

# LIMITED SCOPE TRAFFIC STUDY

**BEE CANYON GREENERY  
IRVINE, CALIFORNIA  
PLANNING AREA 3**

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APPROVED 6/24/22

*Sun-Sun T. Murillo*

**LSA**

June 2022

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**BEE CANYON GREENERY  
IRVINE, CALIFORNIA  
PLANNING AREA 3**

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## EXECUTIVE SUMMARY

The purpose of this Limited Scope Traffic Study is to determine short-term traffic effects resulting from the proposed Bee Canyon Greenery composting operation (project) at the Frank R. Bowerman (FRB) Landfill at 11002 Bee Canyon Access Road in Traffic Analysis Zone 20 in Planning Area 3 (Limestone Canyon – Open Space) of Irvine, California.

Per the City of Irvine's (City) *Traffic Study Guidelines* (adopted by the City Council on November 2, 2021), this study focuses on the a.m. peak-hour and p.m. peak-hour levels of service (LOS) at seven intersections. The a.m. peak hour is the single highest hour of traffic volume on the circulation system between 7:00 and 9:00 a.m., and the p.m. peak hour is the single highest hour of traffic volume on the circulation system between 4:00 and 6:00 p.m.

Prior to implementation of Senate Bill 1383, the existing FRB Landfill site receives approximately 850 tons per day (tpd) of processed green material (PGM). The proposed project would compost approximately 876 tpd of PGM. As such, the proposed project includes the intake of 26 additional tpd of PGM. In addition, after the composting process is complete, the proposed project includes the delivery of 876 tpd of compost to markets inside and outside Orange County.

The proposed project would require up to 5 additional daily employees at the FRB Landfill. The additional 26 tpd of PGM intake would require up to 2 dump trucks and the 876 tpd of compost delivery would require approximately 44 dump trucks for a total of 46 dump trucks. Dump trucks have a 20-ton capacity and are assumed to have a passenger car equivalent (PCE) factor of 2.

The FRB Landfill is currently open from 7:00 a.m. to 5:00 p.m., Monday through Saturday. The proposed project would have the same hours of operation. The 5 daily employees and the 46 total daily trucks would generate approximately 194 average daily trips in PCEs. All 5 workers would arrive prior to the a.m. peak hour (before 7:00 a.m.) and depart during the p.m. peak hour (after 5:00 p.m.). The 46 trucks would arrive and depart throughout the day (approximately 5 trucks per hour), including 5 trucks in the a.m. peak hour and 5 trucks in the p.m. peak hour. As such, the proposed project would generate 20 trips in the a.m. peak hour (10 inbound and 10 outbound) and 25 trips in the p.m. peak hour (10 inbound and 15 outbound) in PCEs.

The City has designated Sand Canyon Avenue as a truck route. As such, the existing truck route to/from the FRB Landfill and regional locations is Interstate 5 (I-5), Sand Canyon Avenue, Portola Parkway, and Bee Canyon Access Road. The proposed project would continue to use this designated truck route. Jeffrey Road has not and will not be used as a truck route for the existing FRB Landfill or the proposed project.

Project LOS impacts were determined based on an analysis of the following scenarios:

- Short-Term Interim Year Approved Baseline
- Short-Term Interim Year Approved Plus Project
- Short-Term Interim Year Pending Baseline
- Short-Term Interim Year Pending Plus Project

Based on the results of this analysis, the proposed project can be implemented without negatively affecting the design or operation of the surrounding roadway system. An evaluation of intersection LOS shows that the addition of project traffic to the Short-Term Interim Year conditions would not negatively affect the study area intersections, according to the City's performance criteria.

Project access was analyzed based on the City's Transportation Design Procedures (TDPs, adopted in February 2007). As a result, no adverse effects to vehicle access were identified using the following TDPs:

- **TDP-1:** Turn-Lane Pocket Lengths
- **TDP-14:** Driveway Lengths

The proposed project is screened out from a vehicle miles traveled (VMT) analysis and is presumed to have a less-than-significant VMT impact.

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## LIST OF ABBREVIATIONS AND ACRONYMS

ADT	average daily traffic
CEQA	California Environmental Quality Act
City	City of Irvine
FRB	Frank R. Bowerman
ft	foot/feet
I-5	Interstate 5
ICU	intersection capacity utilization
ITAM TC	Irvine Transportation Analysis Model TransCAD version
LOS	level(s) of service
mph	miles per hour
PCE	passenger car equivalent
PGM	processed green material
project	Bee Canyon Greenery project
TDP(s)	Transportation Design Procedure(s)
tpd	tons per day
v/c	volume-to-capacity
VMT	vehicle miles traveled

## LIMITED SCOPE TRAFFIC STUDY BEE CANYON GREENERY

LSA has prepared the following Limited Scope Traffic Study to identify the short-term traffic effects resulting from the proposed Bee Canyon Greenery composting operation (project) at the Frank R. Bowerman (FRB) Landfill at 11002 Bee Canyon Access Road in Traffic Analysis Zone 20 in Planning Area 3 (Limestone Canyon – Open Space) of Irvine, California. LSA has prepared this analysis consistent with the approved scope of work, dated April 29, 2022 (Appendix A). This Limited Scope Traffic Study was prepared in accordance with the applicable sections of the City of Irvine (City) *Traffic Study Guidelines* (adopted by the City Council on November 2, 2021) and the City's Transportation Design Procedures (TDPs) (adopted in February 2007).

### INTRODUCTION

#### Project Site

Figure 1 shows the project site location. Prior to implementation of Senate Bill 1383, the existing FRB Landfill receives approximately 850 tons per day (tpd) of processed green material (PGM). The proposed project would compost approximately 876 tpd of PGM. As such, the proposed project includes the intake of 26 additional tpd of PGM. In addition, after the composting process is complete, the proposed project includes the delivery of 876 tpd of compost to markets inside and outside of Orange County.

The proposed project would require up to 5 additional daily employees at the FRB Landfill. The additional 26 tpd of PGM intake would require up to 2 dump trucks and the 876 tpd of compost delivery would require approximately 44 dump trucks for a total of 46 dump trucks. The designated truck route to/from the FRB Landfill and regional locations is Interstate 5 (I-5), Sand Canyon Avenue, Portola Parkway, and Bee Canyon Access Road. Figure 2 illustrates a site plan of the proposed project.

The existing FRB Landfill is open from 7:00 a.m. to 5:00 p.m., Monday through Saturday. The proposed project would have the same hours of operation.

#### Study Area Boundary

As shown on Figure 1, the study area includes the following intersections:

1. Bee Canyon Access Road/Portola Parkway
2. Sand Canyon Avenue/Portola Parkway
3. Sand Canyon Avenue/Irvine Boulevard
4. Sand Canyon Avenue/Trabuco Road–Great Park Boulevard
5. Sand Canyon Avenue/I-5 northbound ramps
6. Sand Canyon Avenue/Marine Way
7. Sand Canyon Avenue/I-5 southbound ramps



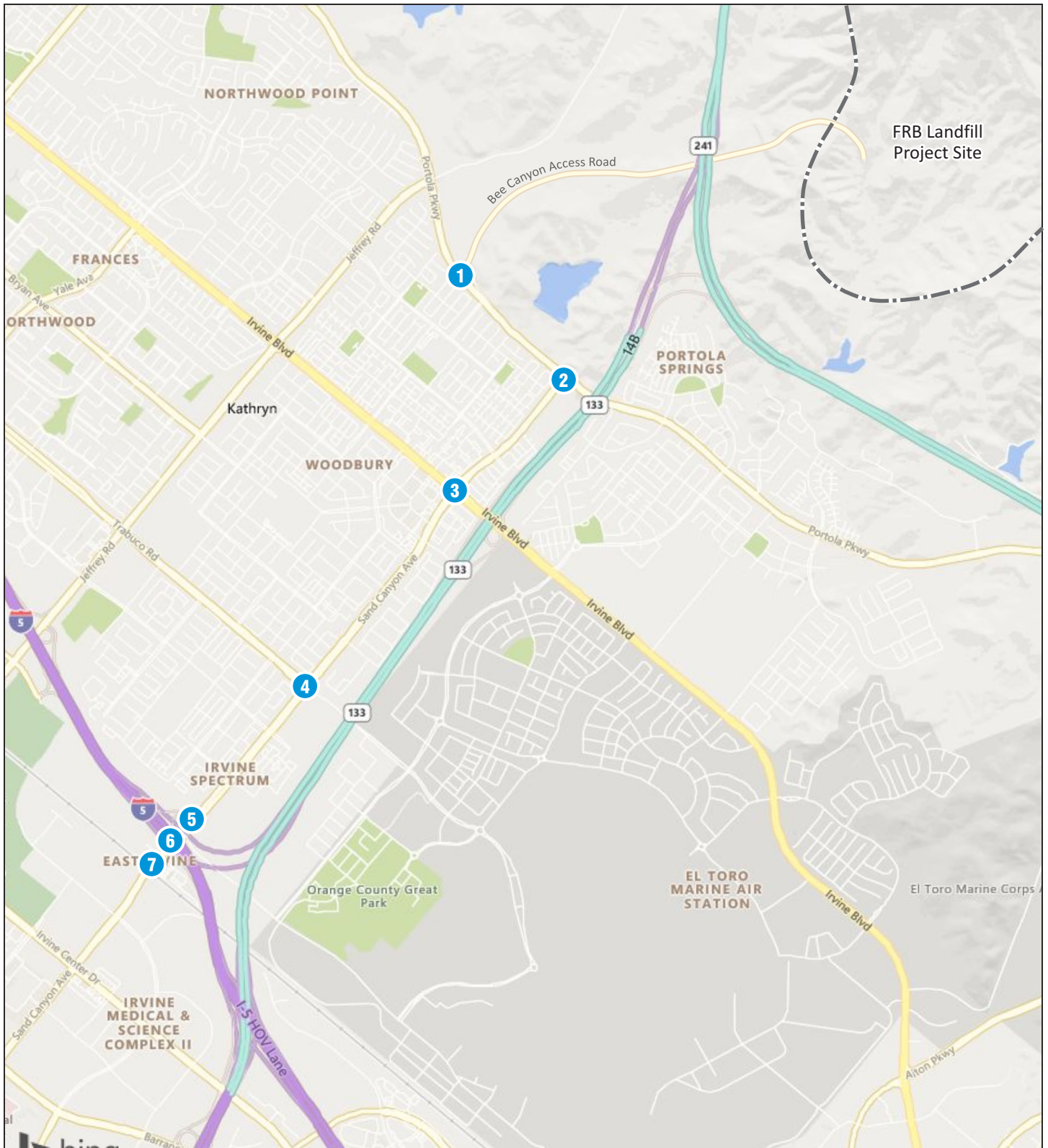
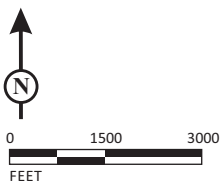


FIGURE 1

LSA

LEGEND

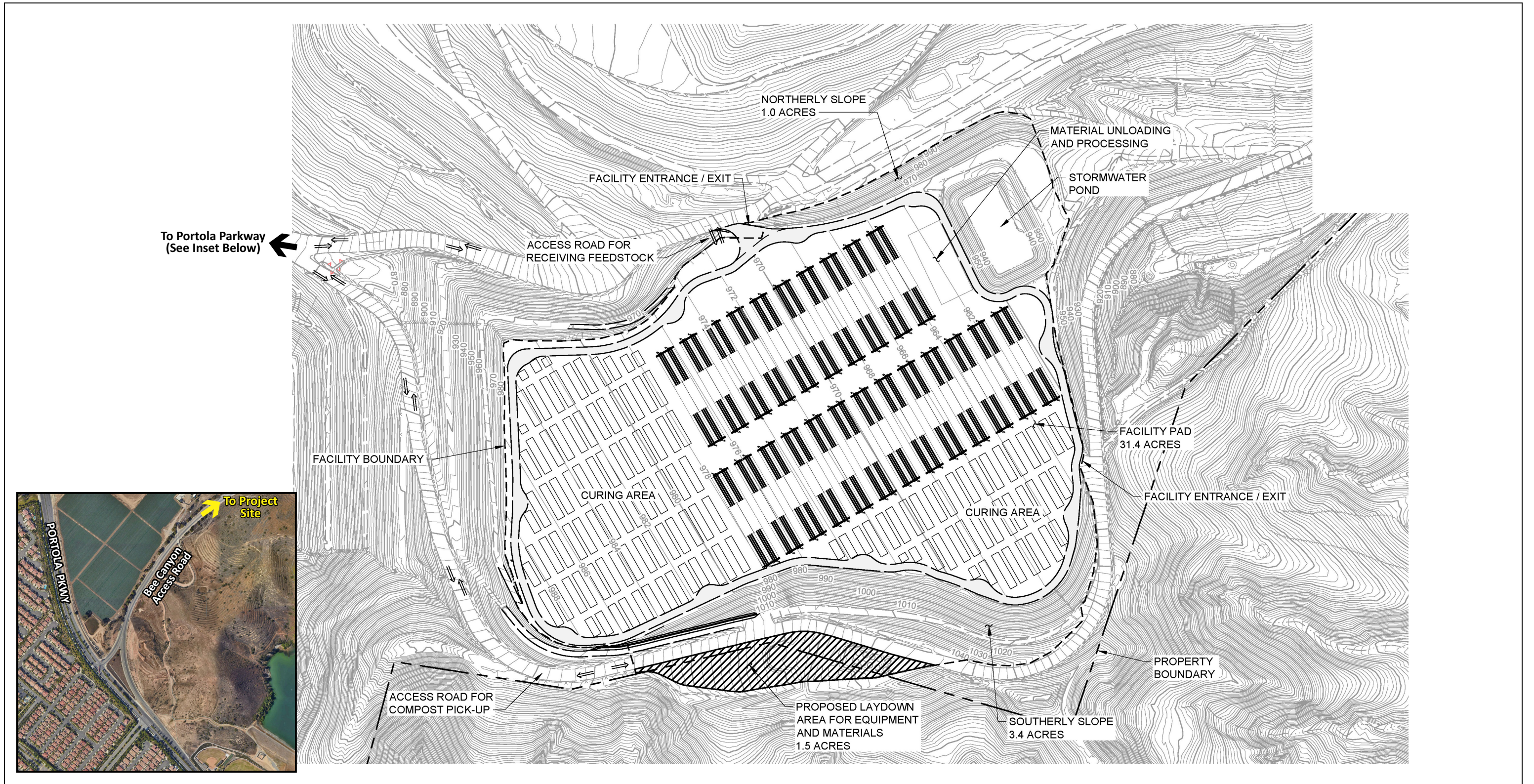
# - Study Area Intersection



SOURCE: Bing Maps

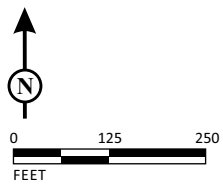
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*Bee Canyon Greenery*  
Project Location and  
Study Area Intersections



LSA

FIGURE 2



SOURCE: Tetra Tech

I:\OCY2001.10\G\Site Plan.cdr (6/21/2022)

## Existing, General Plan, and Proposed Site Uses

The current City of Irvine General Plan (2015) designation for the project site is Recreation with Landfill Overlay. The current zoning is 1.7: Landfill Overlay.

## PERFORMANCE CRITERIA

To determine the peak-hour operations at signalized intersections in the study area, the intersection capacity utilization (ICU) methodology was used. The ICU methodology compares the volume-to-capacity (v/c) ratios of conflicting turn movements at an intersection, sums these critical conflicting v/c ratios for each intersection approach, and determines the overall ICU. The resulting ICU is expressed in terms of level of service (LOS), where LOS A represents free-flow activity and LOS F represents overcapacity operation. This analysis includes parameters set by the City for ICU calculations, including lane capacity, right-turn treatment, and clearance interval.

According to the City's *Traffic Study Guidelines* and consistent with the City's General Plan, LOS at an intersection or roadway is considered unsatisfactory when the ICU exceeds 0.90 (i.e., LOS E or F). The following table demonstrates the relationship of ICU to LOS.

Level of Service	ICU
A	0.00–0.60
B	0.61–0.70
C	0.71–0.80
D	0.81–0.90
E	0.91–1.00
F	> 1.00

Source: City of Irvine *Traffic Study Guidelines* (2021).  
ICU = intersection capacity utilization

Using the City's adopted methodologies (ICU for signalized intersections), a project LOS impact would occur if the project caused a signalized intersection to exceed the acceptable LOS or if the signalized intersection in question exceeds the acceptable LOS and the project increase in ICU is greater than or equal to 0.02.

The project driveway is analyzed based on the design criteria recommended in the City's TDPs. The TDPs establish uniform policies and procedures for reviewing traffic design plans in Irvine. The TDPs were used to evaluate the roadway design features that may be affected by the proposed project. A description and an analysis of each applicable design criterion are provided later in this Limited Scope Traffic Study.

## ANALYSIS METHODOLOGY AND APPROACH

The future baseline (no project) conditions were developed based on the new TransCAD version of the Irvine Transportation Analysis Model (ITAM TC). The future baseline peak-hour traffic volumes for the study area intersections were extracted from the ITAM TC. For the intersection of Bee Canyon Access Road/Portola Parkway, which is not currently in the ITAM TC, existing peak-hour counts were conducted on May 21, 2019 (prior to the ongoing COVID-19 pandemic), to determine

the turn volumes into and out of Bee Canyon Access Road. Appendix B provides the existing peak-hour traffic counts for Bee Canyon Access Road/Portola Parkway. The Bee Canyon Access Road volumes were not adjusted for growth because the road only provides access to and from the FRB Landfill. In addition, the FRB Landfill has not experienced any traffic volume increases in or out of the site since 2019. Therefore, the existing Bee Canyon Access Road volumes were used for the future baseline volumes. The future baseline volumes at the adjacent arterial intersection of Sand Canyon Avenue/Portola Parkway were used to develop the future through volumes along Portola Parkway.

The “approved” condition represents the planned growth for the City per the General Plan, as well as each application for development currently approved by the City. The “pending” condition represents the planned growth for the City per the General Plan and all the projects in the City that are approved but not yet built and are currently under review. The plus project conditions were determined by manually assigning the project trip generation to their respective baseline conditions at the study intersections.

The future conditions are based on the funded roadway network and land use assumptions envisioned to be in place by the short-term interim year. This future traffic analysis requires two ITAM TC runs. These ITAM TC runs are examined without the proposed project in the approved and pending development scenarios. LSA prepared the forecast data for the proposed project based on the ITAM TC. The scenarios examined for the future condition are as follows:

- **Short-Term Interim Year Approved Baseline:** The ITAM TC 2023 run includes each application for development approved by the City. Any additional development beyond the existing uses for the proposed project that might be assumed in the ITAM TC were deleted for the analysis of this scenario.
- **Short-Term Interim Year Pending Baseline:** The ITAM TC 2023 run includes each application for development approved and under review by the City. Any additional development beyond the existing uses for the proposed project that might be assumed in the ITAM TC were deleted for the analysis of this scenario.

Project LOS impacts are identified at study area intersections for the approved and pending baseline conditions, assuming improvements to the circulation system identified by the City. Traffic volumes and LOS calculations for the approved and pending baseline and plus project scenarios are referenced throughout this Limited Scope Traffic Study and are provided in Appendix C.

## PROPOSED PROJECT TRAFFIC

### Trip Generation

The trip generation from the proposed project is based on operational information from OC Waste & Recycling. As previously described, proposed project would require up to 5 additional daily employees at the FRB Landfill. The additional 26 tpd of PGM intake would require up to 2 dump trucks and the 876 tpd of compost delivery would require approximately 44 dump trucks for a total of 46 dump trucks. Dump trucks have a 20-ton capacity and are assumed to have a passenger car equivalent (PCE) factor of 2.

The FRB Landfill is currently open from 7:00 a.m. to 5:00 p.m., Monday through Saturday. The proposed project would have the same hours of operation. All 5 workers would arrive prior to the a.m. peak hour (before 7:00 a.m.) and depart during the p.m. peak hour (after 5:00 p.m.). The 46 trucks would arrive and depart throughout the day, including in the a.m. peak hour and the p.m. peak hour.

Table A presents a trip generation summary for the proposed project. As shown in Table A, the proposed project would generate 194 average daily trips (ADT), including 20 trips in the a.m. peak hour (10 inbound and 10 outbound) and 25 trips in the p.m. peak hour (10 inbound and 15 outbound), in PCEs.

For the approved and pending plus project conditions, the project trips have been added to the short-term interim year approved and pending baseline conditions, respectively.

### Trip Distribution and Assignment

The directions of approach to and departure from the site are based on the existing truck route to and from the FRB Landfill (e.g., Sand Canyon Avenue [City-designated truck route], Portola Parkway, and I-5). The proposed project would continue to use this truck route. Jeffrey Road has not and will not be used as a truck route for the existing FRB Landfill or the proposed project. Approximately 50 percent of the trips are destined north on I-5 and 50 percent are destined south on I-5. The results of the LOS analysis and the access analysis are discussed later in this Limited Scope Traffic Study. Figure 3 illustrates the project trip distribution and assignment.

## EXISTING CONDITIONS

### Existing Site Uses

The existing FRB Landfill site receives approximately 850 tpd of PGM. The existing FRB Landfill is open from 7:00 a.m. to 5:00 p.m., Monday through Saturday.

### Existing Roadways

Key roadways in the vicinity of the proposed project are as follows:

- **Bee Canyon Access Road:** Bee Canyon Access Road is an undivided, three-lane, north-south Local Street west of the project site (two northbound lanes and one southbound lane). Bee Canyon Access Road provides direct access to the project site. The posted speed limit is 40 miles per hour (mph). On-street parking is not permitted on either side of this roadway.
- **Sand Canyon Avenue:** According to the City's General Plan Circulation Element, Sand Canyon Avenue is classified as a Primary Highway north of Irvine Boulevard and a Major Highway south of Irvine Boulevard. Located southwest of the project site, Sand Canyon Avenue is a divided, four-lane, north-south roadway north of Irvine Boulevard, and a divided, six-lane roadway south of Irvine Boulevard. The posted speed limits north and south of Irvine Boulevard are 50 mph and 55 mph, respectively. On-street (Class II) bicycle lanes and sidewalks are provided on both sides of the street. On-street parking is not permitted.

**Table A: Project Trip Generation Summary**

Daily Vehicles				ADT	AM Peak Hour			PM Peak Hour		
Description	No.	Type	PCE		in	out	total	in	out	total
Workers <sup>1</sup>	5	Passenger	1	10	0	0	0	0	5	5
Waste Trucks <sup>1</sup>	2	Large Truck	2	8	2	2	4	2	2	4
Delivery Trucks <sup>1</sup>	44	Large Truck	2	176	8	8	16	8	8	16
<b>Total</b>				<b>194</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>10</b>	<b>15</b>	<b>25</b>

Compiled by LSA (2022)

<sup>1</sup>The hours of operation are 7:00 a.m. to 5:00 p.m., Monday through Saturday.

Workers would arrive prior to the a.m. peak hour and depart during the p.m. peak hour.

Truck trips would occur throughout the day, including the a.m. and p.m. peak hours.

ADT = average daily trips

AM Peak Hour = single highest hour of traffic volume of the circulation system between 7:00 and 9:00 a.m.

PCE = passenger car equivalent. A worker vehicle has a PCE of 1 and a truck has a PCE of 2.

PM Peak Hour = single highest hour of traffic volume of the circulation system between 4:00 and 6:00 p.m.

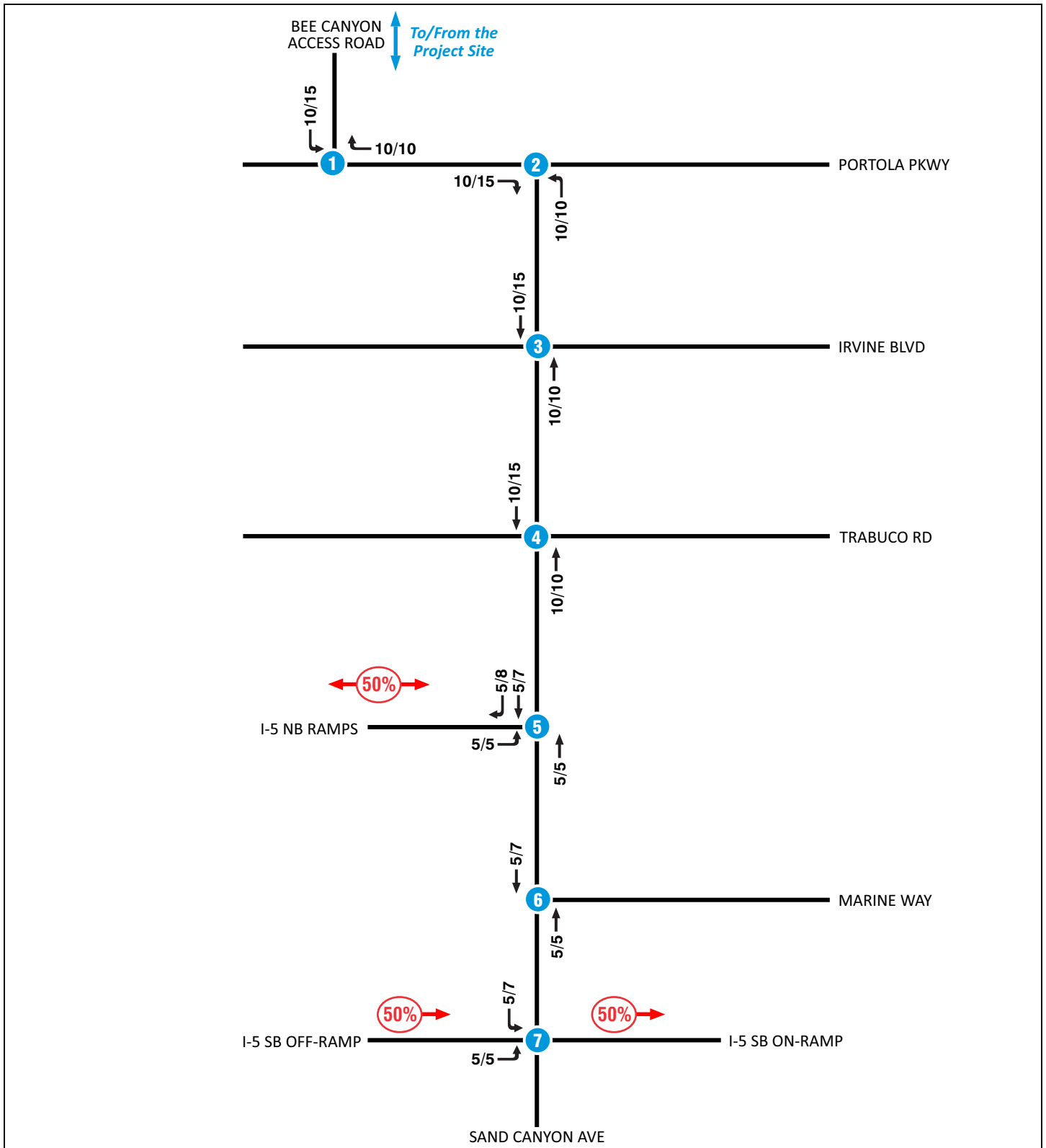


FIGURE 3

LSA

LEGEND

XX/YY - AM/PM Peak Hour Volumes

XX% - Project Trip Distribution Percentage



SCHEMATIC - NOT TO SCALE

Bee Canyon Greenery  
Project Trip Distribution and Assignment

- **Portola Parkway:** According to the City's General Plan Circulation Element, Portola Parkway is classified as a Primary Highway. Portola Parkway is a divided four-lane, east-west roadway south and southwest of the project site. The posted speed limit is 55 mph. On-street (Class II) bicycle lanes are provided on both sides of the street, and sidewalks are provided on the south side of the street in the vicinity of the project site. On-street parking is not permitted.
- **Irvine Boulevard:** According to the City's General Plan Circulation Element, Irvine Boulevard is classified as a Major Highway. Irvine Boulevard is a divided, six-lane, east-west roadway south and southwest of the project site. The posted speed limit is 55 mph. On-street (Class II) bicycle lanes and sidewalks are provided on both sides of the street in the vicinity of the project site. On-street parking is not permitted.
- **Trabuco Road–Great Park Boulevard:** According to the City's General Plan Circulation Element, Trabuco Road (west of Sand Canyon Avenue) is classified as a Primary Highway, and Great Park Boulevard (east of Sand Canyon Avenue) is classified as a Major Highway. The posted speed limit on both roadways is 50 mph. On-street (Class II) bicycle lanes and sidewalks are provided on both sides of the street in the vicinity of the project site. On-street parking is not permitted.

## FUTURE CONDITIONS

The following discussion presents the results of the future analysis with and without the proposed project.

### Short-Term Interim Year Approved Baseline and Plus Project Traffic Volumes and LOS

Table B summarizes the intersection LOS for the approved baseline and plus project conditions. As Table B indicates, all study area intersections are forecast to operate at satisfactory LOS in the baseline (no project) condition. With the addition of the proposed project in the approved baseline condition, all study area intersections would continue to operate at satisfactory LOS. Therefore, the proposed project can be implemented in a Short-Term Interim Year Approved Baseline condition with no significant peak-hour LOS impacts at the study intersections.

### Short-Term Interim Year Pending Baseline and Plus Project Traffic Volumes and LOS

Table C presents a summary of the intersection LOS for the pending baseline and plus project conditions. As Table C indicates, all study area intersections are forecast to operate at satisfactory LOS in the baseline (no project) condition. With the addition of the proposed project in the pending baseline condition, all study area intersections would continue to operate at satisfactory LOS. Therefore, the proposed project can be implemented in a Short-Term Interim Year Pending Baseline condition with no significant peak-hour LOS impacts at the study intersections.



**Table B: Short-Term Interim Year Approved Intersection Level of Service Summary**

Study Area No.	ITAM Node No.	Intersection	Baseline				Plus Project				Peak-Hour $\Delta$		Significant LOS Impact?
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		ICU		
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM	
1	502	Bee Canyon Access Road/Portola Parkway	0.42	A	0.39	A	0.42	A	0.39	A	0.00	0.00	No
2	300	Sand Canyon Avenue/Portola Parkway	0.39	A	0.52	A	0.39	A	0.53	A	0.00	0.01	No
3	301	Sand Canyon Avenue/Irvine Boulevard	0.61	B	0.60	A	0.62	B	0.60	A	0.01	0.00	No
4	302	Sand Canyon Avenue/Trabuco Road	0.65	B	0.77	C	0.65	B	0.77	C	0.00	0.00	No
5	303	Sand Canyon Avenue/I-5 northbound ramps	0.66	B	0.73	C	0.66	B	0.73	C	0.00	0.00	No
6	304	Sand Canyon Avenue/Marine Way	0.73	C	0.64	B	0.73	C	0.65	B	0.00	0.01	No
7	305	Sand Canyon Avenue/I-5 southbound ramps	0.63	B	0.63	B	0.63	B	0.63	B	0.00	0.00	No

Compiled by LSA (2022)

$\Delta$  = change

ICU = Intersection Capacity Utilization

ITAM = Irvine Transportation Analysis Model

LOS = level of service

**Table C: Short-Term Interim Year Pending Intersection Level of Service Summary**

Study Area No.	ITAM Node No.	Intersection	Baseline				Plus Project				Peak-Hour $\Delta$		Significant LOS Impact?
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		ICU		
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM	
1	502	Bee Canyon Access Road/Portola Parkway	0.42	A	0.40	A	0.42	A	0.40	A	0.00	0.00	No
2	300	Sand Canyon Avenue/Portola Parkway	0.38	A	0.52	A	0.38	A	0.53	A	0.00	0.01	No
3	301	Sand Canyon Avenue/Irvine Boulevard	0.61	B	0.61	B	0.62	B	0.61	B	0.01	0.00	No
4	302	Sand Canyon Avenue/Trabuco Road	0.66	B	0.76	C	0.66	B	0.76	C	0.00	0.00	No
5	303	Sand Canyon Avenue/I-5 northbound ramps	0.66	B	0.73	C	0.67	B	0.73	C	0.01	0.00	No
6	304	Sand Canyon Avenue/Marine Way	0.73	C	0.63	B	0.73	C	0.64	B	0.00	0.01	No
7	305	Sand Canyon Avenue/I-5 southbound ramps	0.63	B	0.62	B	0.63	B	0.63	B	0.00	0.01	No

Compiled by LSA (2022)

$\Delta$  = change

ICU = Intersection Capacity Utilization

ITAM = Irvine Transportation Analysis Model

LOS = level of service

## SPECIAL ISSUES

### Site Access Analysis

Access to the project site is provided via Bee Canyon Access Road. To present a conservative analysis, the TDP evaluation is based on the Short-Term Interim Year Pending Baseline Plus Project conditions because the Approved condition represents each application for development currently approved whereas the Pending condition represents all of the projects in Irvine that are approved and currently under review.

As previously discussed, project trips were generated using operational information from OC Waste & Recycling (20 a.m. peak-hour trips and 25 p.m. peak-hour trips as shown in Table A). Project trip distribution was developed based on the existing truck route to and from the FRB Landfill (e.g., Sand Canyon Avenue [City-designated truck route], Portola Parkway, and I-5) and information from OC Waste & Recycling (50 percent north on I-5 and 50 percent south on I-5). Figures 4 and 5 illustrate the Short-Term Interim Year Pending Baseline and Plus Project peak-hour volumes at the study area intersections and the project driveway, respectively.

This analysis has been conducted consistent with the approved scope of work and the TDPs. Applicable design criteria for the proposed project include TDP-1 (Turn-Lane Pocket Lengths) and TDP-14 (Driveway Lengths).

#### *TDP-1: Turn-Lane Pocket Lengths*

The length of left-turn pockets at signalized intersections is based on several parameters, including traffic control, turn volume, and cycle length. The purpose of the turn-pocket length is to allow the turning vehicle to exit the through movement and decelerate into the turn pocket without adversely affecting the through movement. The minimum single turn-pocket length for Major, Primary, and Secondary Highways (i.e., Sand Canyon Avenue) is 150 feet (ft), and the minimum single turn-pocket length for Commuter, Collector, and Local Streets (i.e., Bee Canyon Access Road) is 90 ft. Appendix D provides graphic depictions of the total required left-turn storage lengths based on the J.E. Leish nomograph.

**Bee Canyon Access Road/Portola Parkway (Southbound).** The southbound approach at the signalized intersection of Bee Canyon Access Road/Portola Parkway includes a 105 ft left-turn lane and a 105 ft shared left-turn/right-turn lane, providing a total southbound storage length of 210 ft. The Short-Term Interim Year Pending Baseline southbound approach volume is 89 vehicles (87 left-turn and 2 right-turn vehicles) during the a.m. peak-hour and 29 vehicles (5 left-turn and 24 right-turn vehicles) during the p.m. peak-hour. Based on TDP-1 criteria, the 210 ft of total southbound storage meets the 110 ft required to accommodate the 89 a.m. peak-hour vehicles. The proposed project would add 10 southbound left-turn vehicles in the a.m. peak hour and 15 southbound left-turn vehicles in the p.m. peak hour. The Short-Term Interim Year Pending Baseline Plus Project southbound approach volume is 99 vehicles (97 left-turn and 2 right-turn vehicles) during the a.m. peak hour and 44 vehicles (20 left-turn and 24 right-turn vehicles) during the p.m. peak-hour, as shown on Figure 5. According to TDP-1, the 210 ft of total southbound storage meets the 125 ft required for the 99 a.m. peak-hour vehicles.

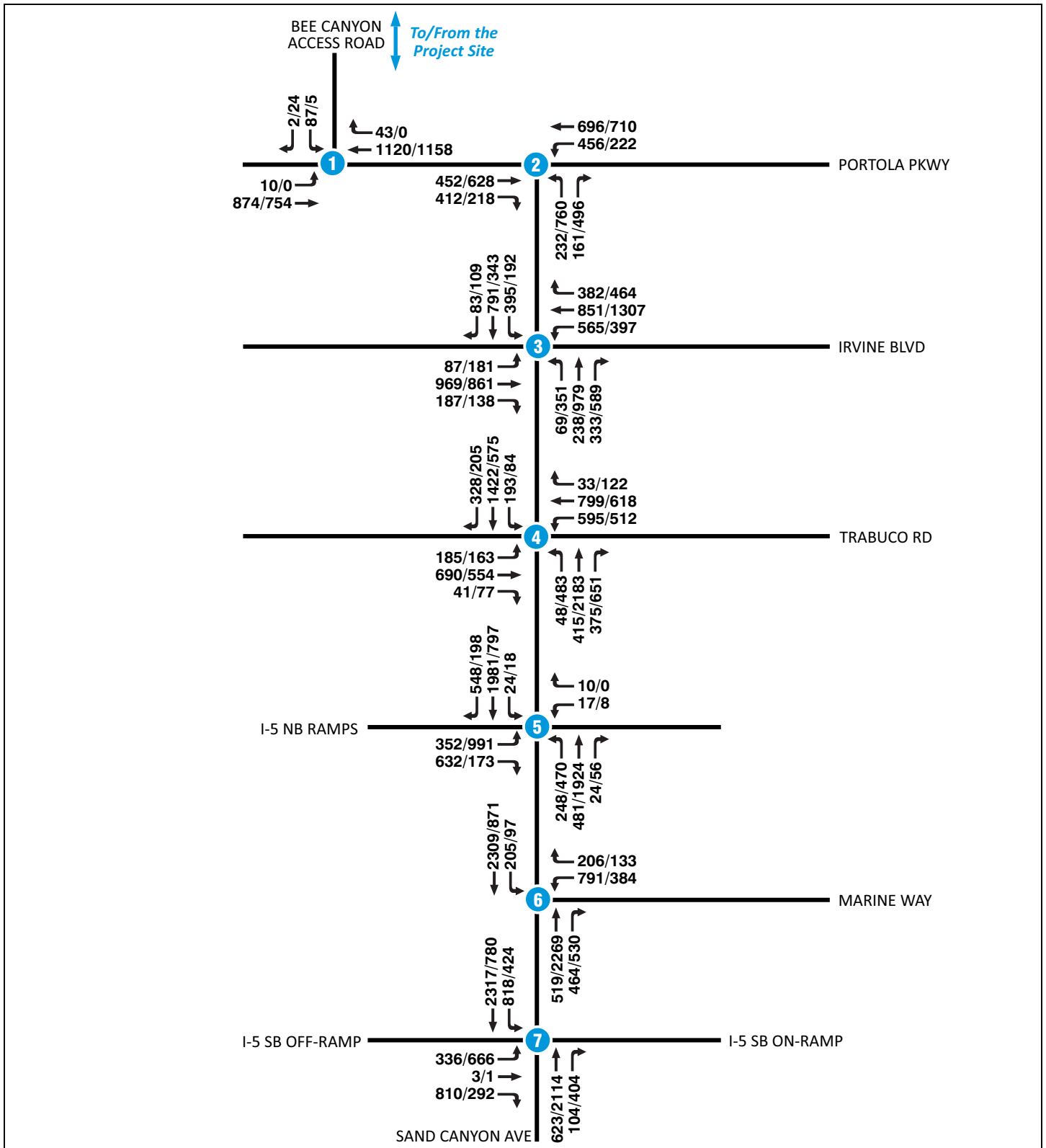


FIGURE 4

LSA

LEGEND

XX/YY - AM/PM Peak Hour Volumes



SCHEMATIC - NOT TO SCALE

Bee Canyon Greenery  
Short-Term Pending Baseline  
Peak Hour Volumes

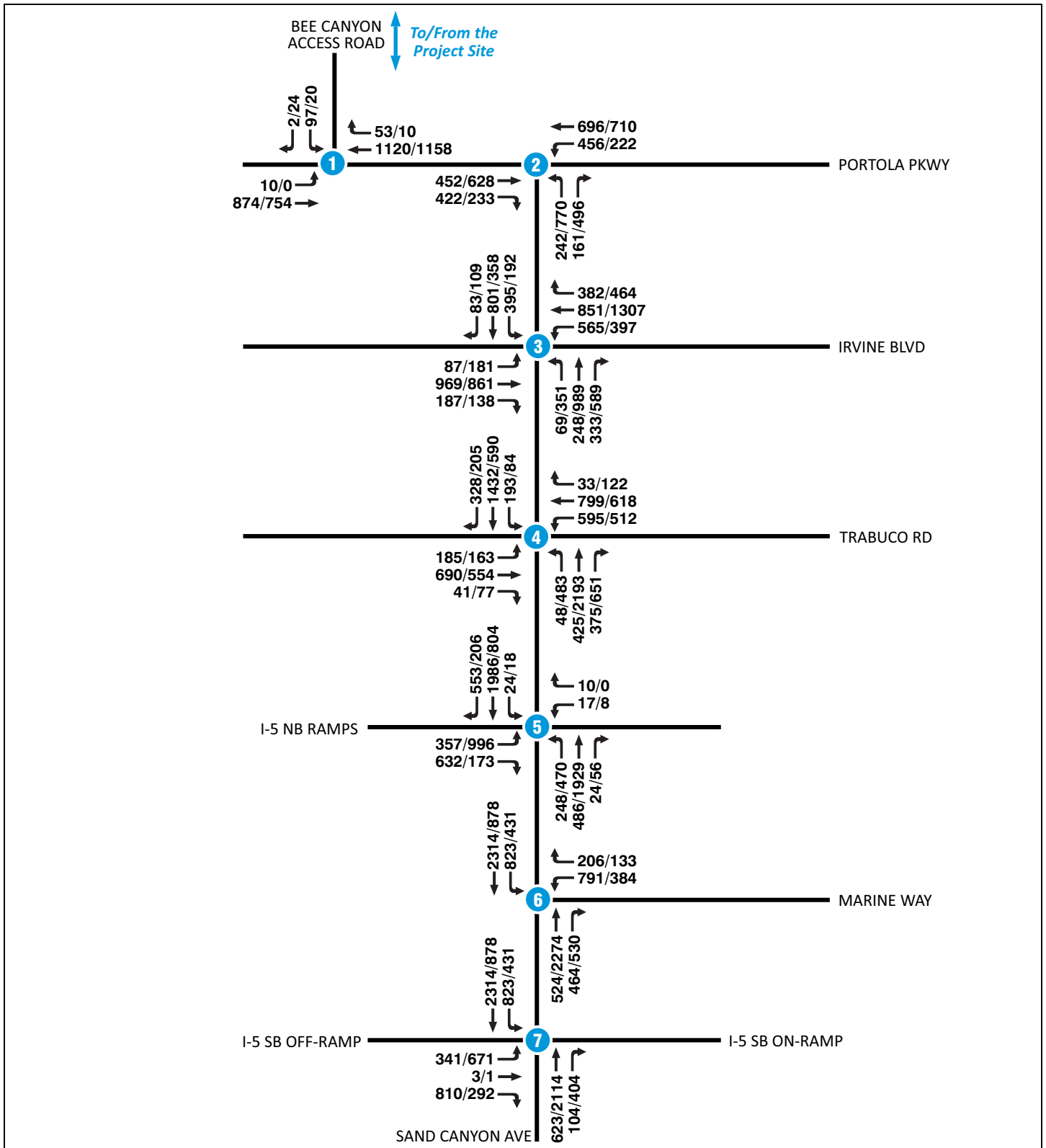


FIGURE 5



LEGEND

XX/YY - AM/PM Peak Hour Volumes

SCHEMATIC - NOT TO SCALE

Bee Canyon Greenery  
Short-Term Pending Plus Project  
Peak Hour Volumes

**Sand Canyon Avenue/Portola Parkway (Northbound).** The intersection of Sand Canyon Avenue/Portola Parkway is a T-intersection. The northbound approach has dual left-turn lanes and dual right-turn lanes. The inner left-turn lane and the outer left-turn lane are approximately 280 ft and 510 ft long, respectively. From the back of the outer left-turn lane, there is approximately 800 ft of additional storage to the downstream intersection of Sand Canyon Avenue/Saints Way. Therefore, the total northbound left-turn storage is approximately 1,590 ft.

The Short-Term Interim Year Pending Baseline northbound left-turn volume is 232 vehicles during the a.m. peak hour and 760 vehicles during the p.m. peak hour. Based on TDP-1 criteria, the total northbound left-turn storage length meets the 950 ft requirement to accommodate the 760 p.m. peak-hour vehicles.

As shown on Figure 5, the Short-Term Interim Year Pending Plus Project left-turn volumes at this location are 242 a.m. and 770 p.m. peak-hour vehicles (reflecting the addition of 10 project vehicles in the a.m. peak-hour and 10 vehicles in the p.m. peak-hour). According to TDP-1, 955 ft of northbound left-turn storage capacity is required for the 770 p.m. peak-hour vehicles. As in the baseline condition, the total northbound left-turn storage length meets TDP-1 criteria.

Because a separate project is modifying the northbound left-turn geometry at Sand Canyon Avenue/Portola Parkway to accommodate access to and from the new Syphon Reservoir Access Road, an alternative northbound left-turn configuration has been evaluated: one left-turn lane with one shared left-turn/through lane. Under this alternative configuration, the total northbound left-turn and through storage would be 1,590 ft (280 ft dedicated left-turn lane, 510 ft shared left-turn/through lane, and an additional 800 ft from the back of the shared left-turn/through lane to the downstream intersection of Sand Canyon Avenue/Saints Way).

As previously described, the Short-Term Interim Year Pending Plus Project left-turn volumes at this location are 242 a.m. and 770 p.m. peak-hour vehicles, which would require 955 ft of northbound left-turn storage capacity. With 1,590 ft of total storage capacity for northbound left-turn and through vehicles, 635 ft of storage would be afforded to any northbound through vehicles for the new Syphon Reservoir Access Road. Because the Syphon Reservoir is restricted to access for Irvine Ranch Water District personnel for inspection and maintenance purposes only, it is unlikely that the northbound through vehicles would require 635 ft of storage. As such, TDP-1 criteria would be met for the alternative northbound left-turn configuration (one left-turn lane with one shared left-turn/through lane) at Sand Canyon Avenue/Portola Parkway.

#### *TDP-14: Driveway Lengths*

TDP-14 provides guidance regarding a sufficient driveway length to allow vehicles “to enter the parking area without causing subsequent vehicles to back out on the City street system.” The measurement of sufficient length is based on the distance from the back of the sidewalk or stop bar to the first intersecting parking space or traffic control measure on site. The minimum signalized driveway length should be 75 ft and should increase at a rate of 1 ft of storage per peak-hour vehicle (in 25 ft increments).

The project driveway (Bee Canyon Access Road) provides approximately 9,900 ft (1.9 miles) of throat length (measured from the back of Portola Parkway to the entrance of the FRB Landfill). Figure 6 illustrates the available throat length at Bee Canyon Access Road. There are 53 Short-Term Interim Year Pending Baseline inbound vehicles in the a.m. peak hours and no inbound vehicles in the p.m. peak hour. The inbound project volumes at Bee Canyon Access Road are 10 vehicles in both the a.m. and p.m. peak hours. Based on TDP-14 criteria, a driveway throat length of 125 ft is required for the 63 Short-Term Interim Year Pending Plus Project a.m. peak-hour vehicles. As such, the project driveway meets TDP-14 criteria.

### Vehicle Miles Traveled Analysis

On December 28, 2018, the California Office of Administrative Law cleared the revised *State California Environmental Quality Act (CEQA) Guidelines* for use. Among the changes to the guidelines were removal of vehicle delay and LOS from consideration under CEQA.

As a result of the final rulemaking surrounding Senate Bill 743 and the implementation deadline of July 1, 2020, a vehicle miles traveled (VMT) analysis has been prepared in accordance with the City's *Traffic Study Guidelines*. According to the City's *Traffic Study Guidelines* (November 2021), if a project results in a net increase of 250 or fewer ADT, then the project is screened out from a VMT analysis and is presumed to have a less-than-significant VMT impact.

As shown on Table A, the proposed project would generate 194 ADT in PCEs. Because the proposed project would meet the City's VMT screening criteria of generating fewer than 250 ADT, the proposed project is presumed to have a less than significant VMT impact.

### REQUIRED IMPROVEMENTS AND/OR RECOMMENDATIONS

Based on the results of this analysis, the proposed project can be implemented without negatively affecting the surrounding circulation system in the Short-Term Interim Year Approved and Pending Baseline conditions. The addition of project traffic to study area intersections does not result in City thresholds for performance being exceeded and is not considered significant; therefore, mitigation is not required according to the City performance criteria.

The surrounding intersections and project driveway have been analyzed using the City's TDPs, which meet the criteria for TDP-1 and TDP-14.

### CONCLUSIONS

The proposed project can be implemented without negatively affecting the surrounding circulation system. The evaluation of the study area intersection LOS shows that the addition of project traffic to the Short-Term Interim Year Approved and Pending Baseline conditions would not create any LOS impacts according to the City's performance criteria.

A site access analysis, consistent with the City's TDPs, was conducted for the proposed project. Based on this analysis, the requirements of TDP-1 and TDP-14 have been met. As such, improvements are neither required nor recommended.



FIGURE 6

LSA



SOURCE: Google Earth



The proposed project is screened out from a VMT analysis and is presumed to have a less than significant VMT impact.

## REFERENCES

City of Irvine. 2021. *Traffic Study Guidelines*.

\_\_\_\_\_. 2015. General Plan Circulation Element.

\_\_\_\_\_. 2007. Transportation Design Procedures.

## **APPENDIX A**

### **APPROVED SCOPE OF WORK**

## SCOPE OF WORK BEE CANYON GREENERY LIMITED SCOPE TRAFFIC STUDY

The purpose of this analysis is to determine short-term traffic effects resulting from the proposed Bee Canyon Greenery (BCG) composting operation (project) at the existing Frank R. Bowerman (FRB) Landfill. The FRB Landfill is located at 11002 Bee Canyon Access Road in Traffic Analysis Zone (TAZ) 20 in Planning Area 3 (Limestone Canyon – Open Space) of Irvine, California.

The existing FRB Landfill receives approximately 850 tons per day (tpd) of processed green material (PGM). The proposed project would compost approximately 876 tpd of PGM. As such, the proposed project includes the intake of 26 additional tpd of PGM. In addition, after the composting process is complete, the proposed project includes the delivery of 876 tpd of compost to markets located inside and outside of Orange County.

The proposed project would require up to 5 additional daily employees at the FRB Landfill. The additional 26 tpd of PGM intake would require up to 2 dump trucks, and the 876 tpd of compost delivery would require approximately 44 dump trucks. Dump trucks have a 20-ton capacity and are assumed to have a passenger car equivalent (PCE) factor of 2. Table A (attached) presents a trip generation summary for the proposed project.

The FRB Landfill is currently open from 7:00 a.m. to 4:00 p.m., Monday through Saturday. The proposed project would have the same hours of operation. The 5 daily employees and the 46 total daily trucks would generate approximately 194 average daily trips (ADT), in PCEs. All 5 workers would arrive prior to the a.m. peak hour (before 7:00 a.m.) and depart during the p.m. peak hour (after 4:00 p.m.). The 46 trucks would arrive and depart throughout the day (approximately 5 trucks per hour), including 6 trucks in the a.m. peak hour, but no trucks in the p.m. peak hour. As such, the proposed project would generate 24 trips in the a.m. peak hour (12 inbound and 12 outbound) and 5 outbound trips in the p.m. peak hour in PCEs.

The estimated hourly trips for the proposed project (in PCEs) are as follows:

- 6 a.m. to 7 a.m.: 5 inbound
- 7 a.m. to 8 a.m.: 24 (12 inbound and 12 outbound)
- 8 a.m. to 9 a.m.: 20 (10 inbound and 10 outbound)
- 9 a.m. to 10 a.m.: 20 (10 inbound and 10 outbound)
- 10 a.m. to 11 a.m.: 20 (10 inbound and 10 outbound)
- 11 a.m. to 12 p.m.: 20 (10 inbound and 10 outbound)
- 12 p.m. to 1 p.m.: 20 (10 inbound and 10 outbound)
- 1 p.m. to 2 p.m.: 20 (10 inbound and 10 outbound)
- 2 p.m. to 3 p.m.: 20 (10 inbound and 10 outbound)
- 3 p.m. to 4 p.m.: 20 (10 inbound and 10 outbound)
- 4 p.m. to 5 p.m.: 5 outbound

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- Total: 194 (97 inbound and 97 outbound)

The City of Irvine (City) has designated Sand Canyon Avenue as a truck route. As such, the existing truck route to/from the FRB Landfill and regional locations is Interstate 5 (I-5), Sand Canyon Avenue, Portola Parkway, and Bee Canyon Access Road. The proposed project would continue to use this designated truck route. Jeffrey Road has not and will not be used as a truck route for the existing FRB Landfill or the proposed project.

Based on the City's Traffic Study Guidelines, a Traffic Study is required to evaluate the cumulative effects with build out of the proposed project. Because the proposed project is anticipated to generate fewer than 50 peak-hour trips, a Limited Scope Traffic Study is required to evaluate short-term interim-year conditions and satisfy the City's analysis requirements.

This Limited Scope Traffic Study will be developed in accordance with the applicable sections of the City's Traffic Study Guidelines (adopted by the City Council on November 2, 2021) and the City's Transportation Design Procedures (TDPs) (adopted in February 2007) and will include the following key elements.

## I. EXECUTIVE SUMMARY

This section will provide a short, clear, and concise description of the proposed project and Limited Scope Traffic Study findings. The proposed study recommendations and project improvements will also be included in this section, if necessary.

## II. INTRODUCTION

This section of the report will include a comprehensive description of the proposed project and key elements of the Limited Scope Traffic Study, including planning area description, general terrain features, and existing/proposed uses on site. The surrounding land uses will also be described. The following elements are identified for the purpose of conducting the Limited Scope Traffic Study.

### A. Project Site

A project location (and study area intersection) map is provided in this Limited Scope Traffic Study Scope of Work (see Figure 1, attached) and will be provided in the Limited Scope Traffic Study. The project site is bounded by open space. Access to the project site is provided via Bee Canyon Access Road.

### B. Study Area Boundary

As shown on Figure 1, the study area will include the following signalized intersections:

1. Bee Canyon Access Road/Portola Parkway
2. Sand Canyon Avenue/Portola Parkway
3. Sand Canyon Avenue/Irvine Boulevard
4. Sand Canyon Avenue/Trabuco Road–Great Park Boulevard
5. Sand Canyon Avenue/I-5 northbound ramps
6. Sand Canyon Avenue/Marine Way
7. Sand Canyon Avenue/I-5 southbound ramps

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### III. PERFORMANCE CRITERIA

The performance criteria to determine potential project effects and improvements will be consistent with the City's criteria (as approved by the City Council on November 2, 2021). The City's TDPs will be used as the performance criteria to evaluate the design features of the project access.

### IV. EXISTING CONDITIONS

#### A. Existing Site Uses

Existing land uses on site will be identified. The existing site is the FRB Landfill.

#### B. Existing Roadways and Intersections

The characteristics of the site's surrounding roadway network will be surveyed to verify the existing number of lanes, traffic signal locations, intersection configurations, and other visible factors that may have to be included in the analysis.

### V. ANALYSIS METHODOLOGY/APPROACH

Study area intersections will be analyzed using the adopted Intersection Capacity Utilization (ICU) methodology.

To disclose the effect of adding the project land use in a short-term interim year setting, the following analyses will be conducted:

- Short-Term Interim Year Approved Baseline
- Short-Term Interim Year Approved Baseline Plus Project
- Short-Term Interim Year Pending Baseline
- Short-Term Interim Year Pending Baseline Plus Project

The future (Short-Term Interim Year) conditions will be developed based on the new TransCAD version of the ITAM (ITAM TC). LSA will extract the Short-Term Interim Year Baseline (Approved and Pending) peak-hour traffic volumes for the study area intersections and manually assign the proposed project trips to represent "plus project" conditions.

Project effects will be identified at study area intersections for the Short-Term Interim Year Baseline (Approved and Pending) conditions assuming improvements to the circulation system identified by the City and included in the ITAM TC.

### VI. PROPOSED PROJECT EFFECTS

#### A. Trip Generation

LSA will generate a.m. peak-hour trips, p.m. peak-hour trips, and ADT for the proposed project using operational information provided by OC Waste & Recycling (OCWR). As previously discussed, and as shown in Table A, the proposed project would generate 194 ADT, including 24 trips in the a.m. peak hour and 5 trips in the p.m. peak hour, in PCEs.

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## B. Adjustments to Trip Generation

No adjustments to the trip generation shall be made without prior written approval from the City.

## C. Trip Distribution and Trip Assignment

The directions of approach to and departure from the site will be based on operational information from OCWR and the City's designated truck routes (e.g., Sand Canyon Avenue, Portola Parkway, and I-5). This section will provide a graphic representation of the inbound and outbound truck routes and project trips.

## VII. PHASING

The proposed project will be constructed in a single phase and is assumed to be operational by 2023.

## VIII. SPECIAL ANALYSES/ISSUES

### A. Access Analysis

Access to the proposed project (existing FRB Landfill and new BCG) will continue to be provided at Bee Canyon Access Road/Portola Parkway. The designated truck route to/from the site includes I-5, Sand Canyon Avenue, Portola Parkway, and Bee Canyon Access Road. An analysis of the City's TDPs will be conducted for the primary access intersections of Bee Canyon Access Road/Portola Parkway and Sand Canyon Avenue/Portola Parkway.

Specific TDPs to be evaluated include:

- TDP-1 (Turn Lane Pocket Lengths) at Bee Canyon Access Road/Portola Parkway (southbound left turn) and Sand Canyon Avenue/Portola Parkway (northbound left turn)
  - Because a separate project is modifying the northbound left-turn geometry at Sand Canyon Avenue/Portola Parkway, two northbound left-turn alternatives will be evaluated: (1) one left-turn lane with one shared left-turn/through lane, and (2) dual left-turn lanes
- TDP-14 (Driveway Lengths) at Bee Canyon Access Road

A summary of the proposed project and results of the analysis will be prepared. Based upon these results, recommendations will be presented for the interface with adjacent streets (if required). These recommendations will be consistent with the City's TDPs.

### B. Vehicle Miles Traveled (VMT) Analysis

LSA will prepare a VMT analysis for the proposed project consistent with the City's adopted Traffic Study Guidelines. LSA will review the City's VMT screening criteria, apply as appropriate to the proposed project, and conduct a VMT analysis (if necessary). The results of this analysis will identify if the proposed project will have a less-than-significant impact or if mitigation is required.

## IX. REQUIRED MITIGATION MEASURES AND/OR RECOMMENDATIONS

Based on the results and in accordance with the adopted City Traffic Study Guidelines, physical and/or operational improvements and/or alternative improvements required to offset any potentially adverse effects due to the proposed project will be identified.

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## X. CONCLUSIONS

A summary of the results of the analysis and recommendations will be prepared.

## XI. REVISIONS TO ANALYSIS

Revisions to the Limited Scope Traffic Study will be provided in response to the City's comments.

## XII. SIGNATURE

The Limited Scope Traffic Study will be prepared under the supervision of, and signed, stamped, and dated by, a registered traffic engineer or a registered professional civil engineer with appropriate engineering and/or planning credentials.

Attachments: Table A – Project Trip Generation  
Figure 1 – Project Location and Study Area Intersections

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**Table A: Project Trip Generation Summary**

Daily Vehicles				ADT	AM Peak Hour			PM Peak Hour		
Description	No.	Type	PCE		in	out	total	in	out	total
Workers <sup>1</sup>	5	Passenger	1	10	0	0	0	0	5	5
Waste Trucks <sup>1</sup>	2	Large Truck	2	8	2	2	4	0	0	0
Delivery Trucks <sup>1</sup>	44	Large Truck	2	176	10	10	20	0	0	0
<b>Total</b>				<b>194</b>	<b>12</b>	<b>12</b>	<b>24</b>	<b>0</b>	<b>5</b>	<b>5</b>

<sup>1</sup>The hours of operation are 7:00 a.m. to 4:00 p.m., Monday through Saturday.

Workers would arrive prior to the a.m. peak hour and depart during the p.m. peak hour.

Truck trips would occur throughout the day, including the a.m. peak hour, but prior to the p.m. peak hour.

PCE = passenger car equivalent. A worker vehicle has a PCE of 1 and a truck has a PCE of 2.

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4/29/22



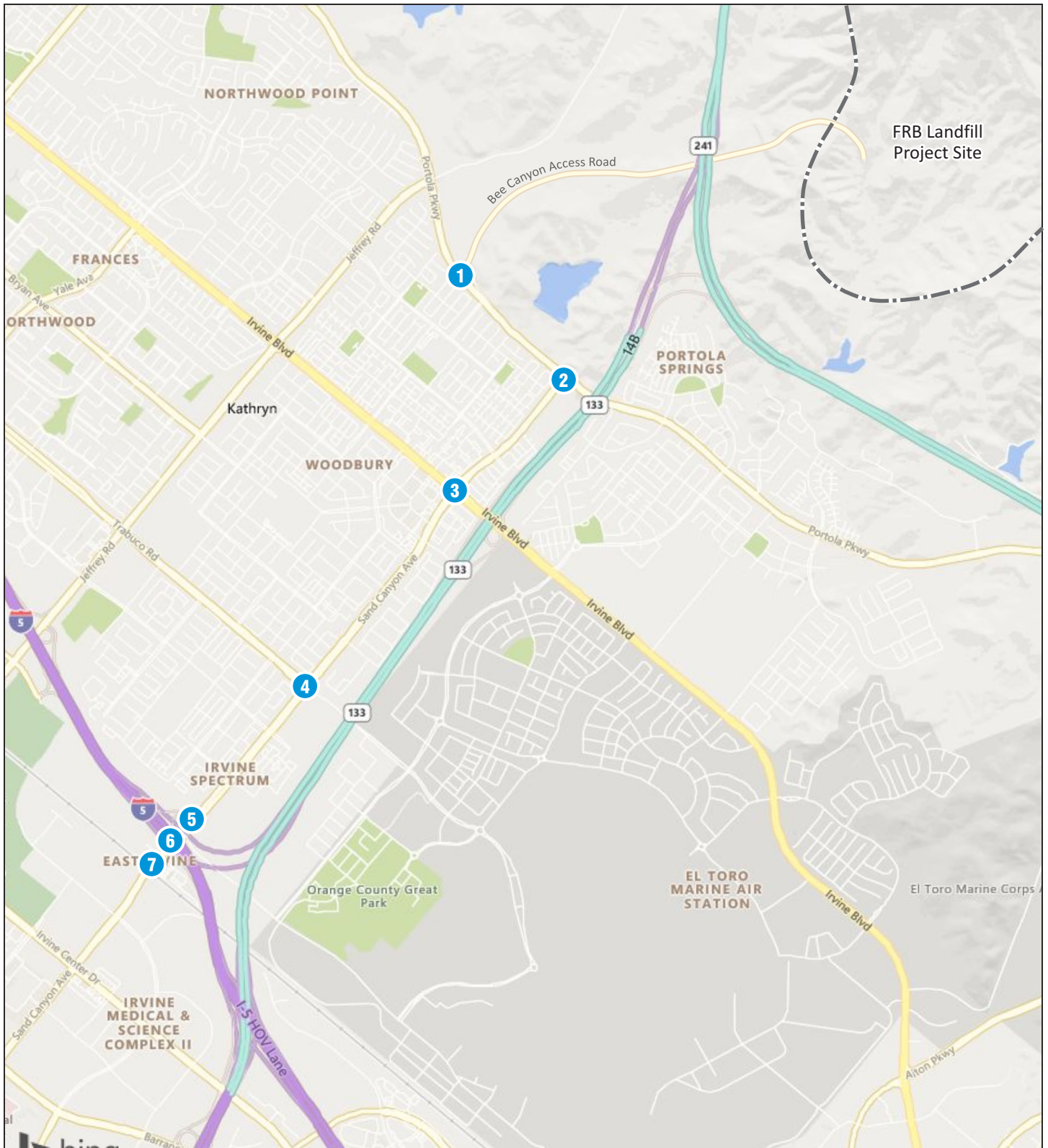
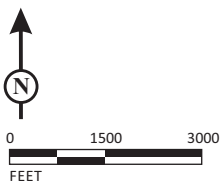


FIGURE 1

LSA

LEGEND

# - Study Area Intersection



SOURCE: Bing Maps

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Bee Canyon Greenery  
Project Location and  
Study Area Intersections

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## **APPENDIX B**

# **EXISTING PEAK-HOUR COUNTS FOR BEE CANYON ACCESS ROAD/PORTOLA PARKWAY**

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

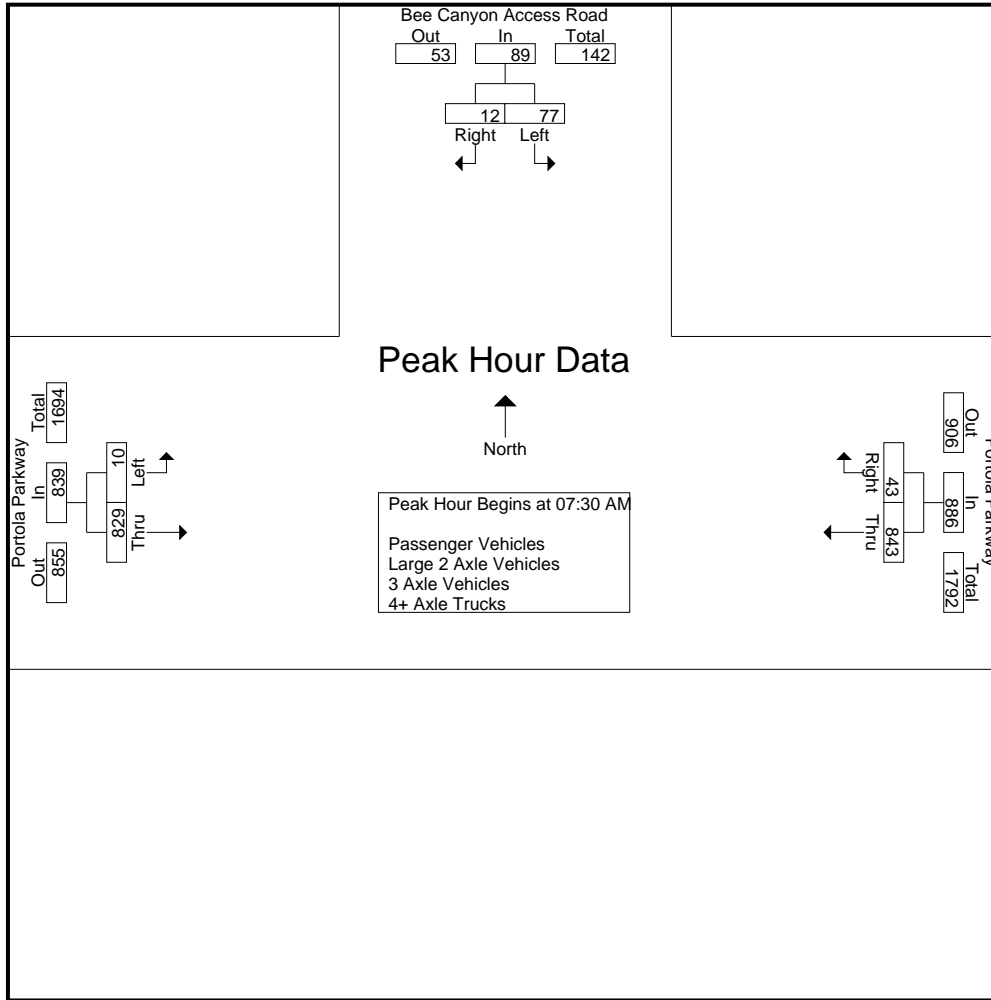
File Name : IRVBCPOAM  
 Site Code : 00319375  
 Start Date : 5/21/2019  
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	99	6	105	13	161	174	279
07:15 AM	16	1	17	154	10	164	1	166	167	348
07:30 AM	21	3	24	249	9	258	2	238	240	522
07:45 AM	15	4	19	224	10	234	3	206	209	462
Total	52	8	60	726	35	761	19	771	790	1611
08:00 AM	23	1	24	216	15	231	3	185	188	443
08:15 AM	18	4	22	154	9	163	2	200	202	387
08:30 AM	11	4	15	159	8	167	3	180	183	365
08:45 AM	9	3	12	126	22	148	1	137	138	298
Total	61	12	73	655	54	709	9	702	711	1493
Grand Total	113	20	133	1381	89	1470	28	1473	1501	3104
Apprch %	85	15		93.9	6.1		1.9	98.1		
Total %	3.6	0.6	4.3	44.5	2.9	47.4	0.9	47.5	48.4	
Passenger Vehicles	5	2	7	1344	5	1349	17	1427	1444	2800
% Passenger Vehicles	4.4	10	5.3	97.3	5.6	91.8	60.7	96.9	96.2	90.2
Large 2 Axle Vehicles	3	1	4	10	1	11	0	17	17	32
% Large 2 Axle Vehicles										
3 Axle Vehicles	23	14	37	14	29	43	11	24	35	115
% 3 Axle Vehicles	20.4	70	27.8	1	32.6	2.9	39.3	1.6	2.3	3.7
4+ Axle Trucks	82	3	85	13	54	67	0	5	5	157
% 4+ Axle Trucks	72.6	15	63.9	0.9	60.7	4.6	0	0.3	0.3	5.1

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:30 AM	21	3	24	249	9	258	2	238	240	522
07:45 AM	15	4	19	224	10	234	3	206	209	462
08:00 AM	23	1	24	216	15	231	3	185	188	443
08:15 AM	18	4	22	154	9	163	2	200	202	387
Total Volume	77	12	89	843	43	886	10	829	839	1814
% App. Total	86.5	13.5		95.1	4.9		1.2	98.8		
PHF	.837	.750	.927	.846	.717	.859	.833	.871	.874	.869

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:30 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:15 AM			07:30 AM		
+0 mins.	21	3	<b>24</b>	154	10	164	2	<b>238</b>	<b>240</b>
+15 mins.	15	<b>4</b>	19	<b>249</b>	9	<b>258</b>	<b>3</b>	206	209
+30 mins.	<b>23</b>	1	24	224	10	234	3	185	188
+45 mins.	18	4	22	216	<b>15</b>	231	2	200	202
Total Volume	77	12	89	843	44	887	10	829	839
% App. Total	86.5	13.5		95	5		1.2	98.8	
PHF	.837	.750	.927	.846	.733	.859	.833	.871	.874

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOAM  
 Site Code : 00319375  
 Start Date : 5/21/2019  
 Page No : 1

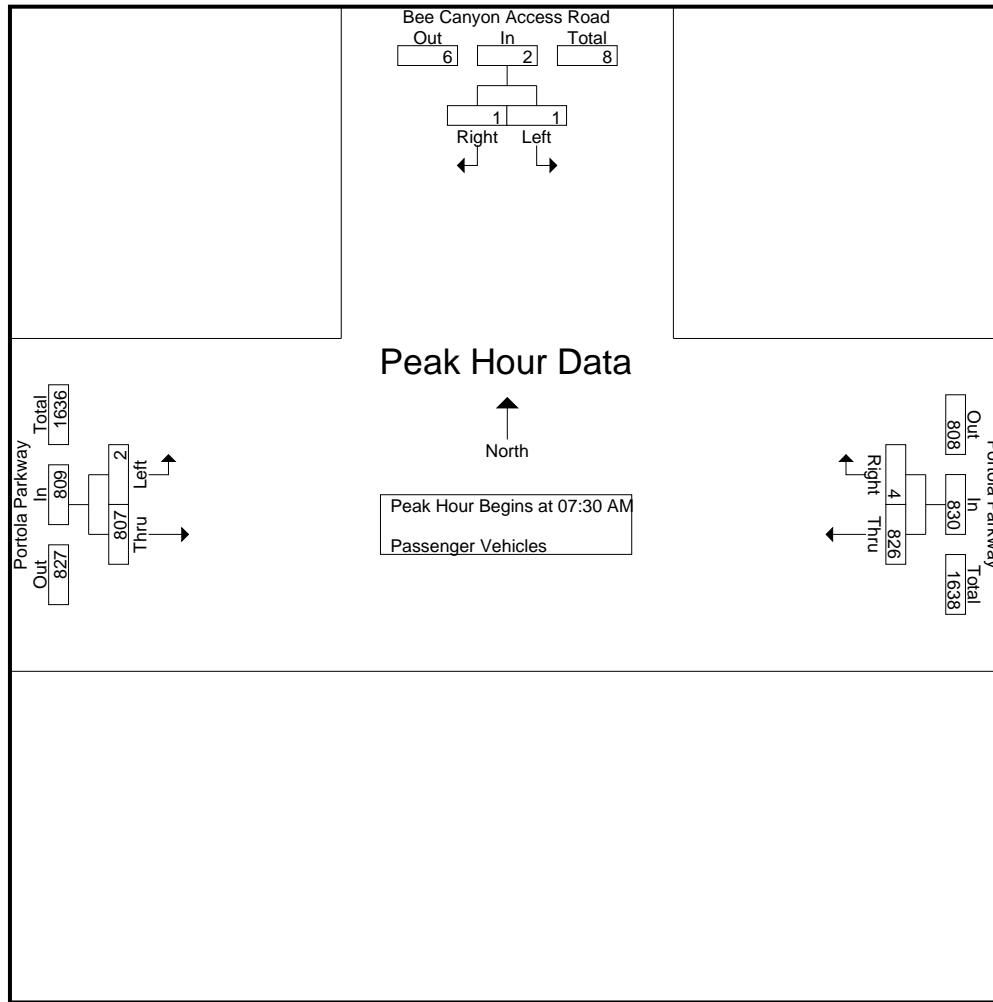
Groups Printed- Passenger Vehicles

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	96	0	96	12	154	166	262
07:15 AM	1	0	1	151	1	152	1	159	160	313
07:30 AM	0	1	1	246	1	247	0	234	234	482
07:45 AM	1	0	1	220	1	221	1	201	202	424
Total	2	1	3	713	3	716	14	748	762	1481
08:00 AM	0	0	0	211	2	213	1	177	178	391
08:15 AM	0	0	0	149	0	149	0	195	195	344
08:30 AM	0	1	1	149	0	149	2	176	178	328
08:45 AM	3	0	3	122	0	122	0	131	131	256
Total	3	1	4	631	2	633	3	679	682	1319
Grand Total	5	2	7	1344	5	1349	17	1427	1444	2800
Apprch %	71.4	28.6		99.6	0.4		1.2	98.8		
Total %	0.2	0.1	0.2	48	0.2	48.2	0.6	51	51.6	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	246	1	247	0	234	234	482
07:45 AM	1	0	1	220	1	221	1	201	202	424
08:00 AM	0	0	0	211	2	213	1	177	178	391
08:15 AM	0	0	0	149	0	149	0	195	195	344
Total Volume	1	1	2	826	4	830	2	807	809	1641
% App. Total	50	50		99.5	0.5		0.2	99.8		
PHF	.250	.250	.500	.839	.500	.840	.500	.862	.864	.851

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOAM  
 Site Code : 00319375  
 Start Date : 5/21/2019  
 Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	1	1	246	1	247	0	234	234
+15 mins.	1	0	1	220	1	221	1	201	202
+30 mins.	0	0	0	211	2	213	1	177	178
+45 mins.	0	0	0	149	0	149	0	195	195
Total Volume	1	1	2	826	4	830	2	807	809
% App. Total	50	50		99.5	0.5		0.2	99.8	
PHF	.250	.250	.500	.839	.500	.840	.500	.862	.864

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOAM  
 Site Code : 00319375  
 Start Date : 5/21/2019  
 Page No : 1

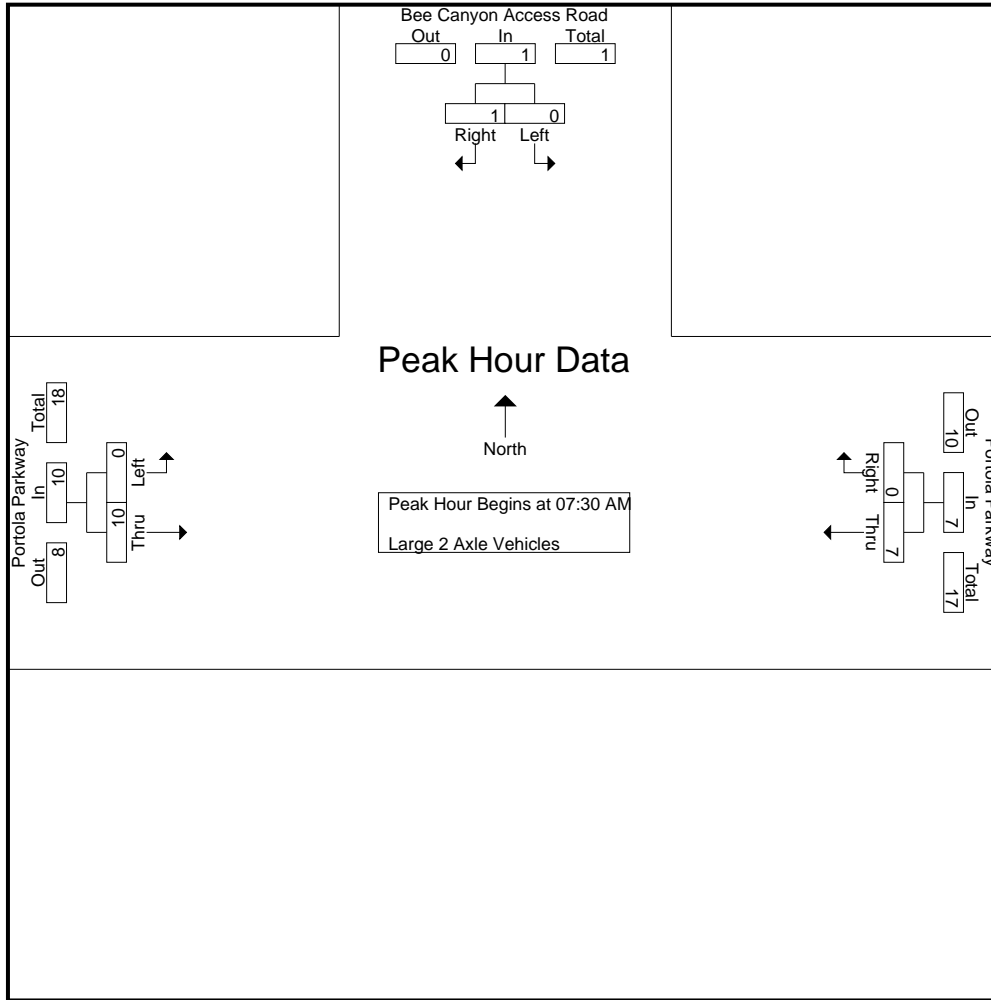
Groups Printed- Large 2 Axle Vehicles

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	1	0	1	0	0	0	1
07:15 AM	3	0	3	1	0	1	0	3	3	7
07:30 AM	0	1	1	2	0	2	0	0	0	3
07:45 AM	0	0	0	1	0	1	0	1	1	2
Total	3	1	4	5	0	5	0	4	4	13
08:00 AM	0	0	0	2	0	2	0	6	6	8
08:15 AM	0	0	0	2	0	2	0	3	3	5
08:30 AM	0	0	0	1	0	1	0	3	3	4
08:45 AM	0	0	0	0	1	1	0	1	1	2
Total	0	0	0	5	1	6	0	13	13	19
Grand Total	3	1	4	10	1	11	0	17	17	32
Apprch %	75	25		90.9	9.1		0	100		
Total %	9.4	3.1	12.5	31.2	3.1	34.4	0	53.1	53.1	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	2	0	2	0	0	0	3
07:45 AM	0	0	0	1	0	1	0	1	1	2
08:00 AM	0	0	0	2	0	2	0	6	6	8
08:15 AM	0	0	0	2	0	2	0	3	3	5
Total Volume	0	1	1	7	0	7	0	10	10	18
% App. Total	0	100		100	0		0	100		
PHF	.000	.250	.250	.875	.000	.875	.000	.417	.417	.563

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	0	1	1	2	0	2	0	0	0
+15 mins.	0	0	0	1	0	1	0	1	1
+30 mins.	0	0	0	2	0	2	0	6	6
+45 mins.	0	0	0	2	0	2	0	3	3
Total Volume	0	1	1	7	0	7	0	10	10
% App. Total	0	100		100	0		0	100	
PHF	.000	.250	.250	.875	.000	.875	.000	.417	.417



City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOAM  
 Site Code : 00319375  
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 Page No : 1

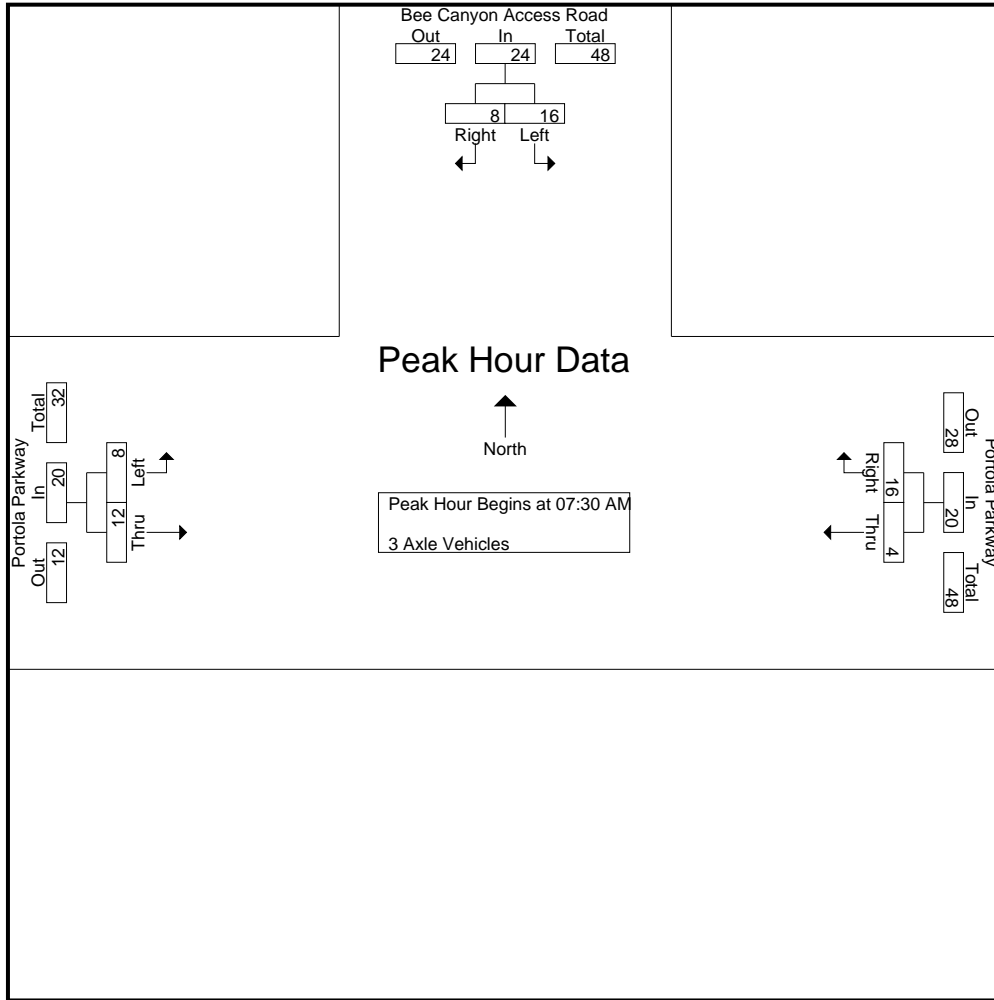
Groups Printed- 3 Axle Vehicles

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	0	1	1	1	4	5	6
07:15 AM	1	1	2	1	2	3	0	3	3	8
07:30 AM	4	1	5	0	3	3	2	4	6	14
07:45 AM	1	4	5	1	2	3	2	4	6	14
Total	6	6	12	2	8	10	5	15	20	42
08:00 AM	7	1	8	1	6	7	2	2	4	19
08:15 AM	4	2	6	2	5	7	2	2	4	17
08:30 AM	3	2	5	7	3	10	1	1	2	17
08:45 AM	3	3	6	2	7	9	1	4	5	20
Total	17	8	25	12	21	33	6	9	15	73
Grand Total	23	14	37	14	29	43	11	24	35	115
Apprch %	62.2	37.8		32.6	67.4		31.4	68.6		
Total %	20	12.2	32.2	12.2	25.2	37.4	9.6	20.9	30.4	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	4	1	5	0	3	3	2	4	6	14
07:45 AM	1	4	5	1	2	3	2	4	6	14
08:00 AM	7	1	8	1	6	7	2	2	4	19
08:15 AM	4	2	6	2	5	7	2	2	4	17
Total Volume	16	8	24	4	16	20	8	12	20	64
% App. Total	66.7	33.3		20	80		40	60		
PHF	.571	.500	.750	.500	.667	.714	1.00	.750	.833	.842

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	4	1	5	0	3	3	2	4	6
+15 mins.	1	4	5	1	2	3	2	4	6
+30 mins.	7	1	8	1	6	7	2	2	4
+45 mins.	4	2	6	2	5	7	2	2	4
Total Volume	16	8	24	4	16	20	8	12	20
% App. Total	66.7	33.3		20	80		40	60	
PHF	.571	.500	.750	.500	.667	.714	1.000	.750	.833

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOAM  
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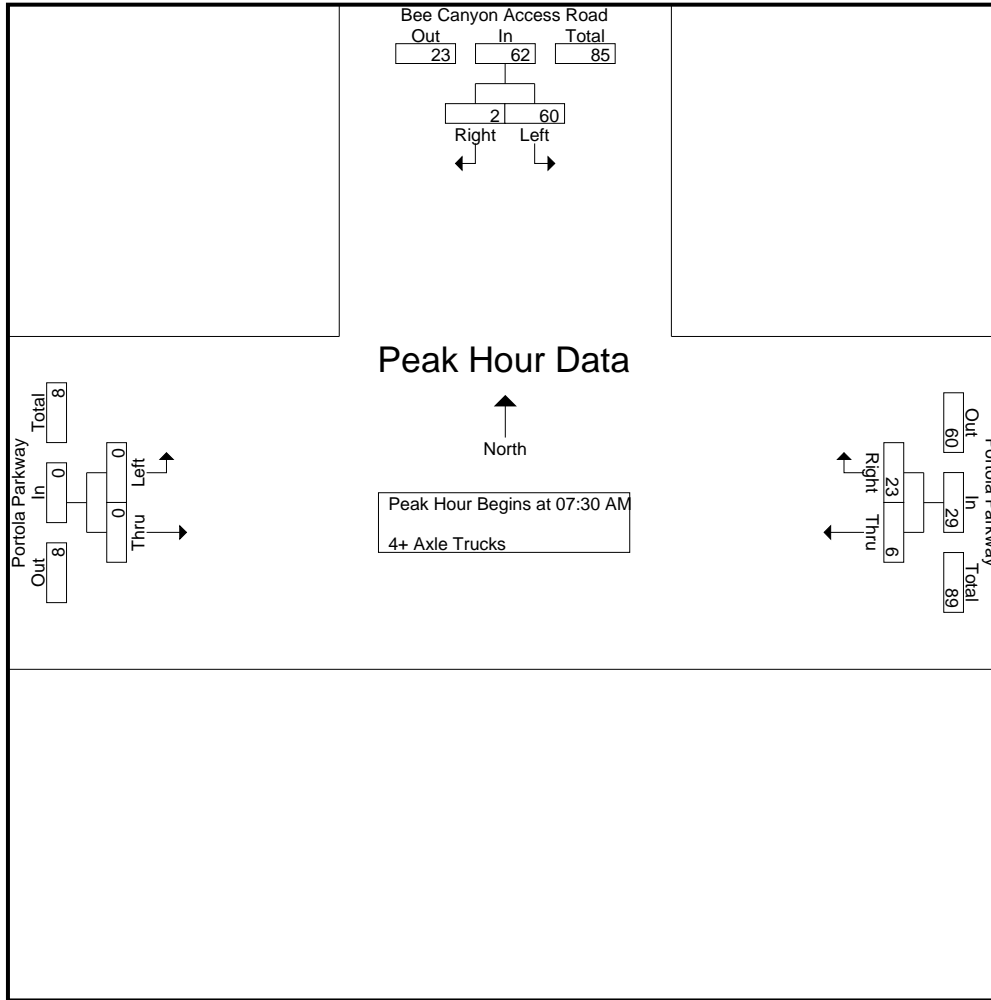
Groups Printed- 4+ Axle Trucks

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	0	0	0	2	5	7	0	3	3	10
07:15 AM	11	0	11	1	7	8	0	1	1	20
07:30 AM	17	0	17	1	5	6	0	0	0	23
07:45 AM	13	0	13	2	7	9	0	0	0	22
Total	41	0	41	6	24	30	0	4	4	75
08:00 AM	16	0	16	2	7	9	0	0	0	25
08:15 AM	14	2	16	1	4	5	0	0	0	21
08:30 AM	8	1	9	2	5	7	0	0	0	16
08:45 AM	3	0	3	2	14	16	0	1	1	20
Total	41	3	44	7	30	37	0	1	1	82
Grand Total	82	3	85	13	54	67	0	5	5	157
Apprch %	96.5	3.5		19.4	80.6		0	100		
Total %	52.2	1.9	54.1	8.3	34.4	42.7	0	3.2	3.2	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	17	0	17	1	5	6	0	0	0	23
07:45 AM	13	0	13	2	7	9	0	0	0	22
08:00 AM	16	0	16	2	7	9	0	0	0	25
08:15 AM	14	2	16	1	4	5	0	0	0	21
Total Volume	60	2	62	6	23	29	0	0	0	91
% App. Total	96.8	3.2		20.7	79.3		0	0		
PHF	.882	.250	.912	.750	.821	.806	.000	.000	.000	.910

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

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Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:30 AM		
+0 mins.	17	0	17	1	5	6	0	0	0
+15 mins.	13	0	13	2	7	9	0	0	0
+30 mins.	16	0	16	2	7	9	0	0	0
+45 mins.	14	2	16	1	4	5	0	0	0
Total Volume	60	2	62	6	23	29	0	0	0
% App. Total	96.8	3.2		20.7	79.3		0	0	
PHF	.882	.250	.912	.750	.821	.806	.000	.000	.000

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOPM  
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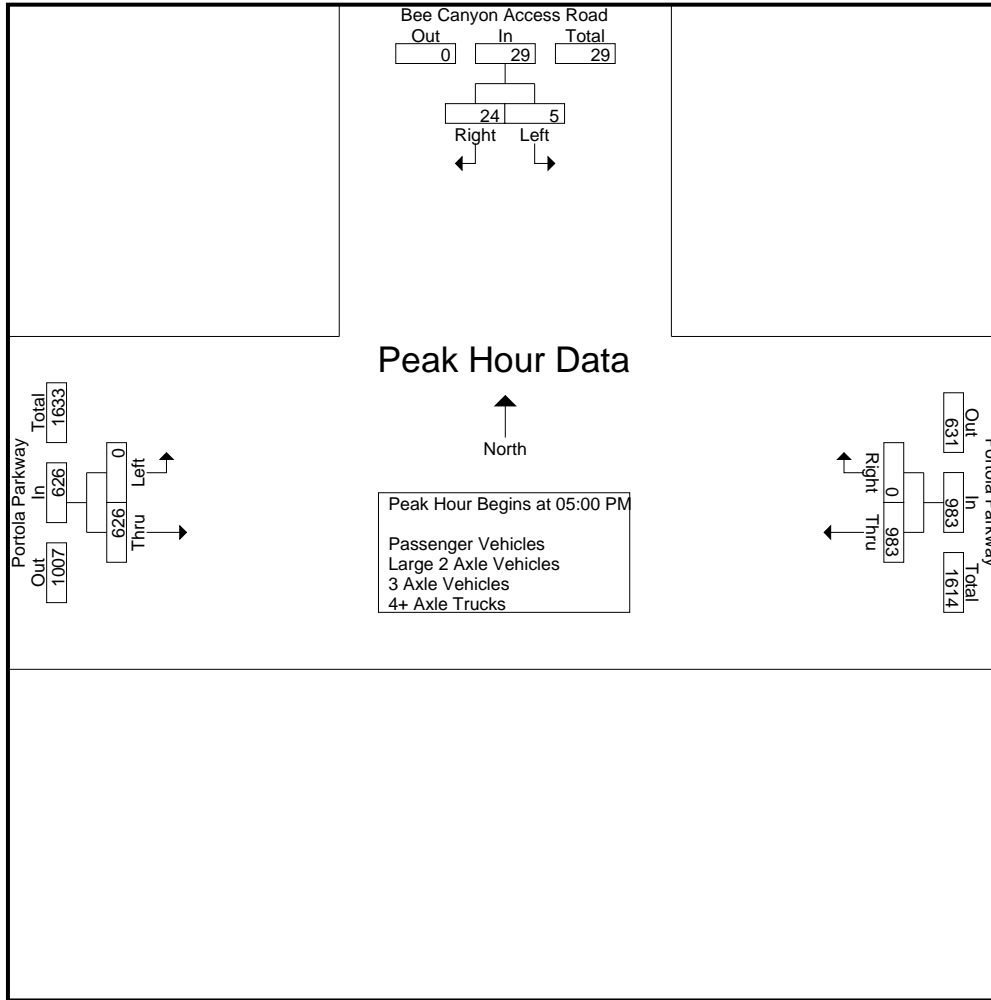
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	7	10	17	219	2	221	0	105	105	343
04:15 PM	7	5	12	257	1	258	0	109	109	379
04:30 PM	8	3	11	202	0	202	0	114	114	327
04:45 PM	3	4	7	266	0	266	0	120	120	393
Total	25	22	47	944	3	947	0	448	448	1442
05:00 PM	0	4	4	259	0	259	0	153	153	416
05:15 PM	1	1	2	279	0	279	0	138	138	419
05:30 PM	1	5	6	219	0	219	0	148	148	373
05:45 PM	3	14	17	226	0	226	0	187	187	430
Total	5	24	29	983	0	983	0	626	626	1638
Grand Total	30	46	76	1927	3	1930	0	1074	1074	3080
Apprch %	39.5	60.5		99.8	0.2		0	100		
Total %	1	1.5	2.5	62.6	0.1	62.7	0	34.9	34.9	
Passenger Vehicles	12	32	44	1907	0	1907	0	1070	1070	3021
% Passenger Vehicles	40	69.6	57.9	99	0	98.8	0	99.6	99.6	98.1
Large 2 Axle Vehicles	2	0	2	11	0	11	0	3	3	16
% Large 2 Axle Vehicles										
3 Axle Vehicles	2	11	13	6	0	6	0	1	1	20
% 3 Axle Vehicles	6.7	23.9	17.1	0.3	0	0.3	0	0.1	0.1	0.6
4+ Axle Trucks	14	3	17	3	3	6	0	0	0	23
% 4+ Axle Trucks	46.7	6.5	22.4	0.2	100	0.3	0	0	0	0.7

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	4	4	259	0	259	0	153	153	416
05:15 PM	1	1	2	<b>279</b>	0	<b>279</b>	0	138	138	419
05:30 PM	1	5	6	219	0	219	0	148	148	373
05:45 PM	<b>3</b>	<b>14</b>	<b>17</b>	226	0	226	0	<b>187</b>	<b>187</b>	<b>430</b>
Total Volume	5	24	29	983	0	983	0	626	626	1638
% App. Total	17.2	82.8		100	0		0	100		
PHF	.417	.429	.426	.881	.000	.881	.000	.837	.837	.952

City of Irvine  
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 E/W: Portola Parkway  
 Weather: Clear

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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM			04:45 PM			05:00 PM		
+0 mins.	7	<b>10</b>	<b>17</b>	266	0	266	0	153	153
+15 mins.	7	5	12	259	0	259	0	138	138
+30 mins.	<b>8</b>	3	11	<b>279</b>	0	<b>279</b>	0	148	148
+45 mins.	3	4	7	219	0	219	0	<b>187</b>	<b>187</b>
Total Volume	25	22	47	1023	0	1023	0	626	626
% App. Total	53.2	46.8		100	0		0	100	
PHF	.781	.550	.691	.917	.000	.917	.000	.837	.837

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOPM  
 Site Code : 00319375  
 Start Date : 5/21/2019  
 Page No : 1

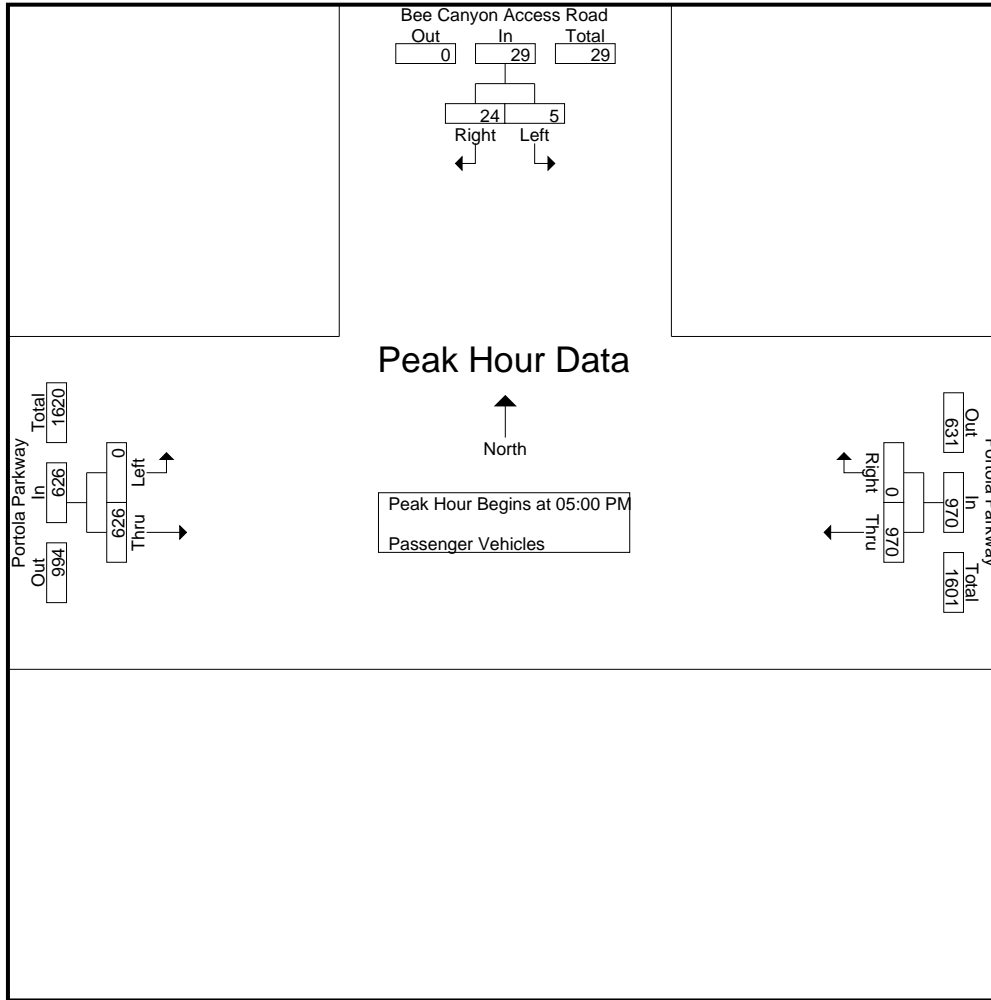
Groups Printed- Passenger Vehicles

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	2	0	2	217	0	217	0	104	104	323
04:15 PM	0	3	3	256	0	256	0	108	108	367
04:30 PM	4	3	7	201	0	201	0	113	113	321
04:45 PM	1	2	3	263	0	263	0	119	119	385
Total	7	8	15	937	0	937	0	444	444	1396
05:00 PM	0	4	4	258	0	258	0	153	153	415
05:15 PM	1	1	2	271	0	271	0	138	138	411
05:30 PM	1	5	6	215	0	215	0	148	148	369
05:45 PM	3	14	17	226	0	226	0	187	187	430
Total	5	24	29	970	0	970	0	626	626	1625
Grand Total	12	32	44	1907	0	1907	0	1070	1070	3021
Apprch %	27.3	72.7		100	0		0	100		
Total %	0.4	1.1	1.5	63.1	0	63.1	0	35.4	35.4	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	4	4	258	0	258	0	153	153	415
05:15 PM	1	1	2	271	0	271	0	138	138	411
05:30 PM	1	5	6	215	0	215	0	148	148	369
05:45 PM	3	14	17	226	0	226	0	187	187	430
Total Volume	5	24	29	970	0	970	0	626	626	1625
% App. Total	17.2	82.8		100	0		0	100		
PHF	.417	.429	.426	.895	.000	.895	.000	.837	.837	.945

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	4	4	258	0	258	0	153	153
+15 mins.	1	1	2	<b>271</b>	0	<b>271</b>	0	138	138
+30 mins.	1	5	6	215	0	215	0	148	148
+45 mins.	<b>3</b>	<b>14</b>	<b>17</b>	226	0	226	0	<b>187</b>	<b>187</b>
Total Volume	5	24	29	970	0	970	0	626	626
% App. Total	17.2	82.8		100	0		0	100	
PHF	.417	.429	.426	.895	.000	.895	.000	.837	.837



City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOPM  
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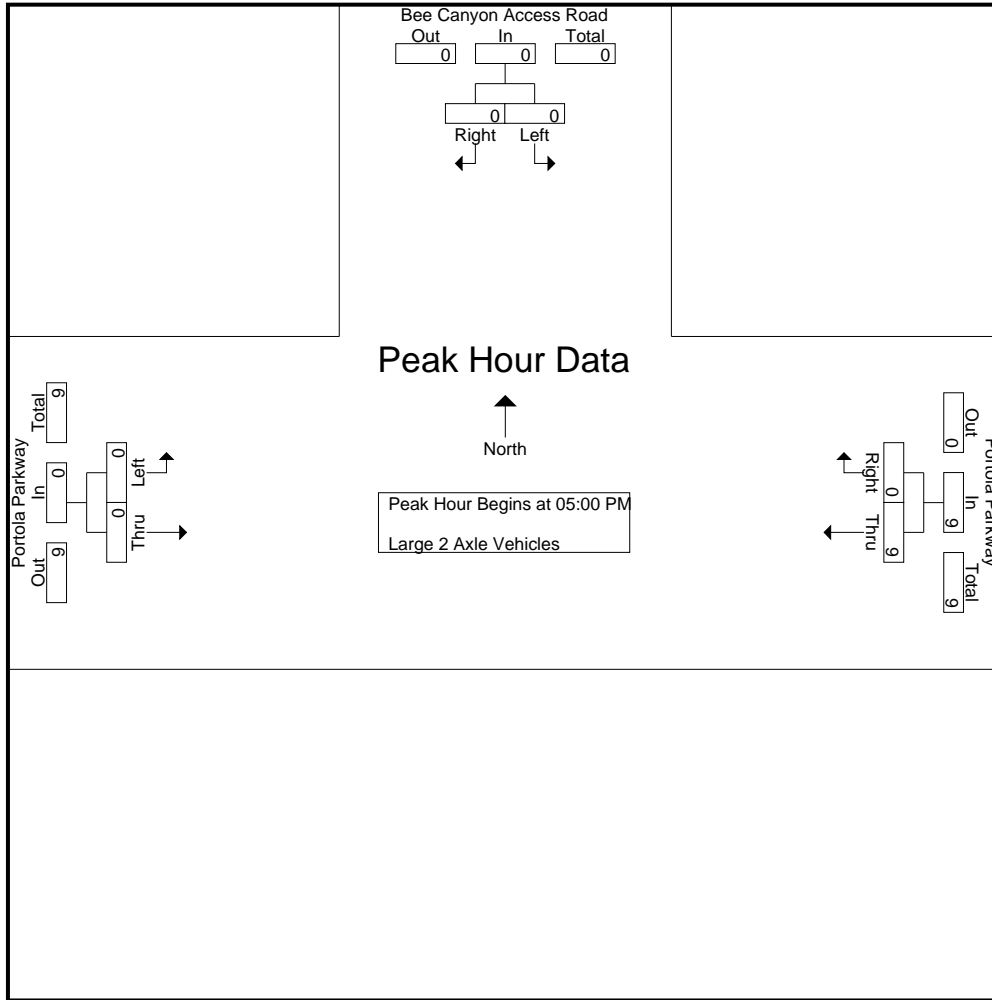
Groups Printed- Large 2 Axle Vehicles

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	1	0	1	1	0	1	0	1	1	3
04:15 PM	0	0	0	0	0	0	0	1	1	1
04:30 PM	1	0	1	0	0	0	0	0	0	1
04:45 PM	0	0	0	1	0	1	0	1	1	2
Total	2	0	2	2	0	2	0	3	3	7
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	7	0	7	0	0	0	7
05:30 PM	0	0	0	2	0	2	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	9	0	9	0	0	0	9
Grand Total	2	0	2	11	0	11	0	3	3	16
Apprch %	100	0		100	0		0	100		
Total %	12.5	0	12.5	68.8	0	68.8	0	18.8	18.8	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	7	0	7	0	0	0	7
05:30 PM	0	0	0	2	0	2	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	9	0	9	0	0	0	9
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.321	.000	.321	.000	.000	.000	.321

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	7	0	7	0	0	0
+30 mins.	0	0	0	2	0	2	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	9	0	9	0	0	0
% App. Total	0	0	0	100	0	100	0	0	0
PHF	.000	.000	.000	.321	.000	.321	.000	.000	.000

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOPM  
 Site Code : 00319375  
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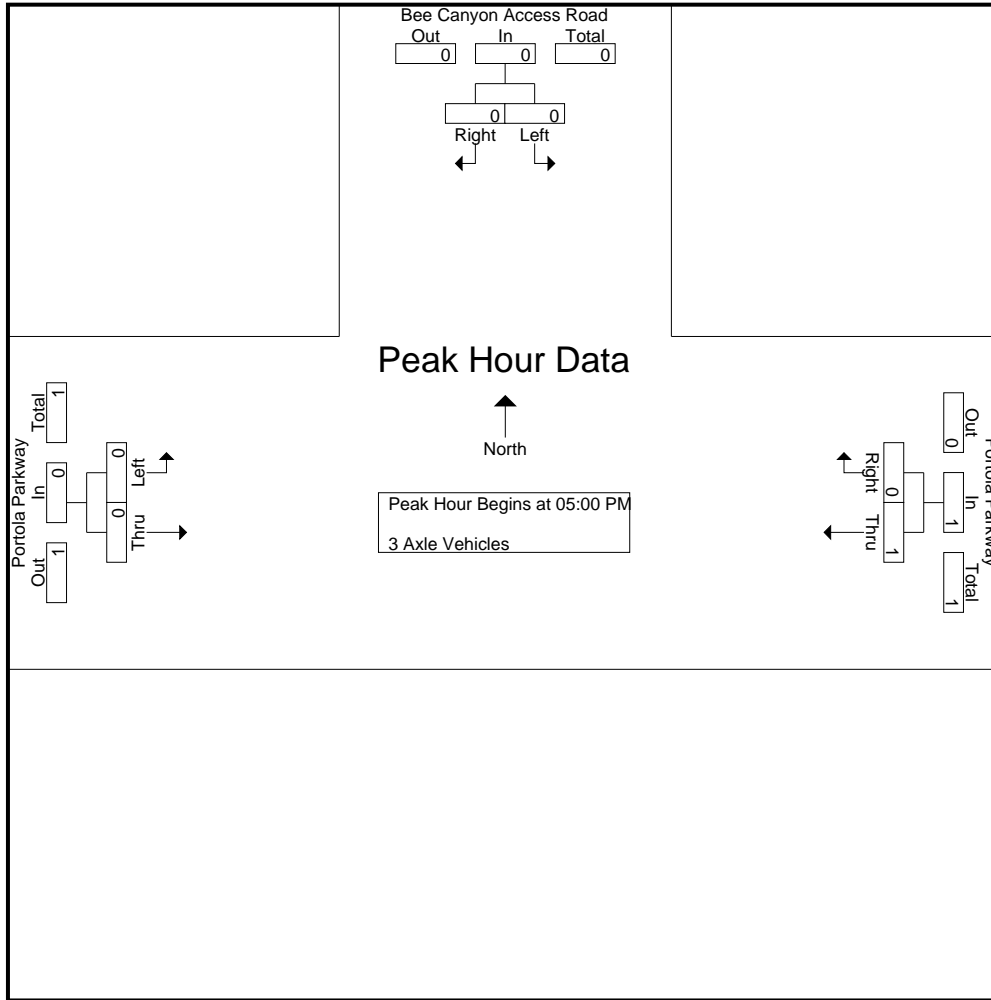
Groups Printed- 3 Axle Vehicles

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	1	8	9	1	0	1	0	0	0	10
04:15 PM	1	1	2	1	0	1	0	0	0	3
04:30 PM	0	0	0	1	0	1	0	1	1	2
04:45 PM	0	2	2	2	0	2	0	0	0	4
Total	2	11	13	5	0	5	0	1	1	19
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	1	0	1	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	0	0	0	1
Grand Total	2	11	13	6	0	6	0	1	1	20
Apprch %	15.4	84.6		100	0		0	100		
Total %	10	55	65	30	0	30	0	5	5	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	1	0	1	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOPM  
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Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	1	0	1	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0	0	100	0	100	0	0	0
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOP  
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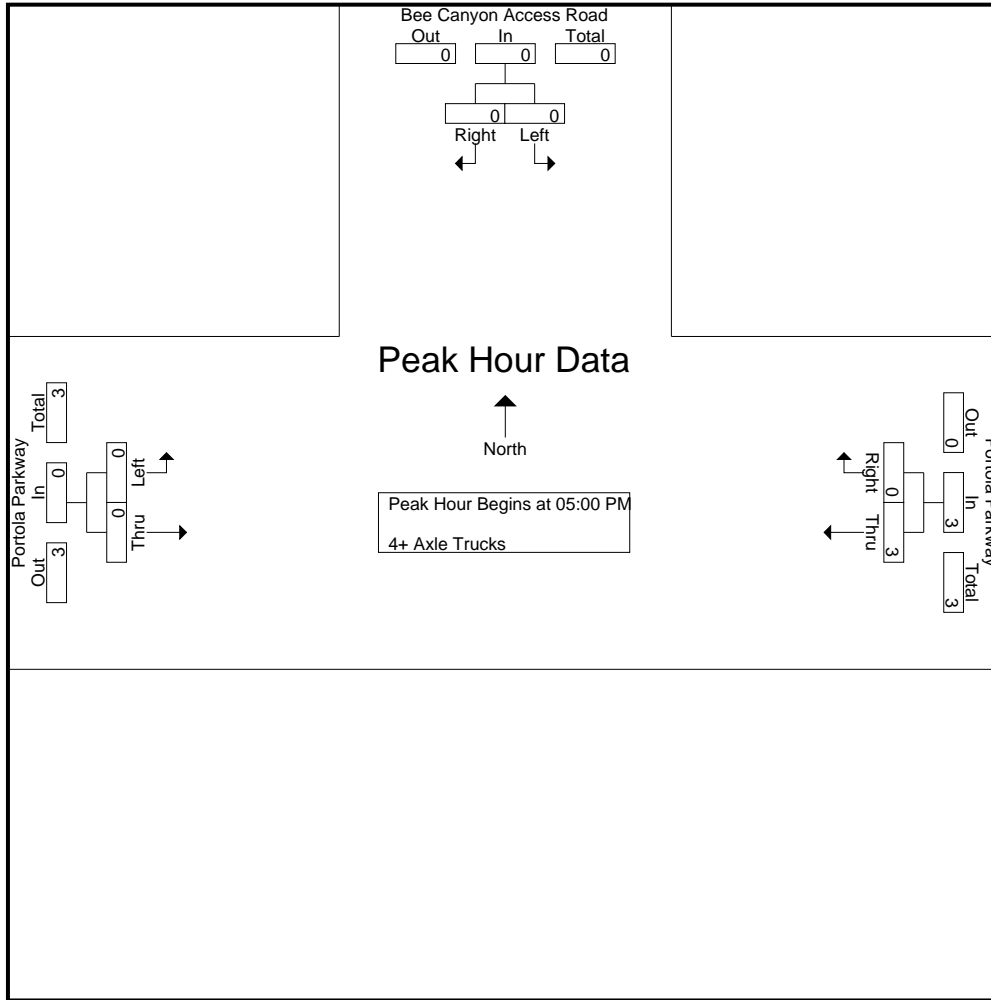
Groups Printed- 4+ Axle Trucks

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	3	2	5	0	2	2	0	0	0	7
04:15 PM	6	1	7	0	1	1	0	0	0	8
04:30 PM	3	0	3	0	0	0	0	0	0	3
04:45 PM	2	0	2	0	0	0	0	0	0	2
Total	14	3	17	0	3	3	0	0	0	20
05:00 PM	0	0	0	1	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	2	0	2	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	3	0	3	0	0	0	3
Grand Total	14	3	17	3	3	6	0	0	0	23
Apprch %	82.4	17.6		50	50		0	0		
Total %	60.9	13	73.9	13	13	26.1	0	0	0	

Start Time	Bee Canyon Access Road Southbound			Portola Parkway Westbound			Portola Parkway Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	1	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	2	0	2	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	3	0	3	0	0	0	3
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.375	.000	.375	.000	.000	.000	.375

City of Irvine  
 N/S: Bee Canyon Access Road  
 E/W: Portola Parkway  
 Weather: Clear

File Name : IRVBCPOPM  
 Site Code : 00319375  
 Start Date : 5/21/2019  
 Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	05:00 PM			05:00 PM			05:00 PM		
+0 mins.	0	0	0	1	0	1	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	2	0	2	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	3	0	3	0	0	0
% App. Total	0	0	0	100	0	375	0	0	0
PHF	.000	.000	.000	.375	.000	.375	.000	.000	.000

## **APPENDIX C**

### **ITAM TC TRAFFIC FORECASTS**

300 Sand Canyon Av. @ Portola Pkwy.

ISTA_NP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	232	0.07*		760	0.22*	
NT	0	0			0		
NR	2 3400	164	0.05		506	0.15	
SL	0	0			0		
ST	0	0		*	0		*
SR	0	0			0		
EL	0	0			0		
ET	2 3400	449	0.13*		620	0.18*	
ER	F	415			216		
WL	2 3400	465	0.14*		226	0.07*	
WT	2 3400	688	0.20		702	0.21	
WR	0	0			0		
Overlaps		Clearance .05					
Total ICU		0.39		0.52			

301 Sand Canyon Av. @ Irvine Bl.

ISTA_NP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	69	0.02*		352	0.10	
NT	3 5100	238	0.05		983	0.19*	
NR	2 3400	334	0.10		590	0.17	
SL	2 3400	393	0.12		190	0.06*	
ST	2 3400	798	0.23*		346	0.10	
SR	1 1700	83	0.05		108	0.06	
EL	2 3400	86	0.03		179	0.05*	
ET	4 6800	969	0.14*		850	0.13	
ER	1 1700	189	0.11		139	0.08	
WL	2 3400	569	0.17*		400	0.12	
WT	3 5100	843	0.17		1295	0.25*	
WR	1 1700	378	0.22		460	0.27	
Overlaps		Clearance .05					
Total ICU		0.61		0.60			

302 Sand Canyon Av. @ Trabuco Pkwy.

ISTA_NP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	47	0.01*		481	0.14	
NT	3 5100	422	0.08		2190	0.43*	
NR	F	381			656		
SL	2 3400	198	0.06		86	0.03*	
ST	3 5100	1435	0.28*		582	0.11	
SR	1 1700	326	0.19		207	0.12	
EL	2 3400	184	0.05		165	0.05	
ET	3 5100	684	0.13*		563	0.11*	
ER	F	39			78		
WL	2 3400	600	0.18*		517	0.15*	
WT	3 5100	795	0.16		621	0.12	
WR	D 1700	34	0.02		124	0.07	
Overlaps		Clearance .05					
Total ICU		0.65		0.77			

303 Sand Canyon Av. @ I-5 NB Ramps-Marin

ISTA_NP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	253	0.07*		468	0.14	
NT	3 5100	489	0.10		1928	0.38*	
NR	D 1700	24	0.01		56	0.03	
SL	1 1700	24	0.01		18	0.01*	
ST	3 5100	1987	0.39*		803	0.16	
SR	1 1700	546	0.32		197	0.12	
EL	1.5 3400	350	0.10*		992	0.29*	
ET	.5	0			0		
ER	2 3400	635	0.19		175	0.05	
WL	1 1700	18	0.01*		8		*
WT	1 1700	0	0.01		0		
WR	0	10			0		
Adjustment		EBR .04					
Overlaps		Clearance .05					
Note: Assumes E/W Split Phase							
Total ICU		0.66		0.73			

304 Sand Canyon Av. @ Old Marine Wy.

ISTA_NP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	0	0		*	0		
NT	3 5100	528	0.10		2269	0.44*	
NR	1 1700	473	0.28		533	0.31	
SL	2 3400	209	0.06		98	0.03*	
ST	3 5100	2315	0.45*		877	0.17	
SR	0	0			0		
EL	0	0			0		
ET	0	0		*	0		*
ER	0	0			0		
WL	2 3400	792	0.23*		396	0.12*	
WT	0	0			0		
WR	1 1700	210	0.12		137	0.08	
Overlaps		Clearance .05					
Total ICU		0.73		0.64			

305 Sand Canyon Av. @ I-5 SB Ramps

ISTA_NP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	0	0		*	0		
NT	4 6800	638	0.09		2123	0.31*	
NR	1 1700	105	0.06		404	0.24	
SL	2 3400	817	0.24		426	0.13*	
ST	4 6800	2327	0.34*		795	0.12	
SR	0	0			0		
EL	2.5 3400	337	0.10*		660	0.14*	
ET	0	3			1	0.14	
ER	1.5 3400	806	0.24		292	0.14	
WL	0	0			0		
WT	0	0		*	0		*
WR	0	0			0		
Adjustment		EBR .14					
Overlaps		Clearance .05					
Total ICU		0.63		0.63			



502 Spare Intersection @

ISTA_NP				AM PK Hour	PM PK Hour		
	Ln	Cap	Vol	V/C	Vol	V/C	
NL	0		0		0		
NT	0		0	*	0		*
NR	0		0		0		
SL	1.5	2550	86	0.03*	5		*
ST	0		0		0		
SR	.5	850	2	0.03	24	0.01	
EL	1	1700	10	0.01*	0		*
ET	2	3400	858	0.25	740	0.22	
ER	0		0		0		
WL	0		0		0		
WT	2	3400	1105	0.33*	1138	0.33*	
WR	D	1700	43	0.03	0		
Adjustment					SBR	.01	
Overlaps					Clearance	.05	
	Total	ICU		0.42		0.39	

300 Sand Canyon Av. @ Portola Pkwy.

ISTP_NP			IRVINE			
	Ln	Cap	AM PK Hour Vol	V/C	PM PK Hour Vol	V/C
NL	2	3400	232	0.07*	760	0.22*
NT	0		0		0	
NR	2	3400	161	0.05	496	0.15
SL	0		0		0	
ST	0		0	*	0	*
SR	0		0		0	
EL	0		0		0	
ET	2	3400	452	0.13*	628	0.18*
ER	F		412		218	
WL	2	3400	456	0.13*	222	0.07*
WT	2	3400	696	0.20	710	0.21
WR	0		0		0	
Overlaps			Clearance .05			
Total ICU			0.38		0.52	

301 Sand Canyon Av. @ Irvine Bl.

ISTP_NP			IRVINE			
	Ln	Cap	AM PK Hour Vol	V/C	PM PK Hour Vol	V/C
NL	2	3400	69	0.02*	351	0.10
NT	3	5100	238	0.05	979	0.19*
NR	2	3400	333	0.10	589	0.17
SL	2	3400	395	0.12	192	0.06*
ST	2	3400	791	0.23*	343	0.10
SR	1	1700	83	0.05	109	0.06
EL	2	3400	87	0.03	181	0.05*
ET	4	6800	969	0.14*	861	0.13
ER	1	1700	187	0.11	138	0.08
WL	2	3400	565	0.17*	397	0.12
WT	3	5100	851	0.17	1307	0.26*
WR	1	1700	382	0.22	464	0.27
Overlaps			Clearance .05			
Total ICU			0.61		0.61	

302 Sand Canyon Av. @ Trabuco Pkwy.

ISTP_NP			IRVINE			
	Ln	Cap	AM PK Hour Vol	V/C	PM PK Hour Vol	V/C
NL	2	3400	48	0.01*	483	0.14
NT	3	5100	415	0.08	2183	0.43*
NR	F		375		651	
SL	2	3400	193	0.06	84	0.02*
ST	3	5100	1422	0.28*	575	0.11
SR	1	1700	328	0.19	205	0.12
EL	2	3400	185	0.05	163	0.05
ET	3	5100	690	0.14*	554	0.11*
ER	F		41		77	
WL	2	3400	595	0.18*	512	0.15*
WT	3	5100	799	0.16	618	0.12
WR	D	1700	33	0.02	122	0.07
Overlaps			Clearance .05			
Total ICU			0.66		0.76	

303 Sand Canyon Av. @ I-5 NB Ramps-Marin

ISTP_NP			IRVINE			
	Ln	Cap	AM PK Hour Vol	V/C	PM PK Hour Vol	V/C
NL	2	3400	248	0.07*	470	0.14
NT	3	5100	481	0.09	1924	0.38*
NR	D	1700	24	0.01	56	0.03
SL	1	1700	24	0.01	18	0.01*
ST	3	5100	1981	0.39*	797	0.16
SR	1	1700	548	0.32	198	0.12
EL	1.5	3400	352	0.10*	991	0.29*
ET	.5		0		0	
ER	2	3400	632	0.19	173	0.05
WL	1	1700	17	0.01*	8	*
WT	1	1700	0	0.01	0	
WR	0		10		0	
Adjustment			EBR .04			
Overlaps			Clearance .05			
Note: Assumes E/W Split Phase						
Total ICU			0.66		0.73	

304 Sand Canyon Av. @ Old Marine Wy.

ISTP_NP			IRVINE			
	Ln	Cap	AM PK Hour Vol	V/C	PM PK Hour Vol	V/C
NL	0		0	*	0	
NT	3	5100	519	0.10	2269	0.44*
NR	1	1700	464	0.27	530	0.31
SL	2	3400	205	0.06	97	0.03*
ST	3	5100	2309	0.45*	871	0.17
SR	0		0		0	
EL	0		0		0	
ET	0		0	*	0	*
ER	0		0		0	
WL	2	3400	791	0.23*	384	0.11*
WT	0		0		0	
WR	1	1700	206	0.12	133	0.08
Overlaps			Clearance .05			
Total ICU			0.73		0.63	

305 Sand Canyon Av. @ I-5 SB Ramps

ISTP_NP			IRVINE			
	Ln	Cap	AM PK Hour Vol	V/C	PM PK Hour Vol	V/C
NL	0		0	*	0	
NT	4	6800	623	0.09	2114	0.31*
NR	1	1700	104	0.06	404	0.24
SL	2	3400	818	0.24	424	0.12*
ST	4	6800	2317	0.34*	780	0.11
SR	0		0		0	
EL	2.5	3400	336	0.10*	666	0.14*
ET	0		3		1	0.14
ER	1.5	3400	810	0.24	292	0.14
WL	0		0		0	
WT	0		0	*	0	*
WR	0		0		0	
Adjustment			EBR .14			
Overlaps			Clearance .05			
Total ICU			0.63		0.62	

502 Spare Intersection @							
ISTP_NP							
	Ln	Cap	AM PK	Hour	PM PK	Hour	
			Vol	V/C	Vol	V/C	
NL	0		0		0		
NT	0		0	*	0		*
NR	0		0		0		
SL	1.5	2550	87	0.03*	5		*
ST	0		0		0		
SR	.5	850	2	0.03	24	0.01	
EL	1	1700	10	0.01*	0		*
ET	2	3400	874	0.26	754	0.22	
ER	0		0		0		
WL	0		0		0		
WT	2	3400	1120	0.33*	1158	0.34*	
WR	D	1700	43	0.03	0		
Adjustment					SBR		.01
Overlaps					Clearance		.05
Total	ICU		0.42		0.40		

300 Sand Canyon Av. @ Portola Pkwy.

ISTA_WP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	242	0.07*		770	0.23*	
NT	0	0			0		
NR	2 3400	164	0.05		506	0.15	
SL	0	0			0		
ST	0	0		*	0		*
SR	0	0			0		
EL	0	0			0		
ET	2 3400	449	0.13*		620	0.18*	
ER	F	425			231		
WL	2 3400	465	0.14*		226	0.07*	
WT	2 3400	688	0.20		702	0.21	
WR	0	0			0		
Overlaps		Clearance .05					
Total ICU		0.39		0.53			

301 Sand Canyon Av. @ Irvine Bl.

ISTA_WP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	69	0.02*		352	0.10	
NT	3 5100	248	0.05		993	0.19*	
NR	2 3400	334	0.10		590	0.17	
SL	2 3400	393	0.12		190	0.06*	
ST	2 3400	808	0.24*		361	0.11	
SR	1 1700	83	0.05		108	0.06	
EL	2 3400	86	0.03		179	0.05*	
ET	4 6800	969	0.14*		850	0.13	
ER	1 1700	189	0.11		139	0.08	
WL	2 3400	569	0.17*		400	0.12	
WT	3 5100	843	0.17		1295	0.25*	
WR	1 1700	378	0.22		460	0.27	
Overlaps		Clearance .05					
Total ICU		0.62		0.60			

302 Sand Canyon Av. @ Trabuco Pkwy.

ISTA_WP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	47	0.01*		481	0.14	
NT	3 5100	432	0.08		2200	0.43*	
NR	F	381			656		
SL	2 3400	198	0.06		86	0.03*	
ST	3 5100	1445	0.28*		597	0.12	
SR	1 1700	326	0.19		207	0.12	
EL	2 3400	184	0.05		165	0.05	
ET	3 5100	684	0.13*		563	0.11*	
ER	F	39			78		
WL	2 3400	600	0.18*		517	0.15*	
WT	3 5100	795	0.16		621	0.12	
WR	D 1700	34	0.02		124	0.07	
Overlaps		Clearance .05					
Total ICU		0.65		0.77			

303 Sand Canyon Av. @ I-5 NB Ramps-Marin

ISTA_WP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	2 3400	253	0.07*		468	0.14	
NT	3 5100	494	0.10		1933	0.38*	
NR	D 1700	24	0.01		56	0.03	
SL	1 1700	24	0.01		18	0.01*	
ST	3 5100	1992	0.39*		810	0.16	
SR	1 1700	551	0.32		205	0.12	
EL	1.5 3400	355	0.10*		997	0.29*	
ET	.5	0			0		
ER	2 3400	635	0.19		175	0.05	
WL	1 1700	18	0.01*		8		*
WT	1 1700	0	0.01		0		
WR	0	10			0		
Adjustment		EBR .04					
Overlaps		Clearance .05					
Note: Assumes E/W Split Phase							
Total ICU		0.66		0.73			

304 Sand Canyon Av. @ Old Marine Wy.

ISTA_WP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	0	0		*	0		
NT	3 5100	533	0.10		2274	0.45*	
NR	1 1700	473	0.28		533	0.31	
SL	2 3400	209	0.06		98	0.03*	
ST	3 5100	2320	0.45*		884	0.17	
SR	0	0			0		
EL	0	0			0		
ET	0	0		*	0		*
ER	0	0			0		
WL	2 3400	792	0.23*		396	0.12*	
WT	0	0			0		
WR	1 1700	210	0.12		137	0.08	
Overlaps		Clearance .05					
Total ICU		0.73		0.65			

305 Sand Canyon Av. @ I-5 SB Ramps

ISTA_WP		IRVINE					
Ln	Cap	AM Vol	PK Hour	V/C	PM Vol	PK Hour	V/C
NL	0	0		*	0		
NT	4 6800	638	0.09		2123	0.31*	
NR	1 1700	105	0.06		404	0.24	
SL	2 3400	822	0.24		433	0.13*	
ST	4 6800	2327	0.34*		795	0.12	
SR	0	0			0		
EL	2.5 3400	342	0.10*		665	0.14*	
ET	0	3			1	0.14	
ER	1.5 3400	806	0.24		292	0.14	
WL	0	0			0		
WT	0	0		*	0		*
WR	0	0			0		
Adjustment		EBR .14					
Overlaps		Clearance .05					
Total ICU		0.63		0.63			

502 Spare Intersection @

ISTA\_WP

	Ln	Cap	AM PK Vol	Hour V/C	PM PK Vol	Hour V/C
NL	0		0		0	
NT	0		0	*	0	*
NR	0		0		0	
SL	1.5	2550	96	0.03*	20	0.01*
ST	0		0		0	
SR	.5	850	2	0.03	24	0.01
EL	1	1700	10	0.01*	0	*
ET	2	3400	858	0.25	740	0.22
ER	0		0		0	
WL	0		0		0	
WT	2	3400	1105	0.33*	1138	0.33*
WR	D	1700	53	0.03	10	0.01

Overlaps Clearance .05

Total ICU 0.42 0.39

300 Sand Canyon Av. @ Portola Pkwy.

ISTP_WP			AM PK Hour		IRVINE	
	Ln	Cap	Vol	V/C	Vol	V/C
NL	2	3400	242	0.07*	770	0.23*
NT	0		0		0	
NR	2	3400	161	0.05	496	0.15
SL	0		0		0	
ST	0		0	*	0	*
SR	0		0		0	
EL	0		0		0	
ET	2	3400	452	0.13*	628	0.18*
ER	F		422		233	
WL	2	3400	456	0.13*	222	0.07*
WT	2	3400	696	0.20	710	0.21
WR	0		0		0	
Overlaps			Clearance .05			
Total ICU			0.38		0.53	

301 Sand Canyon Av. @ Irvine Bl.

ISTP_WP			AM PK Hour		IRVINE	
	Ln	Cap	Vol	V/C	Vol	V/C
NL	2	3400	69	0.02*	351	0.10
NT	3	5100	248	0.05	989	0.19*
NR	2	3400	333	0.10	589	0.17
SL	2	3400	395	0.12	192	0.06*
ST	2	3400	801	0.24*	358	0.11
SR	1	1700	83	0.05	109	0.06
EL	2	3400	87	0.03	181	0.05*
ET	4	6800	969	0.14*	861	0.13
ER	1	1700	187	0.11	138	0.08
WL	2	3400	565	0.17*	397	0.12
WT	3	5100	851	0.17	1307	0.26*
WR	1	1700	382	0.22	464	0.27
Overlaps			Clearance .05			
Total ICU			0.62		0.61	

302 Sand Canyon Av. @ Trabuco Pkwy.

ISTP_WP			AM PK Hour		IRVINE	
	Ln	Cap	Vol	V/C	Vol	V/C
NL	2	3400	48	0.01*	483	0.14
NT	3	5100	425	0.08	2193	0.43*
NR	F		375		651	
SL	2	3400	193	0.06	84	0.02*
ST	3	5100	1432	0.28*	590	0.12
SR	1	1700	328	0.19	205	0.12
EL	2	3400	185	0.05	163	0.05
ET	3	5100	690	0.14*	554	0.11*
ER	F		41		77	
WL	2	3400	595	0.18*	512	0.15*
WT	3	5100	799	0.16	618	0.12
WR	D	1700	33	0.02	122	0.07
Overlaps			Clearance .05			
Total ICU			0.66		0.76	

303 Sand Canyon Av. @ I-5 NB Ramps-Marin

ISTP_WP			AM PK Hour		IRVINE	
	Ln	Cap	Vol	V/C	Vol	V/C
NL	2	3400	248	0.07*	470	0.14
NT	3	5100	486	0.10	1929	0.38*
NR	D	1700	24	0.01	56	0.03
SL	1	1700	24	0.01	18	0.01*
ST	3	5100	1986	0.39*	804	0.16
SR	1	1700	553	0.33	206	0.12
EL	1.5	3400	357	0.11*	996	0.29*
ET	.5		0		0	
ER	2	3400	632	0.19	173	0.05
WL	1	1700	17	0.01*	8	*
WT	1	1700	0	0.01	0	
WR	0		10		0	
Adjustment			EBR .04			
Overlaps			Clearance .05			
Note: Assumes E/W Split Phase						
Total ICU			0.67		0.73	

304 Sand Canyon Av. @ Old Marine Wy.

ISTP_WP			AM PK Hour		IRVINE	
	Ln	Cap	Vol	V/C	Vol	V/C
NL	0		0	*	0	
NT	3	5100	524	0.10	2274	0.45*
NR	1	1700	464	0.27	530	0.31
SL	2	3400	205	0.06	97	0.03*
ST	3	5100	2314	0.45*	878	0.17
SR	0		0		0	
EL	0		0		0	
ET	0		0	*	0	*
ER	0		0		0	
WL	2	3400	791	0.23*	384	0.11*
WT	0		0		0	
WR	1	1700	206	0.12	133	0.08
Overlaps			Clearance .05			
Total ICU			0.73		0.64	

305 Sand Canyon Av. @ I-5 SB Ramps

ISTP_WP			AM PK Hour		IRVINE	
	Ln	Cap	Vol	V/C	Vol	V/C
NL	0		0	*	0	
NT	4	6800	623	0.09	2114	0.31*
NR	1	1700	104	0.06	404	0.24
SL	2	3400	823	0.24	431	0.13*
ST	4	6800	2317	0.34*	780	0.11
SR	0		0		0	
EL	2.5	3400	341	0.10*	671	0.14*
ET	0		3		1	0.14
ER	1.5	3400	810	0.24	292	0.14
WL	0		0		0	
WT	0		0	*	0	*
WR	0		0		0	
Adjustment			EBR .14			
Overlaps			Clearance .05			
Total ICU			0.63		0.63	

502 Spare Intersection @

ISTP\_WP

	Ln	Cap	AM PK Vol	Hour V/C	PM PK Vol	Hour V/C
NL	0		0		0	
NT	0		0	*	0	*
NR	0		0		0	
SL	1.5	2550	97	0.03*	20	0.01*
ST	0		0		0	
SR	.5	850	2	0.03	24	0.01
EL	1	1700	10	0.01*	0	*
ET	2	3400	874	0.26	754	0.22
ER	0		0		0	
WL	0		0		0	
WT	2	3400	1120	0.33*	1158	0.34*
WR	D	1700	53	0.03	10	0.01
Overlaps			Clearance .05			
Total ICU			0.42		0.40	

## **APPENDIX D**

### **J.E. LEISCH NOMOGRAPH EXHIBITS**



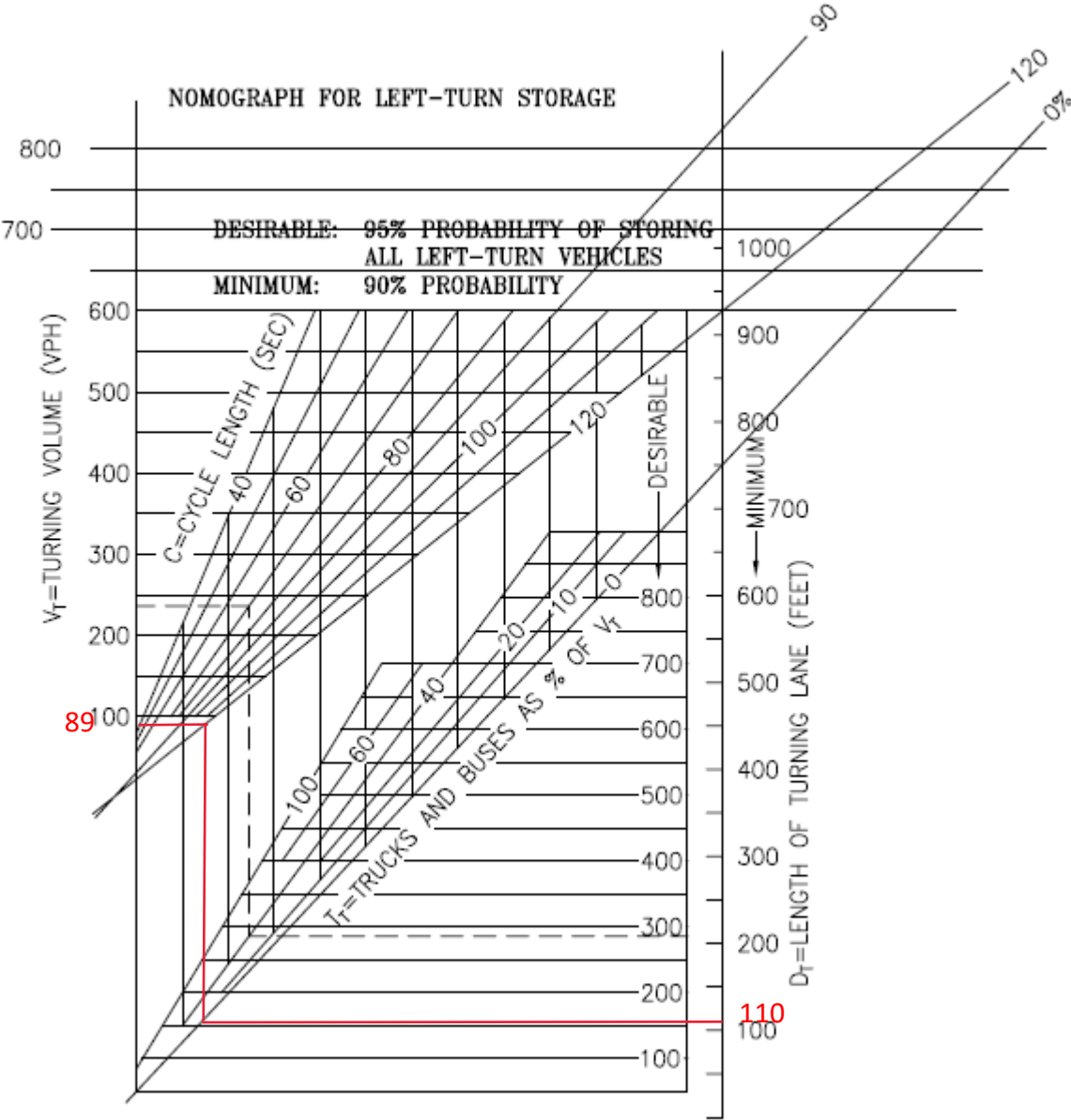


Figure 1.1 – J.E. Leish Nomograph

Bee Canyon Access Road/Portola Parkway (Southbound)  
 Short-Term Interim Year Pending Plus Project - AM Peak Hour

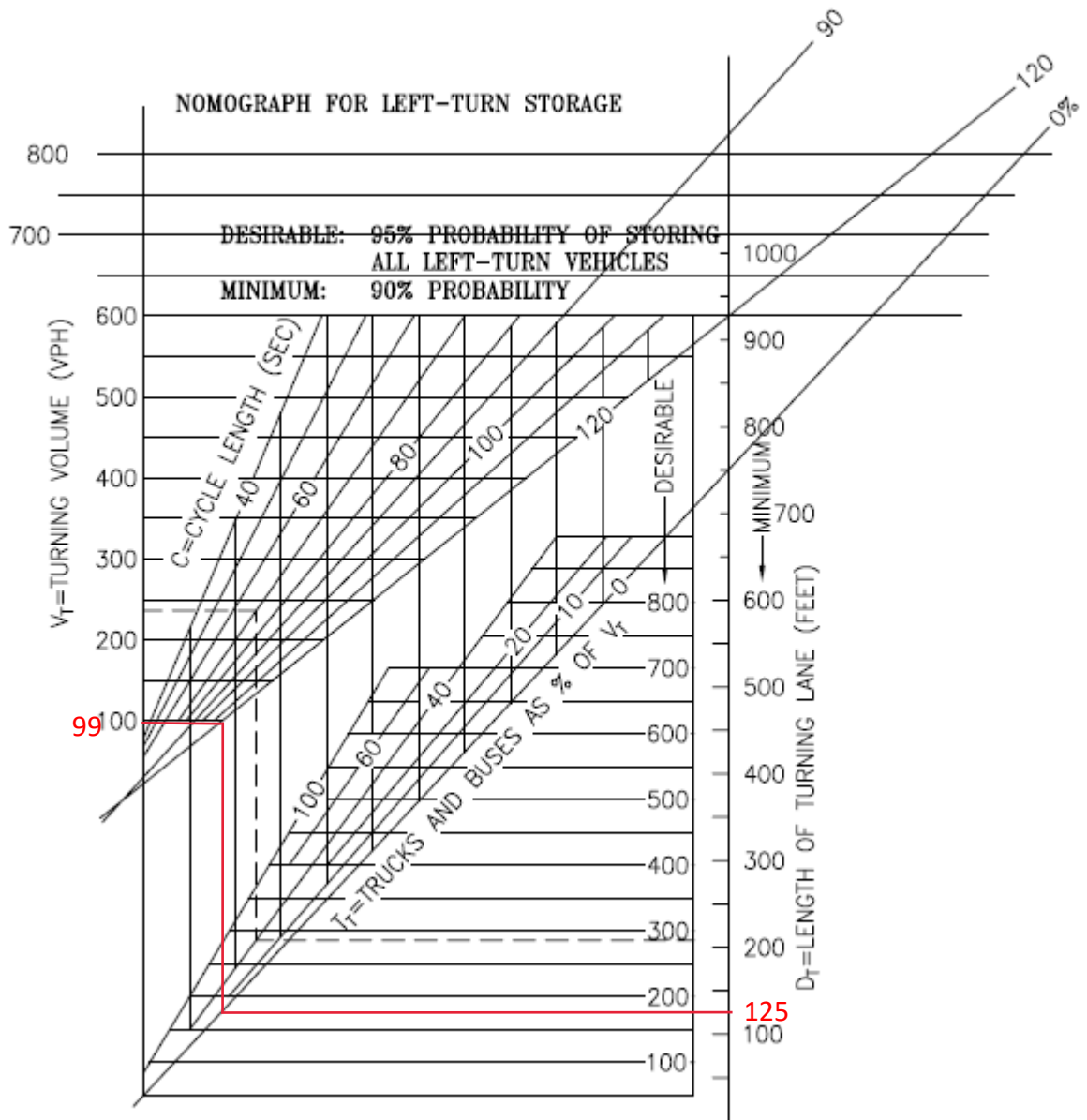


Figure 1.1 – J.E. Leish Nomograph

Sand Canyon Avenue/Portola Parkway (Northbound)  
 Short-Term Interim Year Pending Baseline - PM Peak Hour

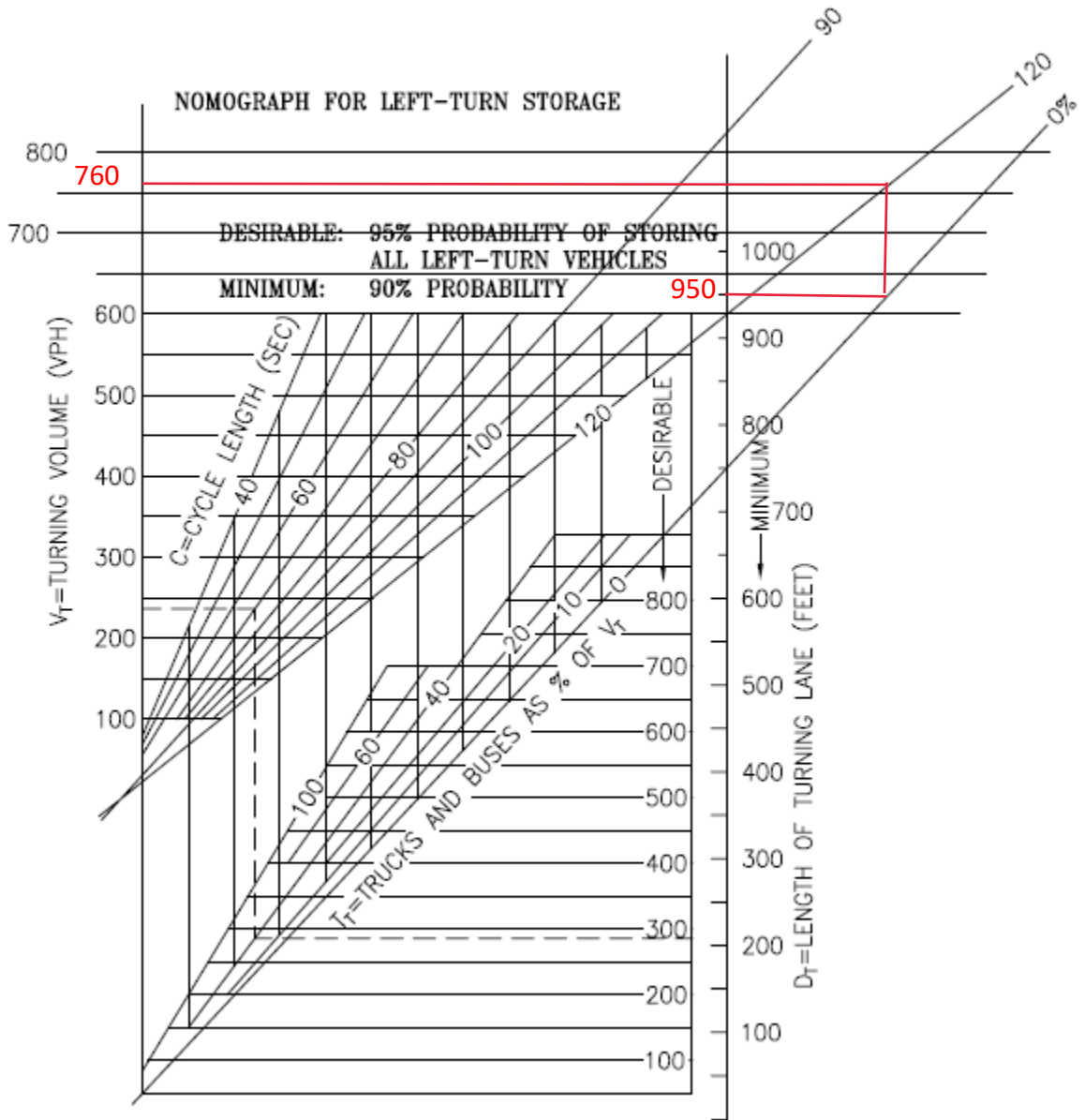


Figure 1.1 – J.E. Leish Nomograph

Sand Canyon Avenue/Portola Parkway (Northbound)  
 Short-Term Interim Year Pending Plus Project - PM Peak Hour

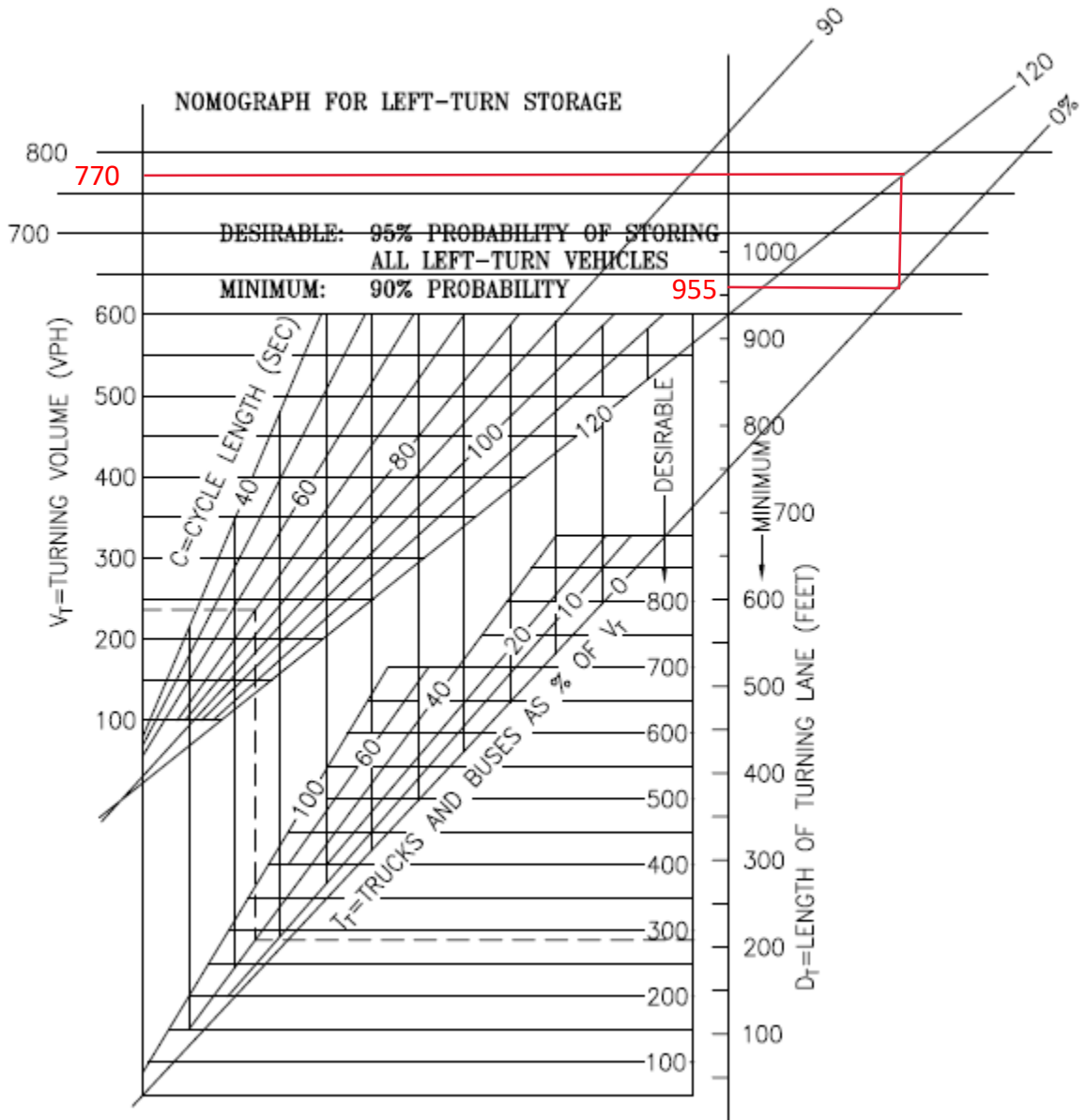


Figure 1.1 – J.E. Leish Nomograph