turner Parkway and Rotary Way, Admiral Callaghan Lane becomes a two-lane road.

Columbus Parkway is an east-west four-lane divided arterial connecting Vallejo to the City of Benicia to the southeast. Columbus Parkway begins at I-80 at SR-37 and connects to I-780 to the southeast.

Fairgrounds Drive is a north-south roadway that connects Redwood Street to American Canyon Road, becoming Folsden Road where it enters the City of American Canyon. Between SR-37 and the Six Flags Discovery Kingdom parking lot, Fairgrounds is a four-lane divided roadway to accommodate to the large number of trips to the theme park and fairgrounds. From the Six Flags Discovery Kingdom parking lot to Redwood Street, it transitions to a two-lane roadway.

Redwood Street/Redwood Parkway is an east-west four-lane arterial that extends between Columbus Parkway on the eastern edge of Vallejo to Sonoma Boulevard (SR-29) to the west, terminating at Sacramento Street. The roadway name is Redwood Street west of I-80 and Redwood Parkway east of I-80. The roadway has a 35 mph posted speed limit.



Source: Fehr and Peers, 2011.

NORTH

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Exhibit 3.11-1
Project Study Area

Sage Street runs east-west along the northern border of the project site, passing under SR-37 to connect to the residential neighborhood north of SR-37. Sage Street provides two travel lanes and has a posted speed limit of 25 mph.

Sereno Drive is an east-west, 25 mph two-lane roadway connecting Fairgrounds Drive with Sonoma Boulevard through predominately residential areas. Between North Cam Alto and Sonoma Boulevard, the road becomes more commercial, providing access to shopping centers and the Kaiser Permanente Medical Center. From the Kaiser entrance to Sonoma Boulevard, the roadway is four lanes.

Tuolumne Street is a north-south four-lane arterial running between Broadway Street and Wallace Avenue with a speed limit of 35 mph. Tuolumne Street is primarily residential with the noted exception of several schools and shopping centers as well as the Sutter Solano Medical Center.

Valle Vista Avenue is a two-lane residential street connecting Fairgrounds Drive to Redwood Street and then to Tuolumne Street, turning from an east-west orientation near Fairgrounds Drive to a north-south orientation at Redwood Street. The Valle Vista Avenue/Redwood Street intersection is side street stop-controlled on the Valle Vista approaches.

Whitney Avenue/Taper Avenue is a two-lane residential street, running from Mini Drive and ending in a cul-de-sac at Taper Court east of Fairgrounds Drive.

Study Intersections

Intersections usually form the critical components of the roadway system capacity because of the delay introduced by traffic signals, stop signs, or other control devices. Therefore, the traffic impact evaluation focuses on the operations of key intersections on the roadway network serving the Plan site. The existing study intersections are listed below and shown in Exhibit 3.11-2.

- Fairgrounds Drive/Whitney Avenue/Taper Avenue
- Fairgrounds Drive/SR-37 WB On- & Off-Ramps
- Fairgrounds Drive/SR-37 EB On- & Off-Ramps
- Fairgrounds Drive/Sage Street/Six Flags Discovery Kingdom Service Entry
- Fairgrounds Drive/Courtyard by Marriott Courtyard Hotel Parking Lot
- Fairgrounds Drive/Six Flags Discovery Kingdom Visitor Entrance
- Fairgrounds Drive/Six Flags Discovery Kingdom Drop-Off Exit/Solano County Fairgrounds Parking Lot
- Admiral Callaghan Lane/Columbus Parkway
- Fairgrounds Drive/Six Flags Discovery Kingdom Parking Exit

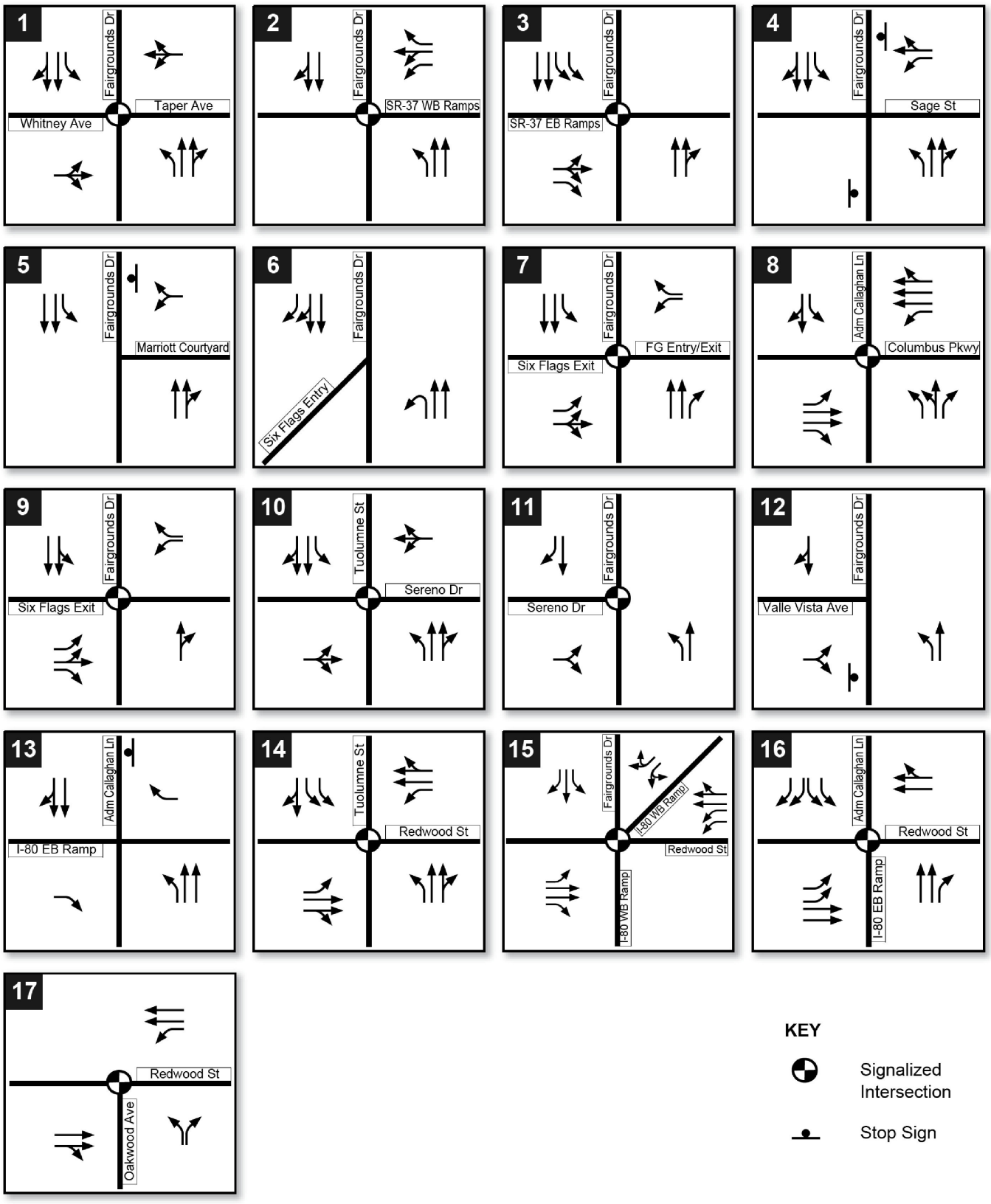
- Tuolumne Street/Sereno Drive
- Fairgrounds Drive/Sereno Drive
- Fairgrounds Drive/Valle Vista Avenue
- I-80 EB On- and Off-Ramps/Admiral Callaghan Lane
- Tuolumne Street/Redwood Street
- Fairgrounds Drive/1-80 WB On- and Off-Ramps/Redwood Street
- Admiral Callaghan Lane/I-80 EB Off-Ramp/Redwood Street
- Oakwood Avenue/Redwood Parkway

The lane configuration and control type for each intersection is shown in Exhibit 3.11-2.

Intersection Peak Hour Traffic Volumes

Due to the entertainment-orientation of the area, with Six Flags Discovery Kingdom across Fairgrounds Drive from the Plan site, and the entertainment-oriented, weekend-peaking land uses included in the Plan, intersection operations are evaluated for the Saturday AM and PM peak hours. These conditions represent the regularly occurring peak time for the combined traffic generation of the Plan and Six Flags Discovery Kingdom, which would occur on Saturdays and Sundays between May and September, up to about 40 days per year. Volumes on non-summer weekends and the weekday peak hours in the study area are currently lower than during these time periods, at intersections in the immediate project vicinity along Fairgrounds Drive. At other intersections in the study area, further from the project site, intersection volumes vary between the peak summer weekend peak hours and the weekday peak hours, with some turn movements higher and some turn movements lower; however, the total intersection volumes at these outer study intersections are generally equivalent between the peak weekend and regular weekday peak hours (that is, not significantly higher or lower as a trend).

Counts of traffic, pedestrians, and bicyclists were taken on Saturday, June 11, 2011 at the study intersections, for the AM peak period (9:00 to 11:00 a.m.) and the PM peak period (4:00 to 6:00 p.m.). On this day, Six Flags Discovery Kingdom was in typical summer operation, and the County Fairgrounds site was hosting several events, including a Junior Golf Tournament, a Dog Show, an RV Show, and the Belmont Stakes at the Solano Race Place facility. The peak-hour traffic volumes, for the 10 to 11 a.m. hour and the 5 to 6 p.m. hour, are shown in Exhibit 3.11-3.



Source: Fehrs and Peers, 2012.

Exhibit 3.11-2
Exisiting Intersection Lane Configurations and Control

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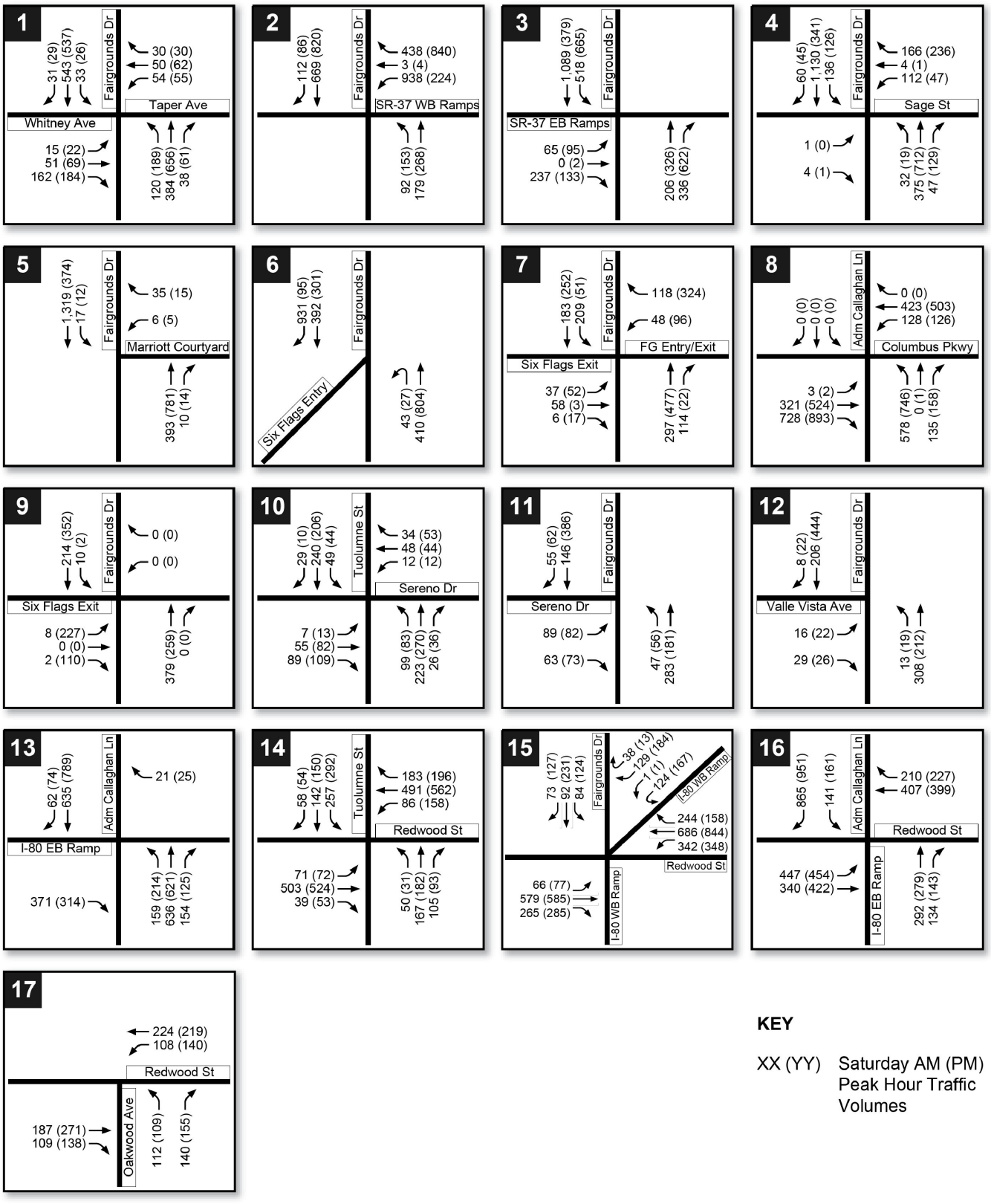

Source: Fehrs and Peers, 2012.

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Exhibit 3.11-3
Exisiting Saturday Peak Hour Traffic Volumes

Intersection Levels of Service

The operational performance of a roadway network is commonly described with the term level of service (LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the Highway Capacity Manual (Transportation Research Board 2000) were used in this study. The LOS analysis methods outlined in the Highway Capacity Manual (Transportation Research Board 2000) were used in this study. This methodology was selected for use in this study, rather than the Transportation Research Board's Circular 212 methodology which was used in the General Plan EIR, because it provides for more reliable analysis of actual intersection operations by incorporating characteristics such as the signal timing plan, the effects of pedestrians on signal phase duration, traffic volume peaking characteristics, motorist behavioral characteristics, and others. The 2000 HCM is considered the state of the art methodology for assessing intersection operations and defining impacts, and allows for the accurate definition of mitigation measures, such as lengthening or adding turning lanes, modifying the signal phasing or timing, and other options.

The HCM methods for calculating LOS for signalized and unsignalized intersections are described below.

Signalized Intersections – Methodology

Traffic operations at signalized intersections are evaluated using the LOS method described in Chapter 16 of the 2000 Highway Capacity Manual. A signalized intersection's LOS is based on the weighted average control delay measured in seconds per vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Table 3.11-1 summarizes the relationship between the control delay and LOS for signalized intersections.

Table 3.11-1: Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable traffic signal progression and/or short cycle lengths.	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0

Table 3.11-1 (cont.): Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay (Seconds)
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0
Source: Highway Capacity Manual, Transportation Research Board, 2000.		

Unsignalized Intersections – Methodology

In Chapter 17 of the Transportation Research Board's 2000 Highway Capacity Manual, the LOS for unsignalized intersections (side-street or all-way stop controlled intersections) is also defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, delay is calculated for each stop-controlled movement and for the uncontrolled left turns, if any, from the main street. The delay and LOS for the intersection as a whole and for the worst movement are reported for side-street stop intersections. The intersection average delay is reported for all-way stop intersections. Table 3.11-2 summarizes the relationship between delay and LOS for unsignalized intersections. The delay ranges for unsignalized intersections are lower than for signalized intersections as drivers expect less delay at unsignalized intersections.

Table 3.11-2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay per Vehicle (Seconds)
A	Little or no delays	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0
Source: Highway Capacity Manual (Transportation Research Board, 2000).		

Intersection Level of Service Standards

City of Vallejo

Vallejo strives to maintain a LOS standard of D. For purposes of project impact assessment, the City of Vallejo maintains standards related to the current operating condition of an intersection. Table 3.11-3 shows the maximum acceptable increase in volume-to-capacity ratio that is acceptable for intersections operating at LOS C, D, and E/F. The volume-to-capacity ratio, or v/c, is calculated as part of the HCM methodology described above. Increases in v/c ratio above these thresholds would

constitute a significant impact. These standards are applied to signalized and all-way stop-controlled intersections, and not to side-street stop-controlled intersections, where the overall operation of the intersection is often good even when the stop-controlled movement experiences longer delays. At side-street stop-controlled intersections, poor LOS—e.g. LOS E or F—for the stop-controlled movement is an indication that a traffic signal may be warranted, subject to further evaluation.

Table 3.11-3: Volume-to-Capacity (V/C) Thresholds for Project Impacts

LOS Without Project	Increase in V/C With Project
C	>0.04
D	>0.02
E or F	>0.01
Source: City of Vallejo Traffic Impact Analysis Study Guidelines	

Caltrans

For Caltrans-controlled intersections (i.e., the SR-37 and I-80 ramp junction intersections at Fairgrounds Drive and Redwood Parkway, respectively), the LOS standard is the LOS C/D boundary. However, in practice Caltrans has historically designated LOS D, or the current/baseline operating condition, whichever is worse, to be acceptable in urban, high-volume settings.

Existing Intersection Levels of Service

Table 3.11-4 shows the existing Saturday AM and PM peak-hour service levels, based on the counts conducted.

Currently, all intersections operate at acceptable (LOS D or better) conditions, except for the side-street stop-controlled intersection of Fairgrounds Drive/Sage Street, where the side-street left-turn movement operates at LOS F. The difficulty making this movement is related to the high volume of traffic on southbound Fairgrounds Drive destined for the Six Flags Discovery Kingdom entry and the Fairgrounds entry. The City of Vallejo has plans to construct a traffic signal at this intersection, which will provide a substantially improved LOS.

It should be noted that, while the Fairgrounds Drive intersections at the SR-37 ramps operate at an acceptable overall LOS, vehicle queues periodically extend back to near the SR-37 mainline during the AM peak hour. This is due to the high volume of traffic heading for Six Flags Discovery Kingdom and the Fairgrounds site.

Table 3.11-4: Intersection LOS Existing Conditions—Saturday

Intersection	Control[1]	Peak Hour	Delay[2]	LOS[2]
1. Whitney Avenue/Fairgrounds Drive	Signal	AM	14.9	B
		PM	17.4	B
2. SR-37 WB Ramps/Fairgrounds Drive	Signal	AM	22.0	C
		PM	14.2	B
3. SR-37 EB Ramps/Fairgrounds Drive	Signal	AM	10.4	B
		PM	17.5	B
4. Sage Street/Fairgrounds Drive	SSSC	AM	**9.9 (66.0)**	**A (F)**
		PM	5.9 (29.0)	A (D)
5. Courtyard by Marriott Driveway/Fairgrounds Drive	SSSC	AM	0.3 (11.7)	A (B)
		PM	0.3 (13.8)	A (B)
6. Six Flags Discovery Kingdom Entry/Fairgrounds Drive[3]	SSSC	AM	0.3 (13.4)	A (B)
		PM	0.2 (8.3)	A (A)
7. Six Flags Discovery Kingdom Exit/Fairgrounds Drive	Signal	AM	22.3	C
		PM	18.7	B
8. Columbus Parkway/Admiral Callaghan Lane	Signal	AM	17.5	B
		PM	23.3	C
9. Six Flags Discovery Kingdom South Exit/Fairgrounds Drive	Signal	AM	2.1	A
		PM	7.6	A
10. Sereno Drive/Tuolumne Street	Signal	AM	12.3	B
		PM	12.8	B
11. Sereno Drive/Fairgrounds Drive	Signal	AM	9.3	A
		PM	11.1	B
12. Valle Vista Avenue/Fairgrounds Drive	SSSC	AM	1.0 (10.4)	A (B)
		PM	1.0 (11.5)	A (B)
13. I-80 EB Ramp/Admiral Callaghan Lane	SSSC	AM	1.1 (10.5)	A (B)
		PM	1.4 (10.4)	A (B)
14. Redwood Street/Tuolumne Drive	Signal	AM	27.7	C
		PM	34.4	C
15. Redwood Street/I-80 WB Ramp	Signal	AM	23.3	C
		PM	33.7	C
16. Redwood Street/Admiral Callaghan Lane	Signal	AM	28.0	C
		PM	28.1	C

Table 3.11-4 (cont.): Intersection LOS Existing Conditions—Saturday

Intersection	Control[1]	Peak Hour	Delay[2]	LOS[2]
17. Redwood Parkway/Oakwood Avenue	Signal	AM	11.2	B
		PM	12.5	B

Notes:
Bold indicates LOS exceeding the applicable standard.
[1] SSSC = Side street stop-controlled intersection.
[2] Average control delay and LOS for worst approach at SSSC intersections are presented in parentheses.
[3] At intersection 6, control delay and LOS for NBL movement are presented in parentheses.
Source: Fehr Peers, November 2011.

Freeway Volumes

The Saturday peak hour and daily volumes on SR-37 and I-80 are shown in Table 3.11-5. These volumes are taken in part from the Caltrans District 4 2010 count database, where Saturday counts were available; for segments where Saturday counts were not available, the weekday volumes were adjusted based on the Saturday-to-weekday peak-hour ratios at adjacent locations. Table 3.11-5 also shows the capacity for each segment, based on a traffic-carrying capacity of 2,000 vehicles per mainline lane. Currently, all segments operate at LOS D or better except for I-80 eastbound between Redwood Parkway and SR-37 in the PM peak hour, which operates at LOS E.

Table 3.11-5: Freeway Volumes and LOS – Existing Saturday Peak Hour (2010)

Freeway Segment	Lanes	Capacity	Volume	V/C Ratio	LOS[1]
AM Peak Hour					
I-80 EB, south of Redwood Parkway	3	6,000	5,340	0.89	D
I-80 EB, between Redwood Parkway and SR-37	3	6,000	4,080	0.68	B
I-80 EB, north of SR-37	4	8,000	4,660	0.78	C
I-80 WB, north of SR-37	3	6,000	2,970	0.37	A
I-80 WB, between SR-37 and Redwood Parkway	4	8,000	3,750	0.47	A
I-80 WB, south of Redwood Parkway	4	8,000	3,490	0.44	A
SR-37 EB, west of Fairground Drive	2	4,000	2,560	0.64	B
SR-37 EB, east of Fairground Drive	3	6,000	2,640	0.66	B
SR-37 WB, east of Fairground Drive	3	6,000	3,630	0.61	B
SR-37 WB, west of Fairground Drive	2	4,000	3,420	0.57	A
PM Peak Hour					
I-80 EB, south of Redwood Parkway	3	6,000	4,890	0.82	D
I-80 EB, between Redwood Parkway and SR-37	3	6,000	5,520	0.92	**E**
I-80 EB, north of SR-37	4	8,000	4,390	0.73	C

Table 3.11-5 (cont.): Freeway Volumes and LOS – Existing Saturday Peak Hour (2010)

Freeway Segment	Lanes	Capacity	Volume	V/C Ratio	LOS[1]
I-80 WB, north of SR-37	3	6,000	4,800	0.60	B
I-80 WB, between SR-37 and Redwood Parkway	4	8,000	4,180	0.52	A
I-80 WB, south of Redwood Parkway	4	8,000	4,010	0.50	A
SR-37 EB, west of Fairground Drive	2	4,000	2,930	0.73	C
SR-37 EB, east of Fairground Drive	3	6,000	2,830	0.71	C
SR-37 WB, east of Fairground Drive	3	6,000	3,510	0.59	A
SR-37 WB, west of Fairground Drive	2	4,000	3,870	0.65	B

Notes:
Bold - Below-standard level of service (LOS E or F).
Source: Caltrans Performance Measurement System (PeMS), November 2011 for Saturday peak-hour volumes on I-80 north of SR-37; volumes elsewhere derived from the Saturday/weekday count ratio at this location.
Source: Fehr & Peers, November 2011.

Pedestrian Facilities

According to the Solano Transportation Authority's 2012 Countywide Pedestrian Plan, the major pedestrian routes within the study area include Redwood Street/Redwood Parkway and Tuolumne Street. The Six Flags Discovery Kingdom/Fairgrounds area is specifically noted as an important pedestrian zone and destination with Vallejo. The plan includes two projects within the study area: Class I bicycle/pedestrian paths along Fairgrounds Drive and Columbus Parkway.

Within the immediate vicinity of the Plan site, pedestrian facilities are discontinuous. Sidewalks are provided only on the east side of Fairgrounds Drive between Redwood Street and the Six Flags Discovery Kingdom entrance. North of the Six Flags Discovery Kingdom entrance, sidewalks are provided along both sides of the street, continuing into the residential neighborhoods north of SR-37. The sidewalk on the west side of Fairgrounds Drive begins near the intersection with Sereno Drive, continuing into the residential neighborhood to the south.

Pedestrian crossing facilities are also limited on Fairgrounds Drive between SR-37 and Redwood Street, with signs and barriers explicitly prohibiting crossing at some locations, and few protected crossings. Within the immediate vicinity of the Plan site, Fairgrounds Drive has only one striped crossing, located on the south leg of the Fairgrounds Drive/Six Flags Discovery Kingdom Exit/Fairgrounds Entry intersection. Where sidewalk is present along Fairgrounds Drive, north-south crosswalks are typically provided at intersections. Likewise, crossings are provided at bus stops along Fairgrounds Drive, such as at the intersection of Fairgrounds Drive with the entrances to Six Flags Discovery Kingdom and the fairgrounds. At the same intersection, 150' of sidewalk is provided on the west side of Fairgrounds, allowing for safe pedestrian access to the southbound bus stop.

Outside of the immediate Six Flags Discovery Kingdom/Fairgrounds area, in the predominately residential areas, sidewalks are provided on both sides of the street. At major intersections, most approaches have striped crosswalks; however, at the non-signalized intersections of major arterials with side streets, crossings are typically not striped or only one leg is striped.

Bicycle Facilities

Bicycle facilities include the following:

- Bike Paths (Class I) – Paved trails that are separated from roadways.
- Bike Lanes (Class II) – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- Bike Routes (Class III) – Designated roadways for bicycle use by signs or other markings may or may not include additional pavement width for cyclists.

Exhibit 3.11-4 shows the bicycle facilities in the study area.

In the north-south direction, bike lanes are present on Fairground Drive between the Best Western Inn to the north of SR-37 and the intersection of Fairground Drive/Coach Lane to the south. In the east-west direction, bike lanes are present along Redwood Street/Redwood Parkway from the intersection of Fairgrounds Drive/Redwood Street/I-80 WB On- & Off-Ramps to its termination at Columbus Parkway. Additionally, Columbus Parkway has bike lanes in both directions from I-80 to Rose Drive. Though not marked as a bike lane, Admiral Callaghan Lane has a wide, striped shoulder in the southbound direction from Columbus Parkway to Auto Club Way.

Transit Service

Exhibit 3.11-5 shows the existing transit services provided along the project corridor.

Surface transit service providers in the project vicinity include SolTrans, Napa County VINE, and Amtrak. SolTrans provides local and regional fixed-route bus service with connections to the Vallejo Ferry Terminal and the El Cerrito Del Norte and Walnut Creek BART stations. SolTrans also provides paratransit service. The Napa County VINE provides bus service to various destinations in Napa County. Amtrak provides limited bus service to Martinez, Napa, and McKinleyville. The Baylink Ferry provides high-speed ferry service to and from San Francisco. Each service is described below.

SolTrans Local Fixed-Route Bus Service

There are two transit centers in Vallejo: the Sereno Transit Center and the Vallejo Transit Center. The Sereno Transit Center is a bus transfer point for several SolTrans routes, and is located to the west of the project corridor on Sereno Drive, between Sonoma Boulevard and Broadway. The Vallejo Transit Center, located at Sacramento Street and York Street, is the primary transfer point for all local SolTrans routes. Opened in June 2011, it serves numerous bus lines and connects the historic downtown with the ferry terminal and waterfront.

Local fares as of August 2012 are $1.75 for adults, $1.50 for youth, and $0.85 for seniors or persons with disabilities. Reduced-cost fares for multi-zone pass, a daily pass, or monthly passes are available.

Exhibit 3.11-5 shows the SolTrans routes in the study area. Three routes directly serve the project site:

Route 2 connects the Vallejo Transit Center, the Sereno Transit Center, the Solano Middle School neighborhood, Solano Community College, and the Target Center. The route passes close to the project at the Fairgrounds Drive/SR-37 interchange. Hours of operation are about 6:00 a.m. to 7:20 p.m. Monday through Friday, and 6:30 a.m. to 6:45 p.m. on Saturday.

Route 5 connects the project site and Six Flags Discovery Kingdom to the Sereno Transit Center and Vallejo Transit Center, running along Fairgrounds Drive, Redwood Street, and Sereno Street. Hours of operation are about 6:30 a.m. to 7:20 p.m. Monday through Friday, and about 7:30 a.m. to 6:20 p.m. on Saturday.

Route 80 connects the Vallejo Transit Center to Solano College and Westfield Solano Mall in Fairfield, providing direct service to the project site and Six Flags Discovery Kingdom on Fairgrounds Drive. Hours of operation are about 5:30 a.m. to 11:00 p.m. Monday through Friday, and about 6:30 a.m. to 10:00 p.m. on Saturday.

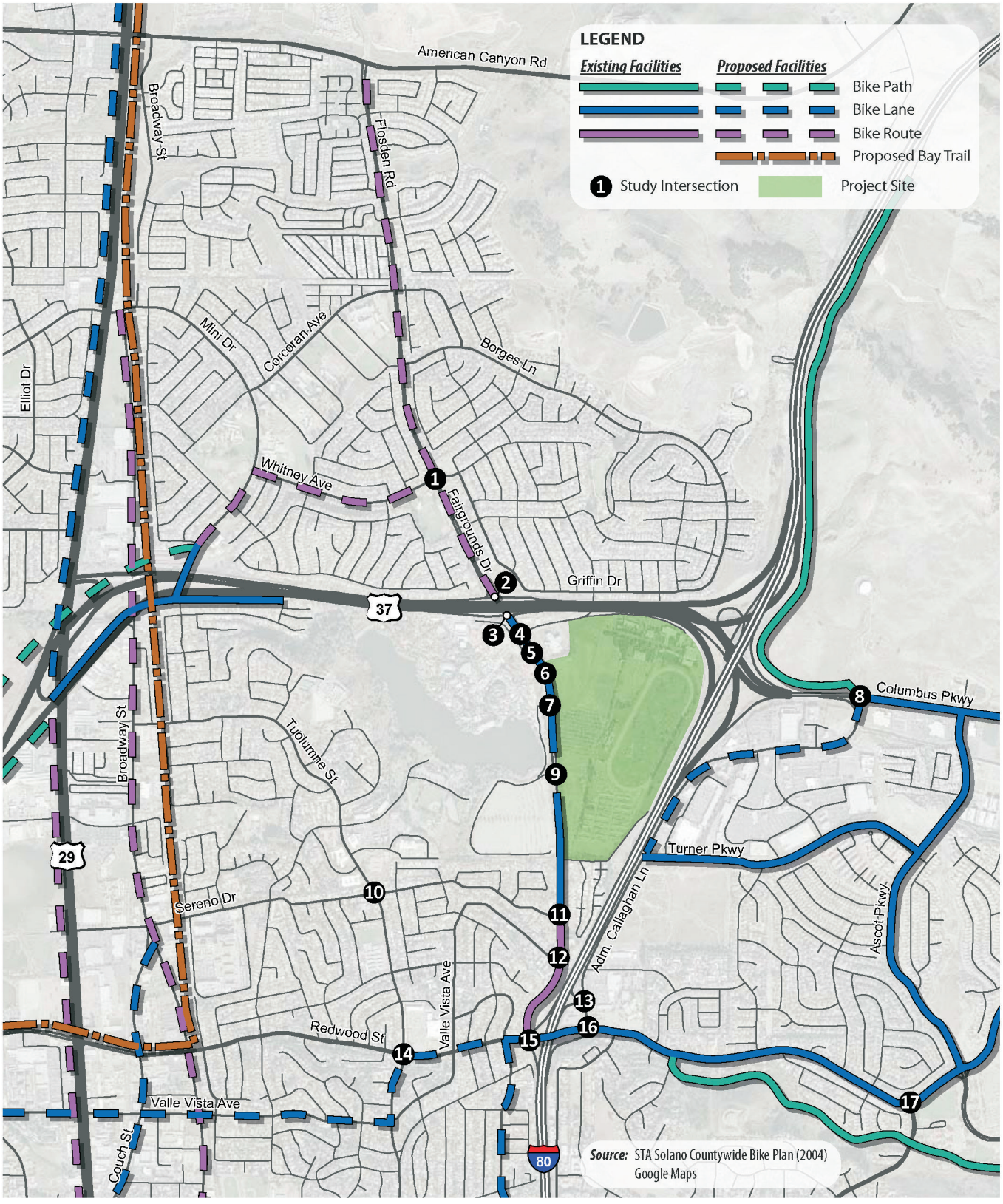
Regional Passenger Rail Service

Although there is no Amtrak rail station in Vallejo, Amtrak does operate a bus service to connect passengers with its Capitol Corridor and San Joaquin passenger rail service. There are two bus stops in Vallejo: Six Flags Discovery Kingdom Bus Stop, located at the intersection of SR-37 and Fairgrounds Drive within the Plan area, and Vallejo City Stop at 4355 Sonoma Boulevard. From the Six Flags Discovery Kingdom Bus Stop, Amtrak offers daily afternoon service, with three runs per day to the Martinez station. From Martinez, Amtrak has daily morning service, with one run per day.

The Amtrak Thruway Bus Route 7 operates daily service in the northern section of the Sonoma Boulevard corridor. The Amtrak Thruway Bus stop is located on the west side of Sonoma Boulevard south of the SR-37 interchange and services Amtrak rail passengers between the Martinez Amtrak station and Napa or McKinleyville. The route schedule is timed with the arrival and departure of San Joaquin Amtrak trains. Northbound buses only discharge passengers at the Vallejo stop

Baylink Ferry

The Baylink Ferry operates daily service for Vallejo and the North Bay Region to and from San Francisco. The Vallejo ferry terminal is located near the Sonoma Boulevard study corridor, five blocks west on Georgia Street where it terminates at Mare Island Way. It is accessible via public transit by the numerous bus lines that terminate at the Vallejo Transit Center located at Sacramento Street and York Street.



Source: Fehr and Peers, 2011.

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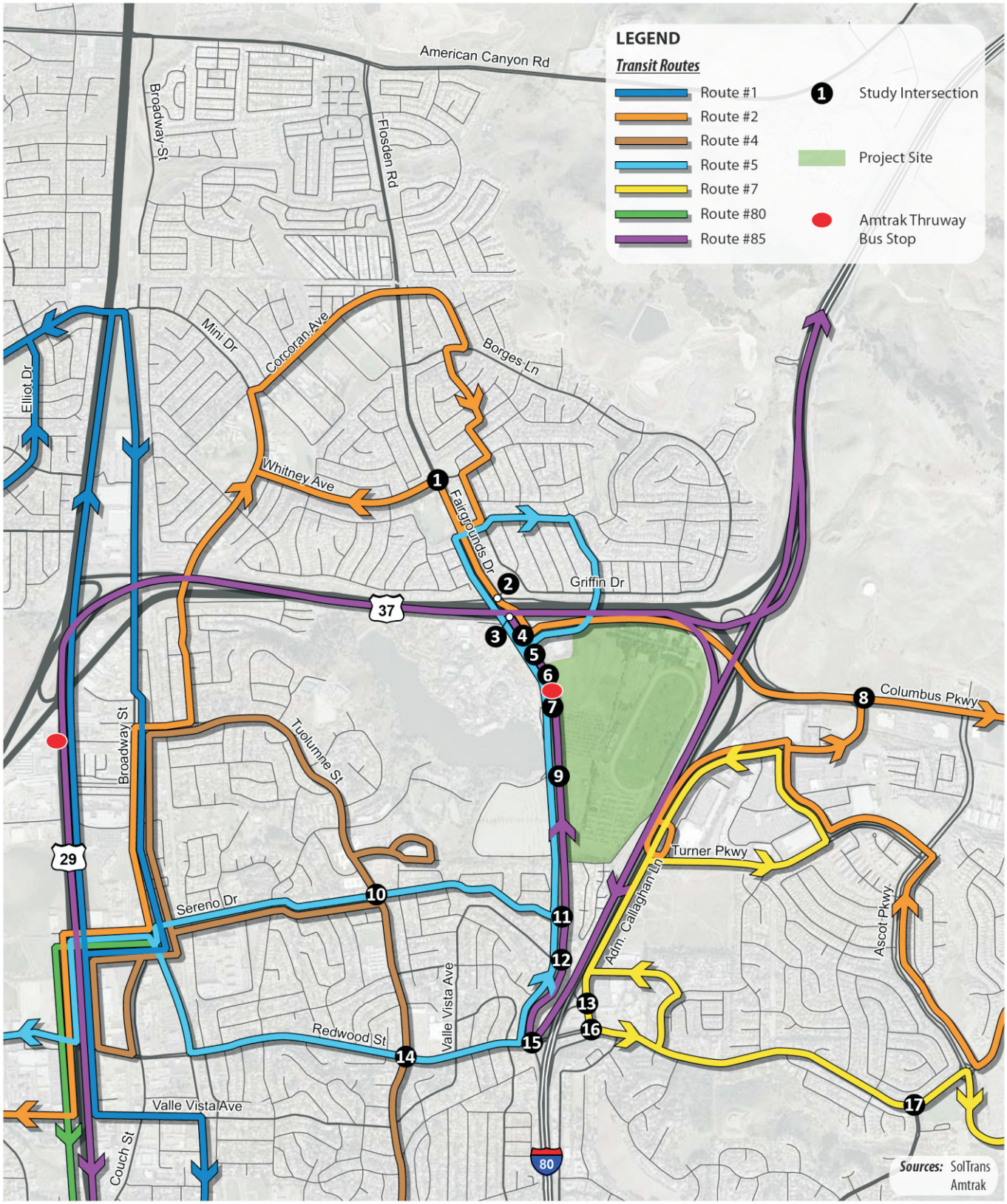
Exhibit 3.11-4
Existing and Proposed Bicycle Facilities



Source: Fehr and Peers, 2011.

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Exhibit 3.11-5
Existing Transit Service

There is also a parking structure currently under construction that will provide parking for both the ferry terminal and the Vallejo Transit Center. The adult fare for one-way travel to San Francisco is $13.00. The fare is $6.50 for youths, seniors, and persons with disabilities.

Blue & Gold Fleet Ferry

The Blue & Gold Fleet operates once-daily ferry and bus service directly from Pier 41 in San Francisco to Six Flags Discovery Kingdom. On Weekdays, the ferry leaves Pier 41 at 11:45 a.m. with a bus transfer to Baylink Route 85 at 12:45, with a return trip leaving Six Flags Discovery Kingdom at 4:59 via bus connecting to a ferry at 6:00 p.m. On weekends, a ferry departs Pier 41 at 9:40 a.m. connecting to Vallejo Transit Route 400 bus at 10:40 a.m., with two return trips: 2:45 p.m. and 6:45 p.m.

Park and Ride Facilities

Park-and-ride lots near major travel corridors facilitate accessibility to transit usage and encourage carpooling. There are three formal park-and-ride locations in Vallejo. The following park-and-ride lots are in proximity to the Plan study area:

- Northwest and southwest corners of Curtola Parkway and Lemon Street, adjacent to the I-780/I-80 interchange (419 parking spaces, 9 bike lockers). This location is a Casual Carpool location and is also served by Vallejo Transit Route 80 and intercity bus service via Greyhound.
- Southeast corner of Benicia Road/Lincoln Road, adjacent to I-80 (14 parking spaces)
- Northwest corner of Magazine Street and Pine Street, adjacent to I-80 (19 parking spaces). This location is also service by Vallejo Transit Route 1.

3.11.3 - Regulatory Framework

State

Caltrans

The California Department of Transportation (Caltrans) owns and operates the state highway system, consisting of freeways and state routes, within California. In the study area, Caltrans maintains control of I-80 and State Route 37 (SR-37), including the ramp terminal intersections at the I-80/Redwood Parkway interchange and the SR-37/Fairgrounds Drive interchange. Caltrans endeavors to maintain a target Level of Service at the transition between LOS C and LOS D on State highway facilities; however, the agency acknowledges that this may not always be feasible, particularly in urban environments where right-of-way is constrained. Where maintaining LOS C/D is not feasible, Caltrans attempts to maintain the existing LOS when assessing the impact of new development.

Local

City of Vallejo

General Plan

The General Plan's Circulation and Transportation Element establishes the following policies relevant to transportation.

Mobility Goal: To have mobility for all segments of the community with a transportation system that minimizes pollution and conserves energy and that reduces travel costs, accidents and congestion.

- **Policy 1:** When evaluating future expansion of streets and highways, consider incorporation of public transit, bicycle and pedestrian rights-of-way, and distribution of goods and services as a system to maintain the citizenry, rather that as a system devoted solely to the accommodation of the private automobile.
- **Policy 6:** Prior to approval of a particular land use, it should be analyzed to determine its impact on the existing circulation system.

Safety Goal: To have a street and highway system that is safe to use.

- **Policy 3:** Sight distances should be consistent with probable traffic speed, terrain, and alignments. Horizontal and vertical street alignments should relate to the natural contours of the site insofar as is practical and should be consistent with other design objectives. They should be selected to minimize grading quantities. Existing unpaved streets rights-of-way too steep for cars or not needed should be abandoned or used to provide landscaping.
- **Policy 4:** Traffic hazards created by the location of trees, driveways, poles, fences, etc. should be described and policies for minimizing the hazards should be adopted by the Planning Commission and City Council.

Compatibility with Adjoining Land Uses Goal: To have a street and highway system that services all land uses with a minimum adverse impact.

- **Policy 5:** The specifications for streets should be modified to reduce the amount of grading needed to lower construction costs for developers and to reduce the cost of future maintenance.

Transit Goal: To have a transit system that results in a significant increase in transit usage especially among commuters and better service for transit dependent residents.

- **Policy 1:** Local and regional transit systems should be given a priority equal to that of the private automobile when developing the future street system and when reviewing specific development proposals.

- **Policy 2:** Policies for the location of new busy stops should be adopted by the City; developers should be required to put in bus stops as a part of large-scale developments.
- **Policy 3 (Transit):** All major community facilities should be made accessible from public transportation; all uses that are, by nature, transit dependent, e.g., senior citizen housing, should readily accessible to transit.
- **Policy 4 (Transit):** The transit system should be designed to permit safe use by handicapped people.

Parking Goal: To have the parking need satisfied primarily in well-designed off-street parking facilities.

- **Policy 2:** Modify the Zoning Ordinance to permit deferral of required parking spaces with the land to be held in landscaped reserve until such time as the spaces are determined to be needed.

Non-Motorized Transportation Goal 1: To have facilities that encourage greater use of bicycles for recreation, commuting and shopping.

- **Policy 2:** Provide off-street parking and locking facilities for bicycles in conjunction with automobile parking as well as near entrances to public facilities and in areas of high people use.
- **Policy 3:** Follow State Guidelines for signing, striping, and paving of bicycle paths and lanes. Provide tire proof grates over drainage inlets.

Non-Motorized Transportation Goal 2: To have a safe and pleasant access for pedestrians throughout the community.

- **Policy 1:** Provide wide sidewalks, plazas, street furniture, street trees, and arcades in intensive shopping areas to increase pedestrian movement and comfort.
- **Policy 2:** Provide safe pedestrian crossing, e.g., signalized crosswalks and pedestrian overpasses, on major streets where day-to-day activities warrant them. Pedestrian walkways should be provided between residential neighborhoods and high use areas such as schools, parks, and commercial centers. The walkways should be safe for adjoining property owners and users.
- **Policy 3:** Ramps should be in all public facilities and at all sidewalk corners and mid-block crossings so that disable persons may participate more easily in routine community activities. New development should follow the handicapped regulations of the Office of the State Architect (Title 24) and the Americans with Disability Act (ADA).

Solano County Congestion Management Plan

The first Congestion Management Program (CMP) for Solano County was adopted in October 1991 and has been updated every two years since then. The most recently published update is the 2009 CMP. The CMP is administered by the Solano Transportation Authority (STA).

The CMP requires that the transportation system within the County be monitored biennially for compliance with LOS standards. Each jurisdiction is responsible for monitoring the LOS on segments or intersections within its jurisdiction. The LOS standard for the County CMP facilities has been set at LOS E for all roadways except for those already operating at LOS F when the first CMP was prepared. The CMP transportation system includes all of the state routes in the County and other Routes of Regional Significance. A comprehensive list of these routes is available in the CMP. The CMP applies the LOS E threshold to roadway segments, not intersections. Therefore, for purposes of intersection analysis, the local jurisdiction's LOS threshold should be applied.

In addition to LOS, the CMP considers four other performance measures. These performance measures are travel times to and from work, ridership for intercity transit, bicycle and pedestrian movement, and multimodal split.

Table 3.11-6 shows the historical monitoring results for the CMP routes in the Plan study area, I-80, and SR-37. The monitoring covers the weekday PM peak hour.

Table 3.11-6: CMP System LOS Monitoring Results, 2001–2007

Roadway	From (PM)	To (PM)	Jurisdiction	Standard	LOS Measurements (PM Peak, Peak Flow)			
					2001	2003	2005	2007
I-80	Carquinez Bridge	SR-29/ Sonoma Boulevard	Vallejo	F	F	E*	E*	E
I-80	SR-29/ Sonoma Boulevard	Redwood Parkway	Vallejo	F	F	D*	D*	D
I-80	Redwood Parkway	Solano/Napa County Line	Vallejo	F	D*	D*	D	D
SR-37	Fairgrounds Drive	I-80 Interchange	Vallejo	F	F	F*	F*	A

Notes:
* Indicates LOS comes from Solano Transportation Authority's (STA's) I-80/I-680/I-780 Corridor Study.
Source: Solano County Congestion Management Program (2009).

3.11.4 - Methodology

This section describes the key transportation elements of the Plan (the project), and the technical methods used to assess traffic and transportation impacts. A discussion of the resulting impacts and corresponding mitigation measures is presented in Section 3.11.6 for project impacts, and Section 3.11.7 for Cumulative impacts.

Project Description – Key Transportation Elements

Section 2, Project Description of this Draft EIR presents a detailed description of the Plan as a whole, including land uses and phasing. This section describes key transportation elements relevant to the transportation and traffic impact analysis. Exhibit 3.11-6 shows the project site plan.

Vehicular Circulation

The Plan site will be accessed at three intersections along Fairgrounds Drive and one intersection on Sage Street. This section describes the onsite roadways. The planned widening of Fairgrounds Drive, which is part of the Redwood Parkway/Fairgrounds Drive Improvement Project currently being studied by the Solano Transportation Authority, is described further below under "Study Area Roadway Network Assumptions." The Plan roadway network has been designed to connect to the existing Fairgrounds Drive configuration *and* accommodate the planned Improvement Project, with modifications to the current Improvement Project design at the access intersections as described below.

Main Entry Road – This is the primary gateway to the site. The Main Entry Road is aligned with the current Fairgrounds entry road, opposite the Six Flags Discovery Kingdom service exit. The intersection is currently signalized. The Main Entry Road is planned to provide a single 11-foot lane in each direction, with sidewalks on both sides of the street. A center median will extend for about 250 feet east of the Fairgrounds Drive intersection, transitioning to a left-turn lane serving turns into the north-south road connecting north to the North Loop Road. The Main Entry Road will terminate at a "T" intersection with the Loop Road, in front of the Fairgrounds' Main Gate area. At the intersection with Fairgrounds Drive, a single southbound left-turn lane is proposed instead of the double left-turn lanes shown in the Redwood Parkway/Fairgrounds Drive Improvement Project design.

Loop Road – The Loop Road will provide the primary circulation through the site, and will connect to Fairgrounds Drive at two locations. The northerly connection is currently planned to be signalized to facilitate traffic flow into and out of the site from the north. The new intersection will include two exclusive southbound left-turn lanes and two westbound right-turn lanes and involve converting the nearby Courtyard by Marriott Hotel driveway to right-turn access only. This is a modification to the current design for the Redwood Parkway/Fairgrounds Drive Improvement Project, which does not include an intersection at the North Loop Road location. The new intersection will serve all movements except westbound left turns (i.e. left turns from the Fairgrounds site onto southbound Fairgrounds Drive.) At the intersection, the southbound through movement will not be controlled by the signal, as there will be no conflicting movements at the intersection. The Plan contains detailed schematics of the roadway modifications.

The southerly connection of the Loop Road to Fairgrounds Drive is located between the Entertainment Commercial parcel and the southerly parking area. This intersection will be signalized, and will serve as the main access for the EC uses (although all trips to the site will have the option of

using the intersection.) The Redwood Parkway/Fairgrounds Drive Improvement Project design currently shows a widening to two northbound lanes and two southbound lanes in this area, widening to three northbound lanes to the north near the Six Flags Discovery Kingdom exit driveway. This was the presumed location of a new Fairgrounds site access intersection when the Improvement Project was being designed. With the new location of the South Loop Road intersection, further south, the widening to three lanes is recommended to occur between the South Loop Road intersection and the Main Entry intersection. The design of the South Loop Road intersection also differs from that shown in the Redwood Parkway/Fairgrounds Drive Improvement Project design, in that only one southbound left-turn lane is needed to serve the Project traffic.

The Loop Road will provide four 11-foot lanes and sidewalks on both sides of the street. Access to the southerly parking areas will be provided at several locations, as shown on the Plan site plan.

Sage-Loop Connector Street – This short north-south roadway will provide access to the site from Sage Street, connect to the North Loop Road, and provide access to the Transit/North Parking Center, adjacent EMU parking areas, and the northerly Fair parking lots. The street section is planned to be three 12-foot lanes (one in each direction and a center two-way left-turn lane). As this roadway will provide the most direct route between points north and the northerly fair parking lots, it will be an attractive route, potentially overloading the southbound left-turn lane on Fairgrounds Drive at Sage Street. Therefore, access management strategies may need to be employed to direct traffic flows on peak days to the North Loop Road intersection. These may include directional signage, alternative signal timing plans that reduce time given to the southbound left turn at the Fairgrounds Drive/Sage Street intersection, and manual traffic control, among others.

Loop-Main Entry Connector Street – The Plan includes a connector street to provide access to the two large EMU parcels # 6and #7. These parcels can also be accessed from the Loop Road and the Main Entry Road. The street section will be similar to the Sage-Loop Connector Street.

Perimeter Roadway – The northerly and southerly parking lots will be connected via a perimeter roadway to allow maximum parking and circulation efficiency. The connector roadway will likely have a minimal two-lane cross-section between the lots, and will run along the edges of the lots to provide both intra-lot circulation and travel between lots.

Pedestrian Circulation

The Plan provides a comprehensive network of pedestrian facilities, including sidewalks, multi-use paths, and controlled crossings to promote walking to the site and within the site. All of the primary and secondary roadways on the site have either sidewalks on both sides, or sidewalk on one side and a multi-use path on the other side. Controlled crossings (i.e. regulated by a traffic signal) will be provided across Fairgrounds Drive at the Main Entry Road intersection and at the Sage Street intersection (when signalized). High visibility crosswalks will be provided on all approaches at the

onsite intersections, including Main Entry Road/Loop Road, Loop Road/Sage-Loop Connector, and Main Entry Road/Main Entry-Loop Connector.

Bicycle Circulation

Fairgrounds Drive currently has bicycle lanes along most of the project frontage, although there is a gap in the lanes as shown on Exhibit 3.11-5. The Fairgrounds Drive/Redwood Parkway Interchange Improvements project will provide continuous bike lanes on Fairgrounds Drive between SR-37 and Redwood Parkway. The Plan will invite bicycle travel to/from and within the site by providing a bike route, bike lanes, or a multi-use path on all the primary roadways. Secure bicycle parking areas will be provided on the Fairgrounds site and on all EMU parcels as they develop, and on the EC site. The Transit/North Parking Center will also provide a secure bicycle parking area, and may include other bicycle amenities such as a bicycle repair facility.

Parking

The Plan provides parking for four use types:

- Solano County Fairgrounds
- Entertainment Mixed Use Development
- Entertainment Commercial Development
- Shared public parking

Table 3.11-7 shows the parking totals by phase and by land use type. The values in this table are pulled from the Draft Land Use Program and Phasing Table in the Draft Specific Plan. In Phases 1 and 2, parking would be provided in surface lots; in Phase 3, structured parking would be needed to meet the parking demand for the additional development density. The Plan Chapters 3.7 (Phasing), 5.3 (Parking), and 7 (Implementation and Administration) provide detailed descriptions of the mechanisms by which parking provision will be linked to development of the site.

Table 3.11-7: Parking by Phase

Summary Description of Phases			Expo Hall; midway, water feature, farm & grounds at Fair; EMU development along Entry Rd.		More EMU and EMU parcel improvements; Creek Park at EMU; additional roads			Buildout of EC and EMU parcels with surface parking; transit parking structure			Expansion of Exposition Hall to 100,000 sf of expo space; intensification of EMU and EC uses; South Parking Garage and EMU parking garage			
	EXISTING		**PHASE 1A**		**PHASE 1B**			**PHASE 2**			**PHASE 3**			
			New Program		New Program			New Program			New Program			
LAND USES	**Parking Spaces[1, 10]**		**New Acres**	**New Parking Spaces[1]**	**New Acres**	**New Parking Spaces[1]**	**Cumulative Parking Count**	**New Acres**	**New Parking Spaces[1]**	**Cumulative Parking Count**	**New Acres**	**New Parking Spaces[1]**	**Cumulative Acres**	**Cumulative Parking Count**
Public Development Areas														
Existing Parking	1,300			1300			1,300							
South Fair Interim Parking (north portion of golf course)			7.0	875			875							
North Fair Interim Parking (undeveloped transit/road/EMU parcels & existing admin pkg)				1,750			1,375							
North Fair Parking[9, 11]	2,650							6.2	775	775				775
Shared Public Parking Structure[6]											5.0	2,500	5.0	2,500
Shared Public Parking Surface[6]								24.7	2,600	2,600	-5.0	-620	19.7	1,980
Transit Center-Bus Docking								1.1						
Transit Center - Parking Structure[5]								1.1	380	380				380
Entry Road onstreet parking[8]			2.3	73			73			73				73
Subtotal - Public Areas [10]	**3,950**			**3,998**		**0**	**3,623**		**3,755**	**3,828**		**1,880**		**5,708**
Private Development Areas[2,3]														
Entertainment Mixed Use (0.2 FAR)			9.8	427			427	7.0	305	732	-16.8			
Entertainment Mixed Use (0.4 FAR)					2.0	174	174			174	16.8	630		804
Entertainment Mixed Use Parking Structure[7]												1,000		1,000
Entertainment Commercial - venue area								18.0			6.0			
Entertainment Commercial - parking area[4]								12.0	1,500	1,500	-6.0	-750		750
Entertainment Commercial - Shared Public Parking use[6]											See Note 6	1,250		See Note 6
Subtotal Private Development				**427**		**174**	**601**		**1,805**	**2,406**		**2,130**		**2,554**
TOTALS	**3,950**			**4,425**		**174**	**4,224**		**5,560**	**6,234**		**4,010**		**8,262**

Table Notes:

1. Surface parking assumes 125 cars/acre.
2. Parking demand for EMU uses assumed to be 5 spaces/1000 sf.
3. Parking demand for EC uses assumed to be similar to typical theme park configurations.
4. In Phase 2, 40% of Entertainment Commercial (EC) parcel is used for parking (12 acres); in Phase 3, EC parking is provided by 6 acres within the EC parcel and by the South Parking Garage located in Shared Public Parking area.
5. In Phase 2, Transit Center provides approx. 380 parking spaces (300x135' footprint; 3 levels; 320 sf/stall)
6. In Phase 2, "Shared Public Parking" assumes development of 27.4 acres of surface parking (2,600 spaces). In Phase 3, five acres are used for South Parking Garage (approx. 2,500 parking spaces with 400x500' footprint; 4 levels; 320 sf/staff), with 1,975 remaining surface spaces. Shared Public Parking is shared by Fair, expanded EC (in Phase 3) and others according to County's Parking Operations Management Plan and other parking agreements.
7. In Phase 3, EMU parking includes parking structure (approx. 1,000 parking spaces with 300x360' footprint; 3 levels; 320 sf/stall); 630 surface spaces; and onstreet spaces for total of approx. 1,650 spaces (5 spaces/1000 sf)
8. Parking lanes will be available along the Entry Road except when needed as travel lanes for peak events.
9. In Phase 2, added North Fair Parking requires the demolition of Admin and County buildings; admin space would be in a portable at rear of fair site
10. Parking totals do not include an estimated 4 acres of service/ employee parking space at the back of the fairgrounds.

Source: SWA, 2012.

Transit Facilities

The Plan includes space for a Transit/North Parking Center that would serve as a bus hub, with pedestrian and bicycle connections to the rest of the site. The Center is located south of Sage Street and would be accessed directly from the Sage – Loop Connector Street. Potential bus circulation routes are shown in the Draft Specific Plan. Prior to the construction of the Transit/North Parking Center (expected in Phase 2), bus service can be accommodated with a stop on the Main Entry Road or the North Loop Road. The Transit/North Parking Center could also serve an onsite shuttle that could potentially be coordinated with Six Flags Discovery Kingdom operations to serve both sites.

Project Land Use and Roadway Network Assumptions by Phase

The following changes to the land use and roadway network are assumed under the three scenarios:

Phase 1 Land Use and Roadway Network

- The northern portion of the public loop road is constructed to provide access to the Entertainment-Mixed Use zones, Transit/North Parking Center, and Exposition Hall.
- The main entry road is constructed, connecting Fairgrounds Drive to the northern loop road.
- The intersection of the northern loop road and Fairgrounds Drive is signalized.
- A temporary access road is provided, connecting the main entry road to the overflow/Six Flags Discovery Kingdom lease parking lots on the southern end of the site.
- 72,000-square-foot Exposition Hall with 50,000 square feet of exposition space is constructed in the northwest corner of the site.
- 120,000 square feet of Entertainment-Mixed Use sites are developed as Family Entertainment Centers.

Phases 1 & 2 Land Use and Roadway Network

- 61,000 square feet of additional Entertainment-Mixed Use is developed on the north portion of the site
- An 18-acre Major Entertainment Park is developed on the southern portion of the site, with an additional 12 acres devoted to surface parking.
- The public loop road is built out, extending down to a new intersection at Fairgrounds Drive on the southern end of the site.

Phases 1, 2, & 3 Land Use and Roadway Network

- 145,000 square feet of additional Entertainment-Mixed Use is developed.
- 72,000 square feet of building space with a net new 50,000 square feet of exposition space is added to the Phase 1 Exposition Hall.

- Parking facilities on the south and east side of the loop road, across from the Entertainment-Commercial/Entertainment Park zone are established, allowing for growth on the Entertainment Commercial site of about 6 acres
- A 5,500-square-foot outdoor venue space is developed

Traffic Analysis Periods

The traffic analysis is performed for the Saturday AM and PM peak hours, when Six Flags Discovery Kingdom is open. This represents typical weekend conditions between May and September, when traffic volumes and congestion are highest on Fairgrounds Drive and surrounding roadways. The peak hours are approximately 10 to 11 a.m. and 5 to 6 p.m.

Traffic Operations Analysis Method

As described in Section 3.11.2, the intersection Level of Service analysis is performed with the Synchro 7.0 software, and is based on the 2000 Highway Capacity Manual operations methodology.

Scenarios

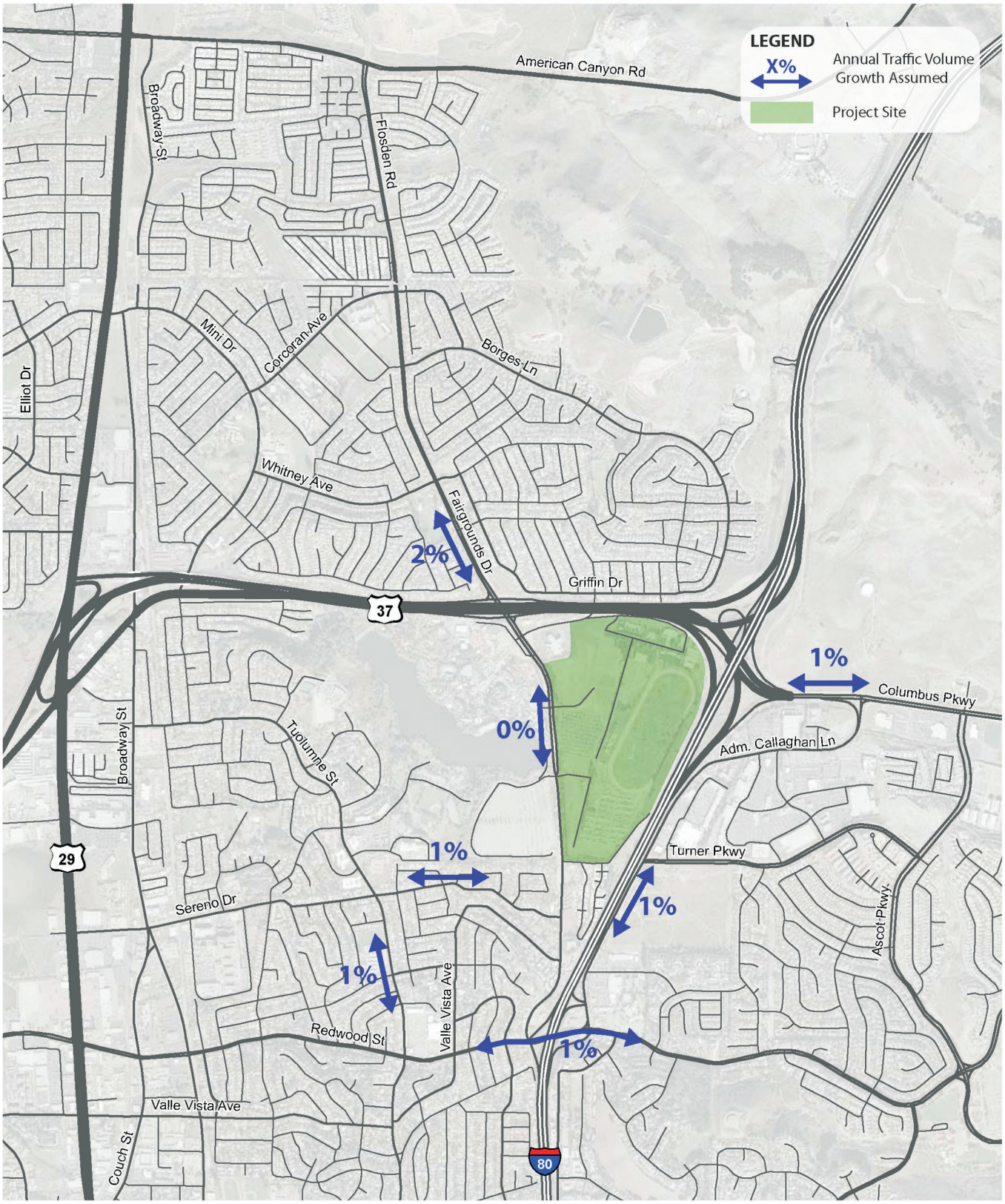
The following scenarios are presented:

- Existing (2011) + Project Phase 1
- Existing Plus Project Phases 1 and 2
- Existing Plus Project Phases 1, 2 and 3
- Cumulative (2035) No Project
- Cumulative Plus Project Phase 1
- Cumulative Plus Project Phases 1 and 2
- Cumulative Plus Project Phases 1, 2 and 3

Traffic Forecasting

Volumes

The 2035 volumes for the 2035 No Project case were derived from growth trends taken from the Solano Transportation Authority's Solano-Napa Travel Demand Model. This is a weekday model. To estimate traffic growth on Saturday peak hours, the existing and 2035 weekday peak-hour model forecasts (with no growth assumed on the Plan site) were reviewed on a corridor basis to estimate growth trends. Growth rates of 1 to 2 percent per year were found to be appropriate for the various roadways (i.e., Fairgrounds Drive, Redwood Street/Parkway, Tuolumne Street, etc.). While Saturday traffic growth trends may differ somewhat from weekday peak-hour growth trends, this was determined to be the most accurate way to estimate Saturday peak-hour traffic growth over the next 25 years. Exhibit 3.11-6 shows the growth rates assumed for the various roadways.



Source: Fehr and Peers, 2011.

Exhibit 3.11-6
Annual Linear Background Traffic Growth: 2011-2035

Michael Brandman Associates

It should be noted that the model contains no traffic growth on the Six Flags Discovery Kingdom site. Although there is the potential for operations at Six Flags Discovery Kingdom to intensify and for traffic to grow correspondingly, it was determined that there is currently no basis for an assumption regarding how much growth could occur, for example as a result of an approved new development entitlement.

Study Area Roadway Network Assumptions

In the Existing Plus Project scenarios, one change to the external roadway network is assumed: the signalization of Fairgrounds Drive/Sage Street. This improvement is planned to be constructed by the City of Vallejo either concurrently with the Fairgrounds Drive/Redwood Parkway Interchange Improvements Project (see below), or the Solano Fairgrounds Plan development, whichever comes first.

In addition to the Sage Street signal, the Existing Plus Project scenarios assume that the project roadways are constructed to their full width and configuration for each phase, including at the intersections with Fairgrounds Drive; however, no widening or lane configurations are assumed on Fairgrounds Drive itself.

In the 2035 scenarios, no additional improvements to the roadway network are assumed. However, the Solano Transportation Authority, in conjunction with Caltrans, is currently preparing a Project Report and Environmental Document for the Redwood Parkway/Fairgrounds Drive Interchange Improvement Project.

This project is intended to improve the capacity of the I-80/Redwood Parkway interchange, the SR-37/Fairgrounds Drive interchange, and Fairgrounds Drive between the two interchanges. In the current design, Fairgrounds Drive would be widened to four lanes in the currently two-lane section north of Redwood Parkway, and to five lanes (two southbound, three northbound) between the Fairgrounds Entry intersection and SR-37. While this project is included in the STA's Comprehensive Transportation Plan as a planned project, and has been recommended for funding in the MTC Regional Transportation Plan, it is currently unfunded. The current estimated project cost is approximately $60 Million. Because the project is not yet funded, it is not assumed to be in place for any of the 2035 scenarios. The project intersections are analyzed with the project driveways built to their proposed configurations and with the necessary turn lanes on Fairgrounds Drive constructed, but without the additional through lanes on Fairgrounds Drive that would be provided with the Improvement Project.

In addition to the Redwood Parkway/Fairgrounds Drive Improvement Project, the Metropolitan Transportation Commission is currently conducting studies to support the creation of a comprehensive network of Express Lanes (also known as High Occupancy/Toll or 'HOT' Lanes) on the Bay Area freeway system, including I-80 through Vallejo. The California Transportation Commission recently approved the proposed expansion of the previously authorized 280 miles of

Express Lanes by 290 miles. The MTC is working with the STA and other county CMAs, and Caltrans to conduct the feasibility, operations, and design studies needed. Since the funding for express lanes through Vallejo is not yet programmed, however, the additional lanes are not included in the 2035 analysis.

Project Trip Generation

The trip generation for the Plan land uses is broken down into three basic components. The trip generation for the County Fairgrounds uses is based on the existing (June 11, 2011) counts of the Fairgrounds entry intersection, factored up to represent the new facilities that will be provided. The trip generation for the Entertainment Commercial uses, anticipated to be one or more theme park uses, is based on the June 11, 2011 counts of the Six Flags Discovery Kingdom driveways, factored down to represent the relative size of the active-use portion of the EC parcel, relative to the active-use portion of the Six Flags Discovery Kingdom site. Finally, the trip generation for the Entertainment Mixed Use parcels is based on the Shopping Center trip rates in the Institute of Transportation Engineers *Trip Generation, 8th Edition.* The Shopping Center (Use #820) was selected as the most appropriate rate to represent the mix of themed restaurant, retail, and other entertainment uses that may be built on the EMU parcels.

Table 3.11-8, Table 3.11-9, and Table 3.11-10 show the resulting trip generation calculations for Phases 1, 1 + 2, and 1 + 2 + 3, respectively. In each case, the gross trip generation for each use is calculated, and then a reduction to reflect the multi-purpose trips that are expected to occur given the multiple destinations within the site. The linked-trip reduction is assumed to be 35 percent of the EMU trip generation. The reduction is taken as a percentage of the EMU trip generation, but the "credit" for the reduced trips is considered to be shared proportionally – based on gross trip generation—among the three uses onsite.

The net external trip generation resulting from these calculations is:

- Phase 1: 533/533 AM/PM peak-hour trips
- Phases 1 + 2: 1,155/978 AM/PM peak-hour trips
- Phases 1 + 2 + 3: 1,860/1,582 AM/PM peak-hour trips

Table 3.11-8: Trip Generation Estimate Solano Fairgrounds Draft Specific Plan Program – Phase 1

Use (notes)	Amount	Units	Saturday Net New Trips							
			AM Peak Hour (10 - 11)				PM Peak Hour (5 - 6)			
			Rate	Trips	In	Out	Rate	Trips	In	Out
Fairgrounds Uses										
72 ksf Exposition Hall (50 ksf Exposition space) [(1)]	50	ksf	(1)	0	0	0	(1)	0	0	0
Fairgrounds Subtotal				*0*	*0*	*0*		*0*	*0*	*0*
Private Uses										
Commercial Entertainment	0	acres		0	0	0		0	0	0
Entertainment Mixed Use Sites[(3.a)]	120	ksf	(3.a)	820	459	361	(3.a)	820	361	459
Private Subtotal				*820*	*459*	*361*		*820*	*361*	*459*
Gross Total				**820**	**459**	**361**		**820**	**361**	**459**
Entertainment Mixed Use Sites linked trip reduction (35%)[(4)]				-287	-161	-126		-287	-126	-161
Net Trip Generation				**533**	**298**	**235**		**533**	**235**	**298**

Notes:
[(1)] Net new trip generation is zero, based on event management plan implementation
[(3.a)] Assumes 120 ksf of uses like Boomers, Johns Incredible Pizza, Bowling, etc. (with surface parking)
Use retail rate: ITE Trip Generation 8th Edition, LU #820, Saturday Peak hour of Generator: Ln(T) = 0.65 *Ln(X)+3.76 x 0.85 for 10 to 11 a.m. and 5 to 6 p.m.
[(4)] A 35% reduction is taken on the Entertainment Mixed Use gross trip generation, to account for shared trips to the Fairgrounds site and the other centers.

Table 3.11-9: Trip Generation Estimate Solano Fairgrounds Draft Specific Plan Program – Phases 1 and 2

Use (notes)	Amount	Units	Saturday Net New Trips							
			AM Peak Hour (10 - 11)				PM Peak Hour (5 - 6)			
			Rate	Trips	In	Out	Rate	Trips	In	Out
Fairgrounds Uses										
50 ksf Exposition Hall[(1)]	50	ksf	(1)	137	95	42	(1)	112	18	95
Fairgrounds Subtotal				*137*	*95*	*42*		*112*	*18*	*95*
Private Uses										
Entertainment Commercial[(2.a)]	18	acres	(2.a)	319	288	31	(2.a)	167	46	121
Entertainment Mixed Use[(3.a)]	181	ksf	(3.a)	1,075	559	516	(3.a)	1,075	516	559
Private Subtotal				*1,394*	*847*	*547*		*1,242*	*562*	*680*
Gross Total				**1,532**	**943**	**589**		**1,354**	**580**	**775**
Entertainment Mixed Use linked trip reduction (35%)[(4)]				-376	-196	-181		-376	-181	-196
Net Trip Generation				**1,155**	**747**	**409**		**978**	**399**	**579**

Notes:

(1) Trip gen based on adding this space to existing facilities, and a 25% increase in summer Saturday attendance (non-Fair weeks)

	AM (10-11)			PM (5-6)		
	In	Out	Total	In	Out	Total
Existing Fairgrounds TG (Saturday, June 11):	381	168	549	70	379	449
Estimated Future Fairgrounds TG (x1.25):	476	210	686	88	474	561
Growth:	95	42	137	18	95	112

(2.a) Phase II — 18-acre Major Entertainment Park, based on Six Flags Discovery Kingdom existing trip generation x (18 acre park on SF site/67-acre active portion of Six Flags Discovery Kingdom site)

	AM (10-11)			PM (5-6)				
	In	Out	Total	In	Out	Total		
Existing Six Flags Discovery Kingdom TG (Saturday, June 11):	1073			116	1189	172	450	622
Estimated New Theme Park TG:	288	31	319	46	121	167		

(3.a) Assumes 181 ksf of uses like Boomers, Johns Incredible Pizza, Bowling, etc. (with surface parking)
Use retail rate: ITE Trip Generation 8th Edition, LU #820, Saturday Peak hour of Generator: Ln(T) = 0.65 *Ln(X)+3.76
x 0.85 for 10 to 11 a.m. and 5 to 6 p.m.

(4) A 35% reduction is taken on the Entertainment Mixed Use gross trip generation, to account for shared trips to the Fairgrounds site, the other centers, and to the Entertainment Commercial site.

Table 3.11-10: Trip Generation Estimate Solano Fairgrounds Draft Specific Plan Program – Phases 1, 2, and 3 (Cumulative

Use (notes)	Amount	Units	Saturday Net New Trips							
			AM Peak Hour (10 - 11)				PM Peak Hour (5 - 6)			
			Rate	Trips	In	Out	Rate	Trips	In	Out
Fairgrounds Uses										
144 ksf Exposition Hall (100 ksf of Exposition space) and outdoor venue [(1)]	100	ksf	(1)	412	286	126	(1)	337	53	284
Fairgrounds Subtotal				*412*	*286*	*126*		*337*	*53*	*284*
Private Uses										
Entertainment Commercial[(2.b)]	24	acres	(2.b)	426	384	42	(2.b)	223	62	161
Entertainment Mixed Use[(3b)]	327	ksf	(3.b)	1,573	818	755	(3.b)	1,573	755	818
Private Subtotal				*1,999*	*1,202*	*797*		*1,796*	*817*	*979*
Gross Total				**2,411**	**1,488**	**923**		**2,133**	**869**	**1,264**
Entertainment Mixed Use linked trip reduction (35%)[(4)]				-551	-286	-264		-551	-264	-286
Net Trip Generation				**1,860**	**1,202**	**658**		**1,582**	**605**	**977**

Notes:

(1) Trip gen based on adding this space to existing facilities, and a 75% increase in summer Saturday attendance (non-Fair weeks)

	AM (10-11)			PM (5-6)		
	In	Out	Total	In	Out	Total
Existing Fairgrounds TG (Saturday, June 11):	381	168	549	70	379	449
Estimated Future Fairgrounds TG (x1.50):	667	294	961	123	663	786
Growth:	286	126	412	53	284	337

(2.b) Phase III — 24-acre Themed Entertainment Park, based on Six Flags Discovery Kingdom existing trip generation x (24-acre park on SF site/67-acre active portion of Six Flags Discovery Kingdom

	AM (10-11)			PM (5-6)				
	In	Out	Total	In	Out	Total		
Existing Six Flags Discovery Kingdom TG (Saturday, June 11):	1073			116	1189	172	450	622
Estimated New Theme Park TG:	384	42	426	62	161	223		

(3.b) Assumes 327 ksf of uses like Boomers, Johns Incredible Pizza, Bowling, etc. (with structured parking)
Use retail rate: ITE Trip Generation 8th Edition, LU #820, Saturday Peak hour of Generator: Ln(T) = 0.65 *Ln(X)+3.76
x 0.85 for 10 to 11 a.m. and 5 to 6 p.m.

(4) A 35% reduction is taken on the Entertainment Mixed Use gross trip generation, to account for shared trips to the Fairgrounds site, the other centers, and to the Entertainment Commercial site.