

## **4.8 TRANSPORTATION AND CIRCULATION**

EDAW contracted with Fehr & Peers Associates, a transportation engineering and planning firm, to conduct a traffic analysis for the proposed project. The traffic analysis prepared by Fehr & Peers Associates provides the basis for the impact analysis and conclusions presented in the following section.

### **4.8.1 EXISTING CONDITIONS**

#### **EXISTING ROADWAY NETWORK**

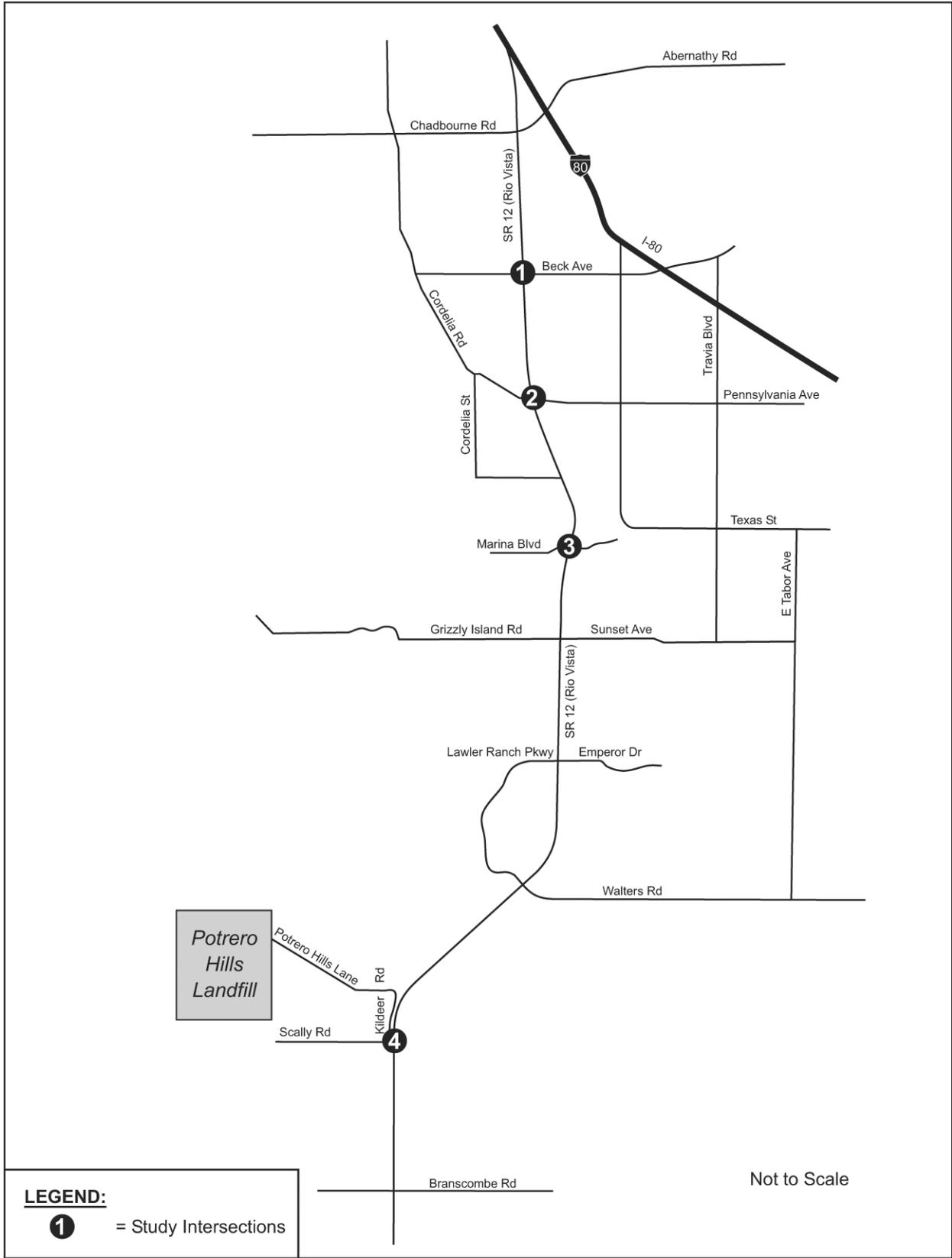
PHLF is located in Solano County, approximately 2 miles southeast of Suisun City. Existing streets and highways serving the PHLF area are shown on Exhibit 4.8-1. The landfill is accessed from State Route 12 (SR 12 / Rio Vista Road) via Scally Road, Kildeer Road, and Potrero Hills Lane. These access roads are two-lane, paved, all-weather roads that, based on standard traffic engineering criteria, are of sufficient width to allow safe passage of large trucks. Field observations conducted by Fehr & Peers Associates indicate that good pavement conditions exist along SR 12 and adequate truck turning radii is available at the intersection of SR 12 at Scally Road. Improvements were completed to the SR 12 / Scally Road intersection in 1996 in order to accommodate landfill truck traffic. Potrero Hills Lane was also constructed at this time extending from Kildeer Road across the old Solano Garbage Company landfill and continuing southward to the PHLF entrance. The environmental impacts associated with these landfill access improvements were evaluated in the previous EIR prepared for the site (Jones & Stokes, October 1995).

#### **Motor Vehicle Circulation**

As shown in Exhibit 4.8-1, regional roadway access to the PHLF is provided by Interstate 80 (I-80) and SR 12, Scally Road, and Potrero Hills Lane. These roadways, along with other key facilities within the study area, are described below.

**Interstate 80 (I-80)** is the primary regional roadway system in Solano County. I-80 is a major east-west freeway originating from the west in San Francisco and continuing east towards Sacramento and beyond. I-80 crosses between Contra Costa County and Solano County over Suisun Bay on the Carquinez Bridge. The segment of I-80 between SR 4 in Contra Costa County and SR 12 in Solano County varies from six to nine lanes.

**State Route 12 (SR 12)** provides regional access to and from Napa to the west and Rio Vista to the east. It merges with I-80 for approximately 4 miles and then splits again to head east along the southern edge of Fairfield and then to Rio Vista. Near the study area, SR 12 runs from Napa County to its connection with I-80 in Solano County as a two-lane conventional highway. For approximately 6 miles east of I-80, SR 12 is a four-lane freeway. Starting just west of its intersection with Walters Road, SR 12 returns to being a two-lane conventional highway.



Source: Fehr & Peers 2003

## Study Area and Intersections

EXHIBIT 4.8-1



SR 12 serves as the major regional access route for PHLF because it connects I-80 with Scally Road. It is the only route by which trucks from I-80 are allowed to reach the landfill. Acceleration lanes are located on both the east and west legs of the SR 12 intersection in both directions for traffic outbound from PHLF, and deceleration lanes on SR 12 for traffic inbound to PHLF.

**Beck Avenue** is a north-south collector within the City of Fairfield that connects Travis Boulevard and Cordelia Road. Near SR 12, Beck Avenue is a four-lane divided roadway. The intersection of Beck Avenue with SR 12 is a signalized at-grade intersection governed by a fully-actuated traffic signal. South of SR 12, Beck Avenue provides access to Solano Business Park. North of SR 12, Beck Avenue serves a residential neighborhood. Beck Avenue has a landscaped median south of SR 12 and a two-way left-turn lane north of SR 12.

**Pennsylvania Avenue** is a north-south divided (raised median) arterial in the City of Fairfield that extends north from SR 12 to Air Base Parkway. It is a four-lane roadway from West Texas Street to Gateway Boulevard. Near SR 12, Pennsylvania Avenue is a two-lane roadway. The intersection of Pennsylvania Avenue with SR 12 is a signalized at-grade intersection governed by a fully actuated traffic signal. Pennsylvania Avenue provides access for a residential development approximately 1/2 mile north of SR 12.

**Marina Boulevard** is a north-south collector in Suisun City that runs from Railroad Avenue north of SR 12 to the Whispering Bay Marina south of SR 12. Marina Boulevard is a two-lane roadway along its entire length. The intersection of Marina Boulevard with SR 12 is a signalized at-grade intersection governed by a fully-actuated signal.

**Scally Road** is a north-south roadway located approximately 1 mile west of Branscome Road. It is a two-lane collector street that connects SR 12 with three residences at its southern terminus. It also serves as the only access road to PHLF, via its connection with Kildeer Road and Potrero Hills Lane. Historically, the county road system has included the potential extension of Scally Road (County Road No. 279, which has never been built) southward from its existing terminus at the base of the north slope of the Potrero Hills. The project applicant is requesting that the county vacate this portion of the road as a component of the proposed project.

## **EXISTING TRAFFIC CONDITIONS**

### **Study Intersections**

The following four study intersections listed below have been selected by the County and the EIR transportation consultants as those most likely to be affected by the proposed project and warranting study in this EIR.

- ▶ State Route 12 / Beck Avenue,
- ▶ State Route 12 / Pennsylvania Avenue,

- ▶ State Route 12 / Marina Boulevard, and
- ▶ State Route 12 / Scally Road.

These intersections were identified in the 1996 EIR as operating at unacceptable levels of service (LOS) under cumulative (2010) no project and with project conditions.

### **Existing Traffic Volumes**

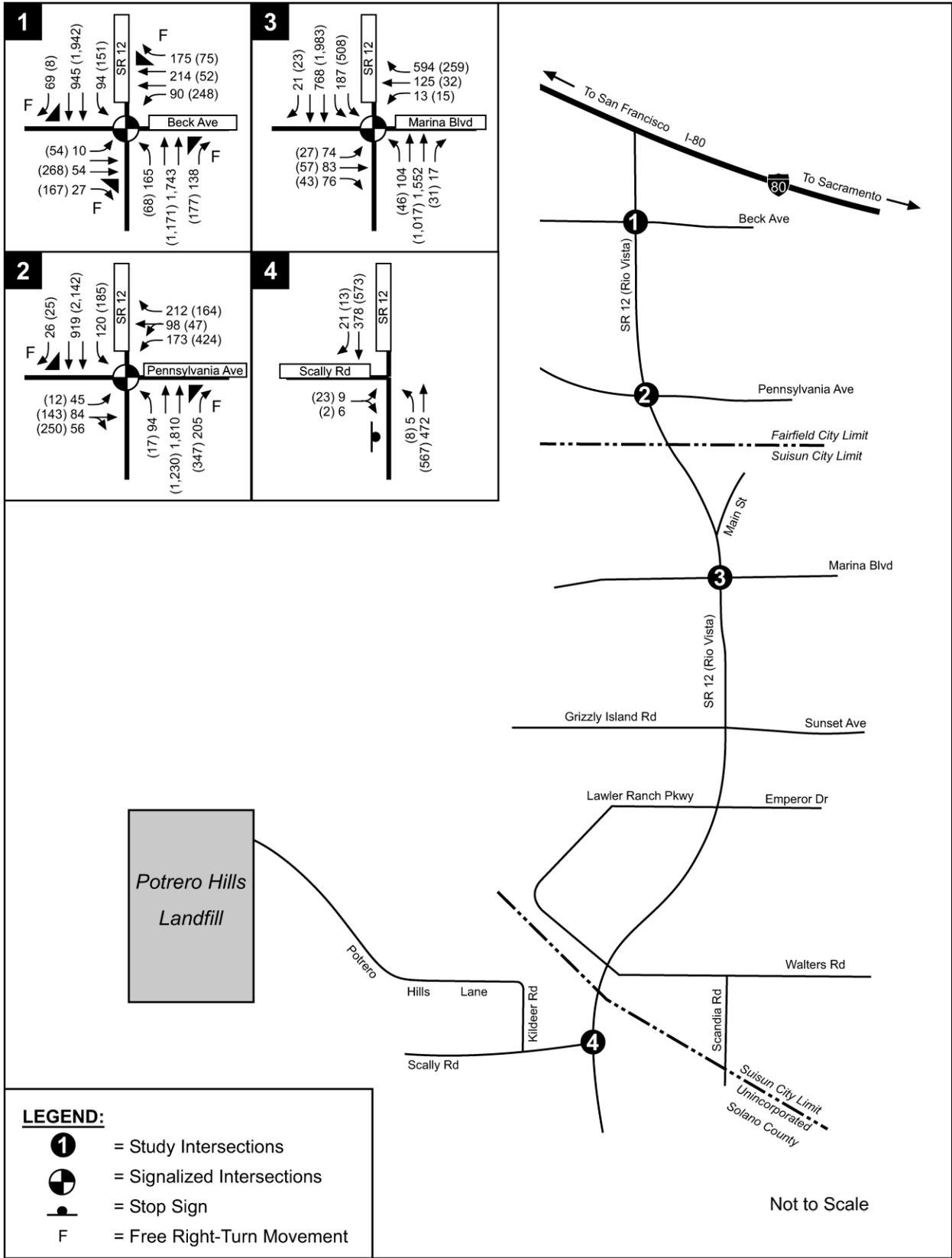
Weekday morning (7 a.m. – 9 a.m.) and evening (4 p.m. – 6 p.m.) peak period traffic counts at each study intersection were conducted in March 2003 by Fehr & Peers Associates. Exhibit 4.8-2 displays the existing turning movement volumes and lane configurations at each study intersection. To determine existing roadway operational conditions, intersection operations have been evaluated using the highest one-hour volume counted during the AM and PM peak hours.

### **Intersection Analysis Methodology**

Level of Service (LOS) is a qualitative grading system to describe traffic flow conditions. The LOS grading system considers traffic flow factors such as speed, travel time, delay, and freedom to maneuver. Six levels of operation or “grades” are typically used, ranging from LOS A, representing the best operating conditions, to LOS F, representing the worst operating conditions. LOS E represents “at capacity” operations. When actual volumes exceed intersections design capacity, stop-and-go conditions result and operations are designated as LOS F. The proper level of service calculation methodology for intersections is dependent on the type of intersection control device—i.e., whether the intersection is controlled by traffic signals or stop signs. The analysis methodology used in this EIR for each of these intersection types is described below.

*Analysis of Signalized Intersections.* The analysis of operations at all signalized study intersections has been conducted using the methodology described in Chapter 16 of the *2000 Highway Capacity Manual (HCM)* (Transportation Research Board). This methodology determines the LOS rating based on the average “control delay” experienced at the intersection (in seconds per vehicle). “Control delay” includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. The average delay for the various signalized study intersections was calculated using the Synchro Version 5.0 analysis software and is correlated to level of service designations (ratings) as summarized in Table 4.8-1.

*Analysis of Unsignalized Intersections.* For unsignalized (four-way, stop-controlled and side street, stop-controlled) study intersections, level of service calculations have been conducted using the methodology contained in Chapter 17 of the *2000 Highway Capacity Manual*. Similar to signalized intersections, LOS ratings are based on the “average control delay” expressed in seconds per vehicle. At two-way or side street-controlled intersections, the control delay (level of service) is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. At four-way stop-controlled intersections, the LOS rating is based on the average



Source: Fehr & Peers 2003

## Peak Hour Traffic Volumes and Lane Configurations Existing Conditions

EXHIBIT 4.8-2

control delay experienced on all approaches. Table 4.8-2 summarizes the relationship between delay and LOS for unsignalized intersections.

<b>Table 4.8-1 Signalized Intersection Level of Service Definitions</b>		
<b>Level of Service</b>	<b>Signalized Intersection</b>	<b>Average Control Delay (sec / veh)</b>
A	Insignificant Delays: No approach phase is fully utilized and no vehicle waits longer than one red indications.	$\leq 10$
B	Minimal Delays: An occasional approach phase is fully utilized. Drivers begin to feel restricted.	$> 10 - 20$
C	Acceptable Delays: Major approach phase may become fully utilized. Most drivers feel somewhat restricted.	$> 20 - 35$
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	$> 35 - 55$
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	$> 55 - 80$
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	$> 80$
Source: <i>Highway Capacity Manual</i> , Transportation Research Board, 2000.		

<b>Table 4.8-2 Unsignalized Intersection Level of Service Definitions</b>		
<b>Level of Service</b>	<b>Unsignalized Intersection</b>	<b>Average Control Delay (sec / veh)</b>
A	No delay for stop-controlled approaches.	0 - 10
B	Operations with minor delay.	$> 10 - 15$
C	Operations with moderate delays.	$> 15 - 25$
D	Operations with some delays.	$> 25 - 35$
E	Operations with high delays, and long queues.	$> 35 - 50$
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	$> 50$
Source: <i>Highway Capacity Manual</i> , Transportation Research Board, 2000.		

## Intersection Levels of Service

Levels of service were calculated at each study intersection during both the AM and PM peak hours. Table 4.8-3 lists the resulting AM and PM peak hour level of service and corresponding delay at each intersection. The county has chosen to analyze the impacts of the project in accordance with LOS standards in Fairfield, where LOS D is recognized as the minimum acceptable level of service.

As shown in Table 4.8-3, all intersections currently meet the City of Fairfield’s LOS D standard during the AM peak hour with the exception of the SR 12 / Marina Boulevard intersection, which currently operates at LOS F. In the PM peak hour, all intersections operate unacceptably at LOS E or -F, with the exception of the SR 12 / Beck Avenue intersection. All intersections are currently signalized except for the SR 12 / Scally Road intersection, which is side-street-stop-controlled. A more detailed description of traffic operations at each study intersection is provided below.

<b>Table 4.8-3 Intersection Levels of Service Existing Conditions</b>			
Intersection	Control	LOS / Delay	
		AM Peak	PM Peak
SR 12 / Beck Avenue	Signalized <sup>1</sup>	C / 24.6	D / 44.5
SR 12 / Pennsylvania Avenue	Signalized <sup>1</sup>	D / 44.8	<b>F / 120.6</b>
SR 12 / Marina Boulevard	Signalized <sup>1</sup>	<b>F / 102.4</b>	<b>E / 67.9</b>
SR 12 / Scally Road	Unsignalized <sup>2</sup>	C / 17.0	<b>E / 38.2</b>
<sup>1</sup> Signalized intersection LOS based on average intersection delay, according to the <i>Highway Capacity Manual, 2000</i> . <sup>2</sup> Side street stop-controlled intersection LOS based on average delay in seconds per vehicle for the worst approach, based on the methodology in the <i>Highway Capacity Manual, 2000</i> . Source: Fehr & Peers, March 2003.			

**SR 12 / Beck Avenue** – This is the only study intersection that currently operates at acceptable levels of service during both the AM and PM peak hours, thus satisfying the City of Fairfield’s level of service threshold standard. The LOS D in the PM peak hour reflects the heavy delay motorists experience on Beck Avenue. Heavy delay occurs primarily on the southbound left-turn and northbound right-turn movements from Beck Avenue onto SR 12. Although the northbound right-turn movement is a free movement, motorists often do not have sufficient gap time to merge onto eastbound SR 12 safely.

**SR 12 / Pennsylvania Avenue** – At this intersection, Pennsylvania Avenue currently operates as a split phase and SR 12 operates with protected left-turn movements. SR 12 / Pennsylvania currently operates acceptably at LOS D during the AM peak hour, however, fails during the PM peak hour at LOS F. The poor LOS conditions are a result of the high traffic volumes on

SR 12. However, heavy delay also occurs on Pennsylvania Avenue because of high traffic volumes for the southbound left-turn and northbound right-turn movements onto SR 12.

Similar to the SR 12 / Beck Avenue intersection, motorists frequently do not have sufficient gap time to safely merge onto SR 12 due to the high conflicting traffic on eastbound SR 12. Field observations also indicated occasional queues of 10 to 12 vehicles on the southbound approach on Pennsylvania Avenue throughout the PM peak hour.

**SR 12 / Marina Boulevard** – This intersection currently operates at unacceptable levels of service during both peak hours, with the AM peak hour operating worse at LOS F. The average delay at this intersection is 73.9 seconds. The highest delay at this intersection occurs on the southbound approach on Marina Boulevard, particularly for the southbound right-turn movement. Field observations indicate that motorists have difficulty completing the southbound right-turn movement from Marina Boulevard due to the high conflicting traffic volume on westbound SR 12.

**SR 12 / Scally Road** – Although this intersection currently operates at an acceptable LOS C during the AM peak hour, it operates below the City of Fairfield’s level of service threshold standard during the PM peak hour at LOS E. This is a side-street-stop-controlled intersection. The LOS during the PM peak hour reflects the condition of motorists turning from the northbound stop-controlled approach on Scally Road. Motorists traveling through on SR 12 experience no delay. According to the staff of Solano County, no traffic signal or roadway improvements are planned at this intersection.

**Landfill Trip Generation**

Vehicle traffic counts and classification surveys were conducted in March 2003 on Potrero Hills Lane, which serves as the primary entrance to PHLF. Table 4.8-4 shows the current Daily, AM and PM peak hour truck activity at PHLF and their corresponding inbound and outbound splits.

Daily Volume			AM Peak Hour <sup>1</sup>			PM Peak Hour <sup>2</sup>		
Total	In	Out	Total	In	Out	Total	In	Out
<b>775</b>	387	388	<b>34</b>	21	13	<b>36</b>	15	21

<sup>1</sup> Represents the peak hour vehicle activity between 7:00 and 9:00 AM.  
<sup>2</sup> Represents the peak hour vehicle activity between 4:00 and 6:00 PM.  
Source: Fehr & Peers, March 2003.

As indicated in Table 4.8-4, PHLF generates a total of 775 vehicle trips on a typical weekday. Of this total, approximately 4% occurs in the AM peak hour and 5% in PM peak hour. Field observations also indicate that approximately 46% of the trips are made by vehicles with 2

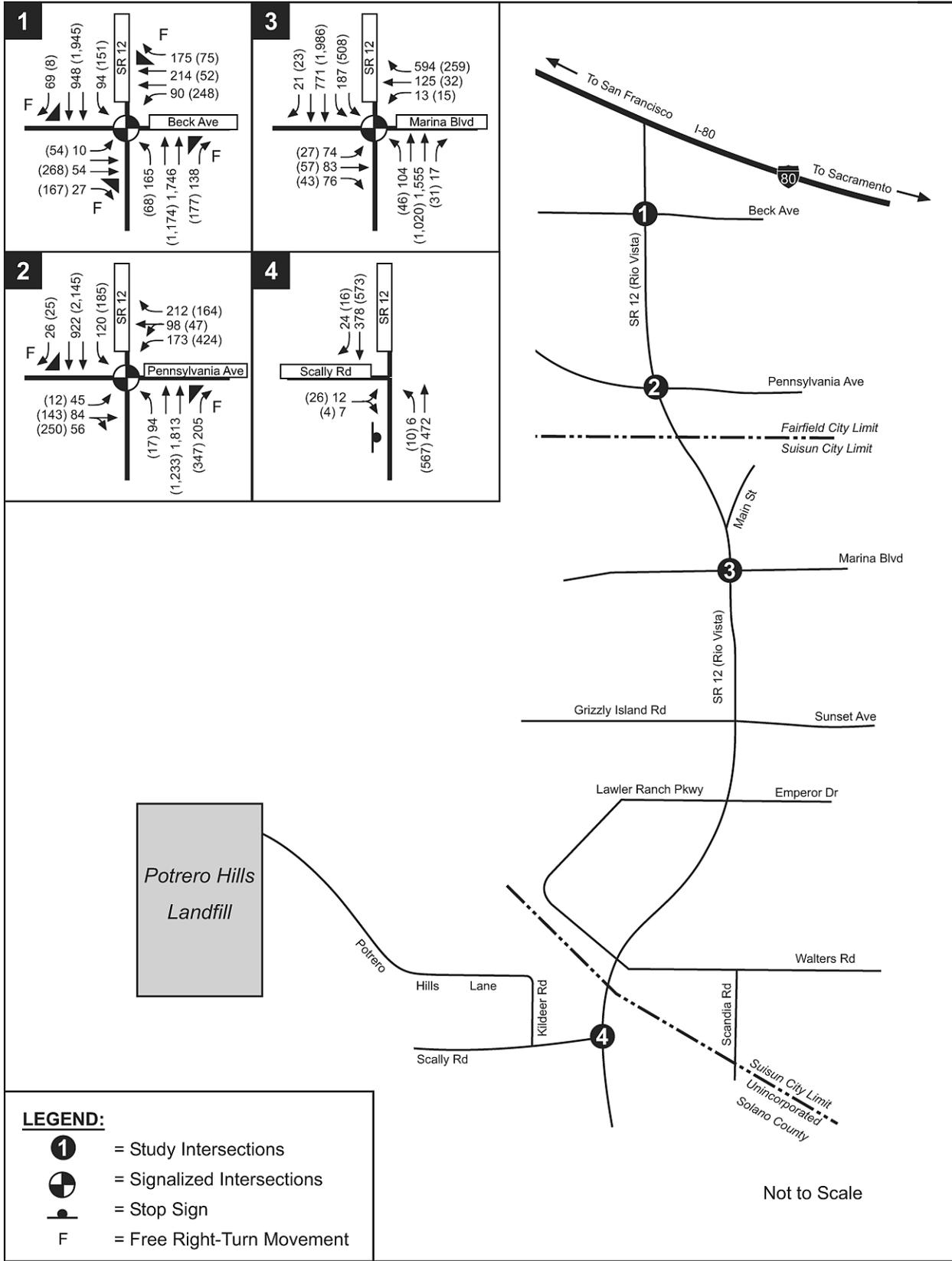
axles, which includes passenger cars and pick-up trucks. The remaining 54% consist of 3-axle semi trailers and 5- and 6-axle double- and multi-trailers.

**Existing (Permitted) Conditions**

This study also analyzed the potential transportation impacts under the current PHLF permit, which would allow approximately 968 daily trips to and from the site. Given that the actual count at PHLF is 775 daily trips, this would mean an additional 193 daily trips under the current permit. As mentioned earlier, 4% of the daily trips occur in the AM peak hour and 5% in the PM peak hour. Therefore, an additional 8 trips would occur in the AM peak hour and 10 trips in the PM peak hour under permitted conditions. These additional trips were distributed to each study intersection based on existing travel patterns. Table 4.8-5 lists the resulting AM and PM peak hour level of service and corresponding delay at each intersection and Exhibit 4.8-3 displays the resulting peak hour turning movement volumes at each study intersection.

<b>Table 4.8-5 Intersection Levels of Service Permitted Conditions</b>			
Intersection	Control	LOS / Delay	
		AM Peak	PM Peak
SR 12 / Beck Avenue	Signalized <sup>1</sup>	C / 25.5	D / 43.6
SR 12 / Pennsylvania Avenue	Signalized <sup>1</sup>	D / 46.4	<b>F / 120.4</b>
SR 12 / Marina Boulevard	Signalized <sup>1</sup>	<b>F / 96.7</b>	<b>E / 68.6</b>
SR 12 / Scally Road	Unsignalized <sup>2</sup>	C / 17.5	<b>E / 39.3</b>
<sup>1</sup> Signalized intersection LOS based on average intersection delay, according to the <i>Highway Capacity Manual, 2000</i> . <sup>2</sup> Side street stop-controlled intersection LOS based on average delay in seconds per vehicle for the worst approach, based on the methodology in the <i>Highway Capacity Manual, 2000</i> . Source: Fehr & Peers, March 2003.			

As indicated in Table 4.8-5, the addition of vehicle trips under the current permit for PHLF would generally maintain the same levels of service during both the AM and PM peak hours at all study intersections. This is expected because a small number of trips (3 trips in the AM peak hour and 3 trips in the PM peak hour) would be added to non-critical movements at each study intersection. In comparison to existing conditions, a slight increase in average delay occurs at the intersections of SR 12 at Beck and Pennsylvania Avenue in the PM peak hour and SR 12 / Marina Boulevard in the AM peak hour due to the re-optimization (i.e., change in signal timing) of the traffic signal at each intersection.



Source: Fehr & Peers 2003

## Peak Hour Traffic Volumes and Lane Configurations Permitted Conditions

EXHIBIT 4.8-3



## 4.8.2 IMPACTS AND MITIGATION MEASURES

### THRESHOLDS OF SIGNIFICANCE

The traffic analysis uses the City of Fairfield's LOS D standard as the lowest acceptable LOS for intersections within the vicinity of the study area. The proposed project would have a significant impact if any of the project-related traffic would:

- ▶ degrade the LOS at an intersection below the minimum established LOS standards. The minimum LOS standard is LOS D or better for intersections on arterial streets. At intersections where LOS is already below standard, a project impact is significant if it increases traffic delay by more than 4 seconds;
- ▶ cause the LOS for an unsignalized intersection operating at an acceptable LOS to degrade to an unacceptable level and cause the intersection to meet signal warrants; or
- ▶ increase traffic hazards to motor vehicles or pedestrians.

Impact  
4.8-1

**Traffic Generation.** *Traffic generated by the proposed project would not exceed identified significance thresholds. Therefore, no traffic impacts would be anticipated.*

To evaluate offsite impacts, the volume of traffic generated by the proposed project was estimated, distributed, and assigned to the adjacent street system and study intersections. The proposed project components that may potentially affect current traffic circulation include:

- ▶ applying tonnage limits only to materials buried in the landfill,
- ▶ operating 24 hours per day,
- ▶ selling landfill-related commodities, and
- ▶ constructing a truck/container wash facility.

A more detailed description of these project components and other components are provided in Chapter 3, Project Description, of this EIR. The resulting change in use would cause the allowable number of vehicles entering and exiting the site to increase from 484 daily vehicles entering and exiting the site (968 daily trips) to 500 daily vehicles entering and exiting the site (1,000 daily trips). The increase of 32 daily trips would result in 1 additional trip in the AM peak hour and 2 additional trips in the PM peak hour. The AM and PM peak hour trip calculation is based on the current travel patterns observed at the site, which include 4% of the total trips occurring in the AM peak hour and 5% occurring in the PM peak hour. These additional trips were then added to the resulting AM and PM peak hour traffic volumes under permitted conditions and distributed to each study intersection.

Project trip distribution was derived based on existing travel patterns observed in the field. Approximately 90% of the project traffic is expected to travel to/from the east on SR 12 east and the remaining 10% is expected to and from the west on SR 12.

### Permitted Traffic Levels Plus Proposed Project Trips

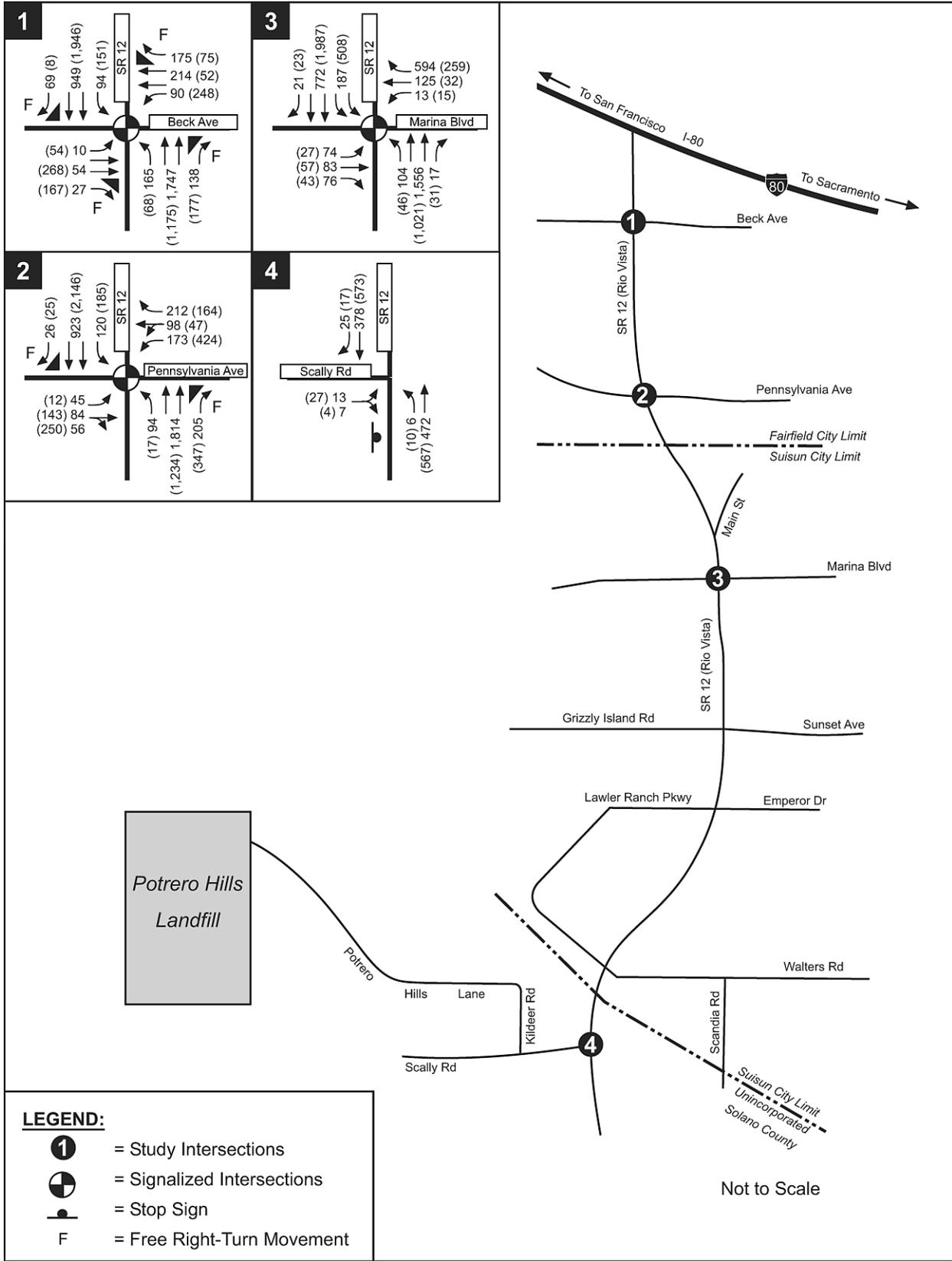
To determine potential traffic impacts, project trips were added to the maximum currently permitted traffic volumes and distributed to each study intersection based on existing travel patterns. Exhibit 4.8-4 illustrates the resulting peak hour traffic volumes under permitted plus project conditions and Table 4.8-6 shows the resulting level of service and average delay for each study intersection.

Given that the project trips contribute less than 1% of the total volume at each study intersection, the levels of service at each study intersection remain the same during both the AM and PM peak hours. The slight improvement in average delays, in comparison to existing conditions, at the intersections of SR 12 at Pennsylvania Avenue and Marina Boulevard during the PM peak hour is due to the re-optimization (i.e., change in signal timing) of the traffic signals. All intersections continue to operate unacceptably at LOS E or F during both peak hours with the exception of the SR 12 / Beck Avenue intersection. In addition, the intersections of SR 12 at Pennsylvania Avenue and Scally Road would maintain acceptable levels of service during the AM peak hour.

<b>Table 4.8-6 Intersection Levels of Service Permitted Plus Project Conditions</b>			
Intersection	Control	LOS / Delay	
		AM Peak	PM Peak
SR 12 / Beck Avenue	Signalized <sup>1</sup>	C / 25.6	D / 44.7
SR 12 / Pennsylvania Avenue	Signalized <sup>1</sup>	D / 46.4	<b>F / 120.2</b>
SR 12 / Marina Boulevard	Signalized <sup>1</sup>	<b>F / 96.8</b>	<b>E / 68.0</b>
SR 12 / Scally Road	Unsignalized <sup>2</sup>	C / 17.7	<b>E / 39.9</b>
<sup>1</sup> Signalized intersection LOS based on average intersection delay, according to the <i>Highway Capacity Manual, 2000</i> . <sup>2</sup> Side street stop-controlled intersection LOS based on average delay in seconds per vehicle for the worst approach, based on the methodology in the <i>Highway Capacity Manual, 2000</i> . Source: Fehr & Peers, March 2003.			

### Project Impact Conclusion

No adverse traffic impacts are anticipated with implementation of the proposed project. The addition of 32 daily trips to and from the site would not degrade LOS to an unacceptable level at any of the study intersections, and the delay at intersections that currently operate at unacceptable levels would not increase by more than 2 seconds at any intersection. The



Source: Fehr & Peers 2003

### Peak Hour Traffic Volumes and Lane Configurations Permitted Plus Project Conditions

EXHIBIT 4.8-4

significance threshold for intersections that operate at unacceptable levels is an increase in delay of 4 seconds or more. Additionally, the increase in operating hours to allow 24-hour access to and from the site may be expected to further reduce project traffic during peak hours. Furthermore, the additional project trips are not expected to generate a level of traffic that would increase traffic hazards to motor vehicles or pedestrians.

The bypass lane proposed as an alternative access route for Potrero Hills Lane, as described in Chapter 3, Project Description, would be expected to improve site access by providing an alternative access point in the event that the existing roadway is blocked or restricted because of vehicle breakdowns or other events. The bypass would not increase the number of peak or overall vehicle trips and would have no adverse traffic impacts.

**Mitigation Measure 4.8-1      Traffic Generation**

No mitigation measures would be necessary.

**Level of Significance after Mitigation**

The project's traffic impacts would be considered less than significant.