



5.5 Traffic/Circulation



5.5 TRAFFIC/CIRCULATION

This section is based upon the *Portola Center Project Traffic Impact Study* (Traffic Impact Study), dated January 2013, prepared by Wilson & Company, which is included as [Appendix 11.5, *Traffic Study*](#). The purpose of the Traffic Impact Study is to evaluate development of the proposed project from a traffic and circulation standpoint. Mitigation measures are recommended, if necessary, to avoid or reduce project impacts on traffic and circulation.

The Traffic Impact Study analyzes existing and future a.m. peak hour and p.m. peak hour traffic conditions for the following scenarios:

- Existing conditions;
- Existing with project conditions;
- Near Term Year 2015 without project conditions;
- Near Term Year 2015 with project conditions;
- Buildout Year 2030 without project conditions; and
- Buildout Year 2030 with project conditions.

5.5.1 EXISTING SETTING

STUDY AREA

Study Intersections

The study intersections are listed in [Table 5.5-1, *Study Intersections*](#), along with the local jurisdictions in which the intersections are located and the traffic control at each intersection. The locations of the study intersections are illustrated on [Exhibit 5.5-1, *Location of Study Intersections*](#). Of the 16 identified intersections, 12 are located within the City of Lake Forest and four are located within the City of Mission Viejo. These intersections provide local access to the project area.

Local Roadways

Several regionally and locally significant roadways traverse the study area and its vicinity, as described below:

Saddleback Ranch Road. Saddleback Ranch Road between Glenn Ranch Road and Millwood Road is a four-lane roadway with a center left turn lane. It has a posted speed limit of 50 miles per hour (mph). North of Malabar Road, Saddleback Ranch Road is a two-lane roadway with a continuous left turn lane with a posted speed limit of 40 mph.

El Toro Road. El Toro Road between Glenn Ranch Road and Painted Trails Parkway is a four-lane roadway with a striped median and a posted speed limit of 50 mph. El Toro Road between Painted Trails Parkway and Marguerite Parkway is a five-lane roadway (two westbound lanes/three eastbound lanes), with a raised median and a posted speed limit of 55 mph. North of Glenn Ranch Road, El Toro Road is a two-lane undivided roadway with bike lane facilities.



**Table 5.5-1
Study Intersections**

Intersection		Jurisdiction	Traffic Control
1	Saddleback Ranch Road/Project Driveway 3/Glenn Ranch Road	Lake Forest	Signal ¹
2	El Toro Road/Glenn Ranch Road	Lake Forest	Signal
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal
4	Marguerite Pkwy/El Toro Road	Mission Viejo	Signal
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal
10	Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC
11	Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC
14	Portola Pkwy/SR-241 Ramps	Lake Forest	Signal
15	Saddleback Ranch Road/Project Driveway 1	Lake Forest	OWSC ²
16	Project Driveway 2/Glenn Ranch Road	Lake Forest	Signal ²

Signal = Traffic Signal; OWSC = One-Way Stop Control or T-intersection
Notes:
1. The south leg of this intersection does not currently exist and is proposed as part of the project.
2. Intersection is proposed as part of the project.
Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

Marguerite Parkway. Marguerite Parkway between El Toro Road and Santa Margarita Parkway is a four-lane roadway with a striped median and bike-lane facilities. It has a posted speed limit of 45 mph.

Portola Parkway. Portola Parkway between Lake Forest Drive and El Toro Road is a six-lane roadway with a raised median and bike-lane facilities. It has a posted speed limit of 45 mph.

Glenn Ranch Road. Glenn Ranch Road between Portola Parkway and El Toro Road is a four-lane roadway with a striped median. It has a posted speed limit of 50 mph.

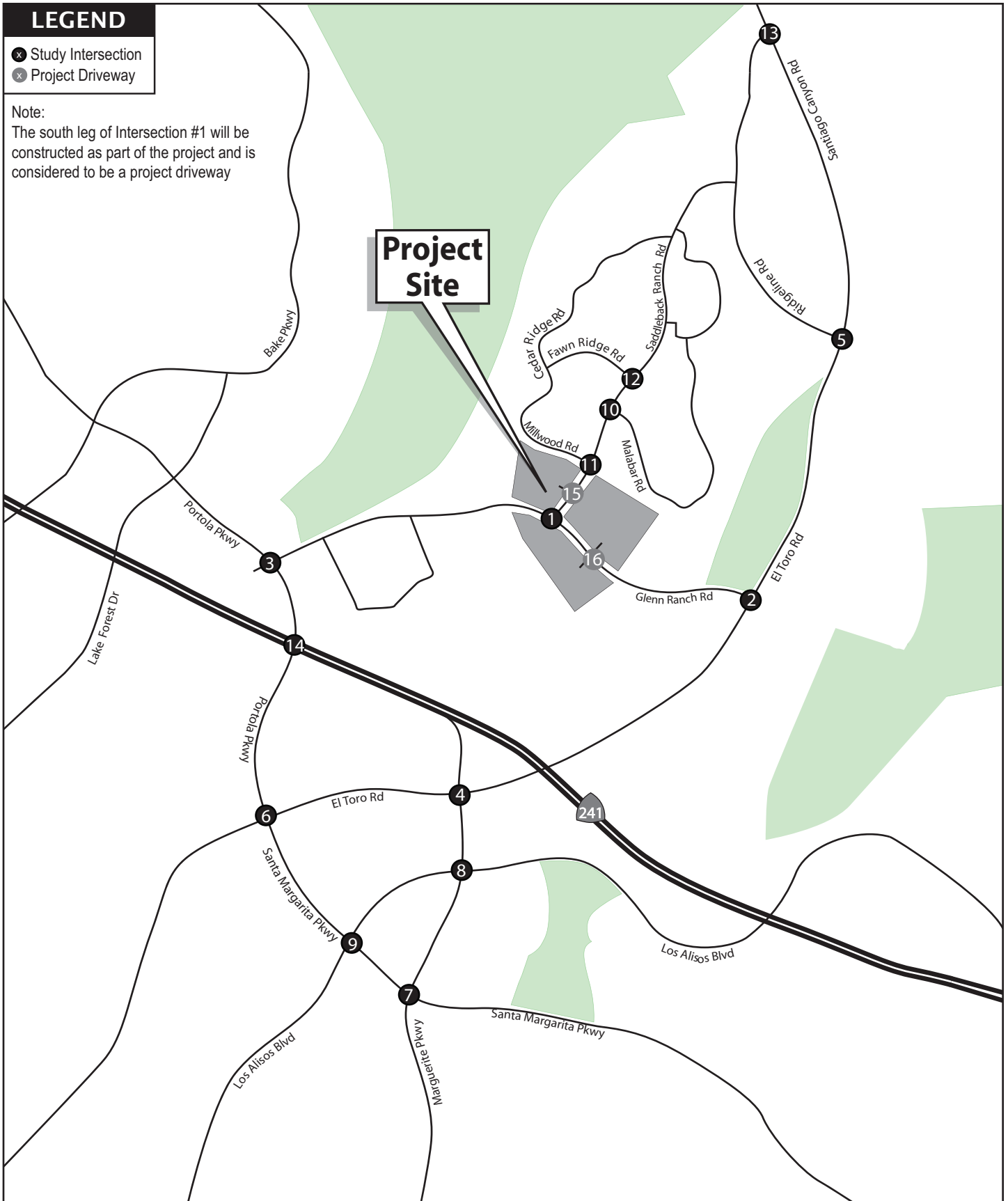
Santa Margarita Parkway. Santa Margarita Parkway between El Toro Road and Marguerite Parkway is a six-lane roadway with a raised median and bike-lane facilities. It has a posted speed limit of 45 mph.

Los Alisos Boulevard. Los Alisos Boulevard between Cordova Road and Marguerite Parkway is a four-lane roadway with a raised median and bike-lane facilities. It has a posted speed limit of 50 mph.

LEGEND

-  Study Intersection
-  Project Driveway

Note:
The south leg of Intersection #1 will be constructed as part of the project and is considered to be a project driveway



Source: Wilson & Company, Inc., Engineers & Architects; December 2012.



ANALYSIS METHODOLOGY

The Traffic Impact Study is based upon the potential impacts associated with the proposed project. The traffic analysis evaluates existing operating conditions at key study intersections within the project vicinity, estimates the trip generation potential of the proposed project, and forecasts future operating conditions with and without the proposed project. For a detailed discussion of the analytical methodology, refer to [Appendix 11.5](#). The Traffic Impact Study was conducted in accordance with the standards identified in the Circulation Element of the *City of Lake Forest General Plan* (General Plan), and with the *2011 Orange County Congestion Management Program (CMP) Traffic Impact Analysis Guidelines*.

Existing Conditions

Existing Average Daily Traffic (ADT), a.m. peak hour, and p.m. peak hour traffic volumes were obtained on June 9, 2010 and September 15, 2010. Peak hour traffic count data at the Portola Parkway/State Route (SR)-241 Ramps intersections were obtained from the City of Lake Forest on October 14, 2010. All dates of the traffic counts include school traffic associated with the Portola Hills Elementary School in the Portola Hills neighborhood north of the project. Recent traffic counts were obtained in September 2012 along Saddleback Ranch Road at the intersections between Fawn Ridge Road and Glenn Ranch Road. These updated traffic volumes have been used for this analysis. Although these traffic volumes resulted in a slight increase in volumes compared to the counts obtained in 2010, the traffic volumes did not significantly increase over the last two years and therefore, the traffic volumes from 2010 would still be considered valid and are representative of existing conditions.

Near Term Year 2015 Traffic Growth

Year 2015 traffic forecasts for the near term year 2015 scenario were provided by Stantec using the Lake Forest Transportation Analysis Model (LFTAM), which is derived from the Orange County Transportation Analysis Model (OCTAM). OCTAM is the regional model maintained by the Orange County Transportation Authority (OCTA). These forecasts account for major development projects approved and pending near the project site along with any circulation system improvements related to the projects; refer to [Section 4.0, *Basis of Cumulative Analysis*](#), for further information regarding these projects.

Buildout Year 2030 Traffic Growth

Year 2030 traffic forecasts for the buildout year 2030 scenario were provided by Stantec. The traffic forecasts assume all vacant land is developed. Additionally, the forecasts are consistent with other recently approved and pending projects in the area, as described above.

INTERSECTION LEVEL OF SERVICE METHODOLOGY

Two methods were used to conduct the signalized intersection analysis, the Intersection Capacity Utilization (ICU) methodology, and the Highway Capacity Manual (HCM) 2000 methodology. The ICU methodology produces a volume to capacity ratio (V/C ratio) at each intersection, which



corresponds to its respective level of service (LOS). The HCM methodology produces a projected delay at each intersection, which corresponds to its respective LOS. The ICU methodology measures how an intersection is performing relative to its maximum capacity whereas the HCM methodology measures how an intersection is performing relative to a defined threshold for an acceptable amount of delay. The HCM methodology also produces a projected V/C ratio, and a corresponding LOS, which is considered a more reliable predictor of intersection performance for unsignalized intersections that experience a high volume of traffic. The ICU methodology is the principal methodology used by the City of Lake Forest and is used herein to determine project significant impacts. The HCM methodology is widely used by other jurisdictions in southern California as well as the state and the nation, and is used herein to confirm or validate the ICU results and to provide critical measures of effectiveness such as queuing and delay. Results of the ICU methodology at unsignalized intersections have also been verified through field observations.

Intersection Capacity Utilization (ICU) Method of Analysis

The ICU methodology presents an assessment of intersection operation as a ratio of the critical volume to capacity ranging from free flow (near 0.00) to capacity (near 1.00). This methodology calculates the ICU as the sum of the V/C ratios for all critical movements of an intersection, and is generally considered to be compatible with the intersection capacity analysis in the HCM 2000 methodology. The range of ICU values with the corresponding LOS (A through F) is shown in Table 5.5-2, *Level of Service Criteria for Signalized Intersections (ICU Methodology)*.

**Table 5.5-2
Level of Service Criteria for Signalized Intersections (ICU Methodology)**

Level of Service (LOS)	Intersection Capacity Utilization Value (V/C)	Level of Service Description
A	0.00 – 0.60	Primarily free flow operations at average travel speeds usually about 90 percent of free flow speed. Vehicles can maneuver unimpeded within the traffic stream. Delay at signalized intersections is minimal.
B	0.61 – 0.70	Reasonably unimpeded operations at average travel speeds usually about 70 percent of free flow speed. Ability to maneuver is only slightly restricted and stopped delays are not bothersome. Drivers are not subjected to appreciable tension.
C	0.71 – 0.80	Represents stable operations, however, ability to maneuver and change lanes in mid-block locations may be more restricted. Longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50 percent of free-flow speed. Drivers will experience some appreciable tension.
D	0.81 – 0.90	Borders on a range in which small increases in flow may cause substantial increases in approach delay, and hence, decreases in arterial speed. Causes range from adverse signal progression, inappropriate signal timing, high volumes, or any combination. For planning purposes, this Level of Service is the lowest that is considered acceptable. Average travel speeds are about 40 percent of free-flow speed.
E	0.91 – 1.00	Characterized by significant approach delays and average travel speeds of one-third of free-flow speed or lower, caused by adverse progression, high signal density, extensive queuing at critical intersections, inappropriate signal timing, or some combination.
F	≥ 1.01	Characterized by arterial flow at extremely low speeds below one-third to one-quarter of free flow speed. Congestion is likely at critical signalized intersections, resulting in high approach delays. Adverse progression is frequently a contributor to this condition.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.



Consistent with the City's performance criteria, the following assumptions were used in conducting the ICU analysis:

- Saturation Flow Rate: 1,700 vehicles/hour/lane
- Clearance Interval: 0.05
- Right-Turn-On-Red Utilization Factor: 0.75
- Performance standard: LOS D (corresponding to peak hour ICU of less than or equal to 0.90) for locations other than CMP intersections
- Performance standard: LOS E (peak hour ICU less than or equal to 1.00) for CMP intersections

Highway Capacity Manual (HCM) Method of Analysis

The HCM 2000 methodology is used in this study to validate the ICU methodology and to provide additional measures of effectiveness, such as queues and delays, for signalized and unsignalized intersections. The HCM methodology produces an overall intersection delay, which is translated into a LOS for the intersection, as well as delays and V/C ratios per approach. The V/C ratios calculated under the HCM methodology are comparable to the V/C ratios calculated under the ICU methodology.

Signalized Intersection Analysis

The HCM 2000 methodology relates the intersection LOS to intersection control delay, in terms of seconds per vehicle (sec/veh). This methodology sets 1,900 passenger-cars per hour per lane as the base (or ideal) saturation flow rate at signalized intersections, which is based on the minimum headway that can be sustained between departing vehicles at a signalized intersection. The service saturation flow rate, which reflects the saturation flow rate specific to the study facility, is determined by adjusting the ideal saturation flow rate for lane width, on-street parking, bus stops, pedestrian volume, traffic composition (or percentage of heavy vehicles), and shared lane movements (e.g., through and right-turn movements sharing the same lane). Table 5.5-3, LOS Criteria for Signalized Intersections (HCM Methodology), identifies the six qualitative categories of LOS along with the corresponding HCM control delay value range.

Unsignalized Intersection Analysis

The LOS for two-way stop-controlled intersections, including T-intersections, is determined by the computed control delay and is defined for each minor movement. Table 5.5-4, LOS Criteria for Unsignalized Intersections (HCM Methodology), identifies the six qualitative categories of LOS along with the corresponding HCM control delay value range.



Table 5.5-3
LOS Criteria for Signalized Intersections (HCM Methodology)

Level of Service (LOS)	Control Delay Per Vehicle (sec/veh)	Level of Service Description
A	≤ 10.0	Operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	Operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

sec = seconds; veh= vehicle
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

Table 5.5-4
LOS Criteria for Unsignalized Intersections (HCM Methodology)

Level of Service (LOS)	Average Control Delay (sec/veh)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

sec = seconds; veh= vehicle.
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.



PERFORMANCE CRITERIA

City of Lake Forest

The City of Lake Forest has established LOS D as the minimum acceptable operating LOS at all intersections during peak hours and LOS E at critical intersections with the requirement that regular monitoring take place.

City of Mission Viejo

The City of Mission Viejo has established LOS D as the minimum acceptable operating LOS at intersections during peak hours.

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection Capacity Utilization (ICU) Analysis

Table 5.5-5, *Existing ICU Peak Hour Levels of Service*, summarizes the existing peak hour LOS for the study intersections utilizing the ICU methodology.

**Table 5.5-5
 Existing ICU Peak Hour Levels of Service**

Study Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
1 Saddleback Ranch Road/Glenn Ranch Road	Lake Forest	0.38	A	0.32	A
2 El Toro Road/Glenn Ranch Road	Lake Forest	0.34	A	0.49	A
3 Portola Pkwy/Glenn Ranch Road	Lake Forest	0.57	A	0.52	A
4 Marguerite Pkwy/El Toro Road	Mission Viejo	0.36	A	0.29	A
5 Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	0.31	A	0.35	A
6 Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	0.61	B	0.55	A
7 Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	0.69	B	0.65	B
8 Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	0.35	A	0.45	A
9 Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	0.83	D	0.82	D
10 Saddleback Ranch Road/Malabar Road	Lake Forest	0.59	A	0.46	A
11 Saddleback Ranch Road/Millwood Road	Lake Forest	0.65	B	0.29	A
12 Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	0.48	A	0.34	A
13 Ridgeline Road/Santiago Canyon Road	Lake Forest	0.23	A	0.30	A
14 Portola Pkwy/SR-241 Ramps	Lake Forest	0.43	A	0.53	A

ICU = Intersection Capacity Utilization; LOS = level of service.
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

As indicated in [Table 5.5-5](#), all study intersections are currently operating at an acceptable LOS during the a.m. and p.m. peak hours based on City of Lake Forest and City of Mission Viejo performance criteria. The operations worksheets for this scenario are provided in [Appendix 11.5](#), as Appendix B of the Traffic Impact Study.



Highway Capacity Manual (HCM) Analysis

Table 5.5-6, *Existing HCM Peak Hour Levels of Service*, summarizes the existing peak hour LOS and average vehicle control delay for the study intersections utilizing the HCM methodology.

**Table 5.5-6
Existing HCM Peak Hour Levels of Service**

Study Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay ¹	LOS ²	Delay ¹	LOS ²
1 Saddleback Ranch Road/Glenn Ranch Road	Lake Forest	Signal	17.2	B	18.5	B
2 El Toro Road/Glenn Ranch Road	Lake Forest	Signal	10.2	B	11.1	B
3 Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal	21.5	C	24.7	C
4 Marguerite Pkwy/El Toro Road	Mission Viejo	Signal	15.6	B	16.7	B
5 Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal	10.3	B	7.5	A
6 Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal	36.1	D	23.0	C
7 Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal	45.5	D	35.4	D
8 Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal	24.2	C	28.5	C
9 Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal	82.4	F	69.9	E
10 Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC ³	25.1	D	14.7	B
11 Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC ³	36.4	E	11.0	B
12 Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal	12.1	B	13.1	B
13 Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC ³	15.8	C	19.3	C
14 Portola Pkwy/SR-241 Ramps	Lake Forest	Signal	10.1	B	9.9	A

LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control
 Bold values indicate unacceptable LOS E or F
 Notes:
 1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.
 2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7.
 3. At unsignalized intersections, the delay for the stop-controlled approach becomes unreliable when operations approach LOS E/F conditions. The operations are more consistent with the V/C ratio reported for the stop controlled movement.
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

As indicated in Table 5.5-6, all study intersections are operating at an acceptable LOS under existing conditions based on City of Lake Forest and City of Mission Viejo performance criteria except for the following intersections:

- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. and p.m. peak hour); and
- 11 – Saddleback Ranch Road and Millwood Road (a.m. peak hour).

The HCM methodology for unsignalized intersections becomes unreliable when traffic conditions are projected to be at LOS E or F conditions. In the case of the Saddleback Ranch Road and Millwood Road intersection, the delay reported from the HCM methodology at this unsignalized intersection is much higher than what was observed in the field. The HCM methodology for unsignalized intersections is based on the gap acceptance theory. Although the adjacent signals at Glenn Ranch Road and Fawn Ridge Road are just over 1,000 feet away, gaps are created in the traffic flow along Saddleback Ranch Road, as confirmed through field observations in the study



area. The gaps in the traffic flow would allow vehicles to turn onto Saddleback Ranch Road and would not result in the long delays at the intersection of Millwood Road and Saddleback Ranch Road that are produced by the HCM methodology. On average, vehicles were observed to wait no more than 10 seconds before turning onto Saddleback Ranch Road from Millwood Road, as opposed to the 36.4 seconds predicted by the methodology. The HCM V/C ratio of 0.59 (LOS A), as shown in the detailed HCM LOS worksheets included in [Appendix 11.5](#), for the eastbound movement of Millwood Road would more accurately reflect the operations of this intersection, which is consistent with the ICU value of 0.65 shown in [Table 5.5-5](#).

EXISTING TRANSIT SERVICE

The project area is primarily served by bus transit lines operated by Orange County Transportation Authority (OCTA). Bus service is not provided immediately adjacent to the project site. Lines within the area are described below.

OCTA Route 82. Route 82 connects Foothill Ranch (Foothill Ranch Towne Centre) to Laguna Niguel via Portola Parkway, Santa Margarita Parkway, Antonio Parkway, and Crown Valley Parkway.

OCTA Route 89. Route 89 connects Mission Viejo (Portola Plaza) to Laguna Beach via El Toro Road and Laguna Canyon Road.

OCTA Route 177. Route 177 connects Foothill Ranch (Foothill Ranch Marketplace and Towne Centre) to Laguna Hills via Lake Forest Drive, Muirlands Boulevard, and Los Alisos Boulevard.

OCTA Route 206. Route 206 connects Foothill Ranch to Santa Ana via the I-5 Freeway. Service is provided from Glenn Ranch Road and Eclipse, west of the project site.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Sidewalks are currently located along Glenn Ranch Road and Saddleback Ranch Road, adjacent to the project site.

The Aliso Serrano Riding and Hiking Trail is located along the north side of Glenn Ranch Road within the project area. The Aliso Serrano Riding and Hiking Trail was constructed to connect the Aliso Creek Regional Riding and Hiking Trail to Limestone/Whiting Ranch Wilderness Park. The Trail connects to Limestone/Whiting Wilderness Park at two locations: along Glenn Ranch Road to the staging lot and to the southeast part of the park.

The Aliso Creek Class I (paved, off-road) Bikeway borders the southern portion of the project site, extending from the McFadden Ranch House (located northeast of Glenn Ranch Road on the west side of El Toro Road) south to the entrance of Aliso and Wood Canyons Wilderness Park. The City's General Plan and *2009 OCTA Commuter Bikeways Strategic Plan* identify Glenn Ranch Road as a planned Class II Bike Lane. Class II Bike Lanes provide a restricted right-of-way on a roadway's shoulder designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited. Other bicycle facilities in the area include an existing Class II Bike Lane along Portola Parkway.



The Edison Regional Riding and Hiking Trail is located to the west of the project site. The trail was built to connect Limestone-Whiting Ranch Wilderness Park to the Aliso Serrano Riding and Hiking Trail. A spur of the Edison Trail extends east and touches the western boundary of the project site.

5.5.2 REGULATORY SETTING

CALIFORNIA DEPARTMENT OF TRANSPORTATION

The California Department of Transportation (Caltrans) publishes the *Guide for the Preparation of Traffic Impact Studies*, which provides guidelines and recommended elements of traffic studies for projects that could potentially impact state facilities such as State Route highways and freeway facilities. This is a State-level document that is used by each of the Caltrans District offices.

The Guide defines when traffic studies should be conducted to address impacts to state facilities, but does not define quantitative impact standards. The Guide states that Measures of Effectiveness (MOEs) are used to evaluate Caltrans facilities, and that the agency strives to maintain a LOS value of C on its facilities. However, the Guide states that the appropriate target LOS varies by facility and congestion level, and is defined differently by Caltrans depending on the analyzed facility.

ORANGE COUNTY TRANSPORTATION AUTHORITY

OCTA is a multi-modal transportation agency that began in 1991 with the consolidation of seven separate agencies. OCTA serves Orange County residents and travelers by providing countywide bus and paratransit service, Metrolink rail service, the 91 Express Lanes, freeway, street and road improvement projects, individual and company commuting solutions, motorist aid services and by regulating taxi operations. State statute requires that a congestion management program be developed, adopted, and updated biennially for every county that includes an urbanized area and requires that it include every city and the county government within that county. As the Congestion Management Agency for Orange County, OCTA is responsible for implementing the CMP for the County.

The purpose of the Orange County CMP is to develop a coordinated approach to managing and decreasing traffic congestion by linking the various transportation, land use, and air quality planning programs throughout the County. The City of Lake Forest is required to show continued compliance with the countywide CMP. The benefits of compliance with the CMP provisions include the allocation of the City's fair share of gas tax subventions collected by the State of California.

CITY OF LAKE FOREST

City of Lake Forest General Plan

The Circulation Element of the General Plan serves as the City's primary guide for transportation planning. Specifically, the Circulation Element guides continued development of the circulation system to support planned growth. Its purpose is to provide a safe, efficient, and adequate circulation system for the City.



The Circulation Element focuses on roadways and other transportation modes, including public transit, railroads, and bicycle paths that provide a full range of travel options. Also included is an assessment of the City's current roadway system and recommendations for the improvements necessary to maintain acceptable levels of service on this system in the forecast General Plan buildout.

Circulation Element policies that pertain to the proposed project include, but are not limited to, the following:

- Provide and maintain a City circulation system that is in balance with planned land uses in Lake Forest and surrounding areas in the region. (Policy 2.1)
- Improve the Lake Forest circulation system roadways in concert with land development to ensure adequate levels of service. (Policy 2.3)
- Promote the provision of non vehicular circulation within Lake Forest. (Policy 4.1)
- Provide and maintain a non vehicular component of the Lake Forest overall circulation system that supports bicycles, equestrians, and pedestrians and is coordinated with those of other service districts in Lake Forest and with adjacent jurisdictions. (Policy 4.2)
- Improve pedestrian access from neighborhoods to commercial areas. (Policy 4.3)

City of Lake Forest Municipal Code

The City of Lake Forest Municipal Code (Municipal Code) Chapter 7.19, *Lake Forest Transportation Mitigation Program* (LFTM Program), establishes the LFTM Program in order to provide funding for the coordinated and phased installation of traffic and transportation improvements which will serve, benefit, and/or mitigate the impacts of development of certain parcels of land within the City, including the proposed Portola Center Project. The Applicant is required to prepare and submit a Traffic Study with each Tentative Tract Map (TTM) the Applicant files, consistent with the "Traffic Study Scope of Work for Participating Landowners" commissioned by the City for the LFTM Program.

If a TTM Traffic Study identifies one or more project features and/or secondary improvements necessary to mitigate an impact identified in the TTM Traffic Study, the applicant would be required to construct, or provide for the construction of, the required project feature; and the applicant would be required to pay its fair share of the costs of constructing secondary improvements necessary to address the impact of the applicant's project, consisting of the nexus-based proportionate traffic share determined from the LFTAM.

CITY OF MISSION VIEJO

City of Mission Viejo General Plan

The Circulation Element is intended to guide the development of the City's circulation system in a manner that is correlated with the Land Use Element. Anticipated levels and patterns of development in the City of Mission Viejo and the surrounding communities will generate demands



on the City's roadway system. The City has adopted specific goals and policies to address these demands and achieve balanced growth.

Circulation Element policies that pertain to the proposed project include, but are not limited to, the following:

- Maintain at least a level of service D on arterial streets, except along Crown Valley Parkway, a Principal Arterial on the CMP Highway System, where a level of service E shall be maintained. (Policy 1.3)
- Review development proposals in surrounding jurisdictions to determine the impacts of that development on the City's circulation system, and to identify transportation mitigation measures that shall be provided by said developments to maintain city-adopted levels of service standards on the City's circulation system. (Policy 2.2)
- Require any new development, located within the City or outside the City, that contributes traffic impacts to intersections and roadway facilities, located in the City or outside the City, to pay its fair share contribution towards identified transportation improvements, including payment of fees towards adopted transportation fee programs, fair-share costs for identified transportation improvements, or construction of identified transportation improvements necessary to maintain adopted levels of service in the affected jurisdiction. (Policy 23.1)

5.5.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

DEFINITION OF SIGNIFICANT IMPACT

Significant Study Intersection Traffic Impact Criteria

Traffic impacts are identified if a project would result in a significant adverse change in traffic conditions on an analyzed facility. A significant impact is typically identified if traffic generated by a project would cause service levels to deteriorate beyond a threshold limit specified by the overseeing agency. Impacts can also be significant if an intersection is already operating below the poorest acceptable level and project traffic would substantially worsen the condition, thereby causing a further decline below the threshold.

A proposed project is considered to have a significant impact when the following conditions are met:

- ICU values at intersections under the "With Project" conditions exceed the minimum performance standard of LOS D (i.e., ICU of 0.90); and
- ICU values at intersections under the "With Project" conditions increase by 0.02 or greater compared to the "Without Project" conditions that are operating at LOS E or F.



In addition, project-specific traffic impacts may also be considered significant if the project design features could result in traffic hazards. Such design features include sharp curves, limited sight distance, tight turning radii, short merging distance, uneven roadway grade, or other features deemed by the City Traffic Engineer to create a hazard.

In other jurisdictions throughout southern California, the increase in delay resulting from a project based on the HCM methodology is used to determine project impacts. For an intersection operating at LOS E or F, a project is considered to have a significant impact if the project results in an increase of greater than two seconds of delay at that intersection.

For this project, a project specific impact at intersections is based on the ICU thresholds listed above, which is consistent with the City of Lake Forest's significance criteria. However, if the project results in any project specific impacts at intersections based on the HCM methodology, mitigation measures are also provided.

Mitigation is required for intersections identified with project impacts. In order to mitigate project impacts, improvements that would either bring the intersection back to an acceptable LOS or to pre-project conditions would be required.

Significance Criteria

Environmental impact thresholds as indicated in Appendix G of the CEQA Guidelines (Initial Study Checklist Form) are also used as significance thresholds in this analysis. As such, a project would create a significant impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (refer to Impact Statements TRA-1, TRA-2, TRA-3, TRA-4, and TRA-5);
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways; refer to Section 8.0, *Effects Found Not To Be Significant*;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks; refer to Section 8.0, *Effects Found Not To Be Significant*;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (refer to Impact Statement TRA-6);
- Result in inadequate emergency access; refer to Section 8.0, *Effects Found Not To Be Significant*; and



- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (refer to Impact Statement TRA-7).

5.5.4 OVERVIEW OF OSA PEIR TRANSPORTATION/TRAFFIC ANALYSIS

The OSA PEIR analyzed potential impacts on the roadway network within the Study Area and Extended Study Area associated with the proposed Lake Forest Opportunities Study and cumulative development. The OSA PEIR concluded that impacts to transportation/traffic resources, including parking, would be less than significant or less than significant with implementation of the LFTM Program.

According to the OSA PEIR (pages 3.14-36 to 3.14-50), implementation of the OSA project would not cause additional impacts to intersections within the Traffic Study Area or Extended Traffic Study Area as compared to future without project conditions ([pre-OSA] General Plan Scenario). Although the OSA PEIR identified several intersections that would have a significant impact with implementation of the OSA, the improvements identified to mitigate the impacts are included in the LFTM Program. Therefore, the OSA PEIR concluded that because the LFTM Program is part of the OSA project and implementation of the LFTM Program would ensure that the OSA project impacts are less than significant, no mitigation is required.

According to the OSA PEIR (page 3.14-50), no freeway ramps are forecast to be significantly impacted by the OSA project based on year 2030 conditions when compared to either existing conditions or to the [pre-OSA] General Plan Scenario. In fact, the OSA project would eliminate impacts to five ramps, which would occur under the 2030 [pre-OSA] General Plan Scenario. According to the OSA PEIR, the OSA project and cumulative development would cause five segments to operate below standards, compared to existing conditions, which would be a cumulative impact. However, no freeway mainline segments are forecast to be significantly impacted by the OSA project based on year 2030 conditions compared to the 2030 [pre-OSA] General Plan Scenario. The OSA PEIR concluded these impacts would be less than significant.

The OSA PEIR also analyzed potential impacts to parking in relation to the City of Lake Forest Municipal Code. According to the OSA PEIR (page 3.14-54) each development would be required to comply with the parking standards (on-street and off-street) identified in the Municipal Code and no impacts related to parking would occur with implementation of the OSA.

Subsequent to public review of the OSA Draft PEIR, the City identified a new alternative (Alternative 7 or Hybrid Alternative), which was concluded to be the environmentally superior alternative. According to OSA PEIR Table 7.4-1, Alternative 7 assumed a maximum of 930 dwelling units, 40,000 s.f. of commercial uses, and 8.0 acres of Neighborhood Park on Site 2 (the project site). The OSA PEIR included an updated Traffic and Transportation analysis associated with the development of Site 2 proposed by Alternative 7. The updated analysis concluded Alternative 7 would result in fewer impacted intersections within the Traffic Study Area or Extended Traffic Study Area compared to the original OSA project analyzed in the OSA Draft PEIR.



The OSA Final PEIR concluded that all locations impacted by the OSA project would continue to be impacted under Alternative 7 with the exception of two locations (El Toro and Avenida Carlota and Alton Parkway and Town Centre Drive), which would not be impacted under Alternative 7. Similar to the OSA project, impacts to remaining intersections under Alternative 7 would be avoided through implementation of the LFTM. However, Alternative 7 would result in an impact to one intersection (Ridge Route Drive and Rockfield Boulevard) not impacted by the OSA project. The OSA Final PEIR concluded that the impact would be mitigated with modifications to the LFTM that would include improvements to the intersection. It was also concluded that no freeway ramps or freeway mainline segments would be significantly impacted by Alternative 7. Additionally, no impacts to parking would occur.

5.5.5 IMPACTS AND MITIGATION MEASURES

CONSTRUCTION TRAFFIC GENERATION

TRA-1 PROJECT CONSTRUCTION WOULD NOT CAUSE A SIGNIFICANT INCREASE IN TRAFFIC FOR EXISTING CONDITIONS WHEN COMPARED TO THE TRAFFIC CAPACITY OF THE STREET SYSTEM.

Impact Analysis: Construction activities associated with the proposed project would generate traffic as a result of equipment being transported between the planning areas and vehicular traffic related to construction works and delivery of materials to the project site. Staging areas for construction equipment storage and construction work storage would be established on-site near the proposed project entries.

During the proposed project's grading phase, it is anticipated that cut and fill would be balanced within each Planning Area. However, the grading of the Northwest and Northeast Planning Areas would require the total exchange of approximately 1,100,000 cubic yards of fill material such that approximately 550,000 cubic yards of select backfill material from the South Planning Area would be exchanged with 550,000 cubic yards of standard fill from the North Planning Areas. The fill material would be hauled between the Northwest and South Planning Areas using dump trucks and between the Northeast and South Planning Areas using either scrapers or dump trucks, or a combination of both.

Assuming a dump truck capacity of 16 cubic yards, the proposed exchange of soil between the Northwest and South Planning Areas would result in approximately 14,000 individual truck trips (7,000 round trips) between the areas. Assuming a scraper capacity of 24 cubic yards, the proposed exchange of soil between the Northeast and South Planning Areas would result in a total of approximately 37,000 scraper trips (18,500 round trips) between the areas. The exchange of soil between the Northwest and South Planning Areas is expected to occur over a two month period (40 work days) with an average of 360 truck trips (180 round trips) per day or 60 trips (30 round trips) per hour for an average of six hours per day (typically 9:00 a.m. to 3:00 p.m.) The exchange of soil between the Northeast and South Planning Areas is expected to occur over a five to six month period (100 to 120 work days) with an average of 360 scraper trips (180 round trips) per day or 60 trips (30 round trips) per hour for an average of six hours per day (typically 9:00 a.m. to 3:00 p.m.). The full grading of the project is expected to last approximately two to three years. Under a



scenario where all the Planning Areas undergo grading at the same time, soil hauling would occur within the first year of the grading operation.

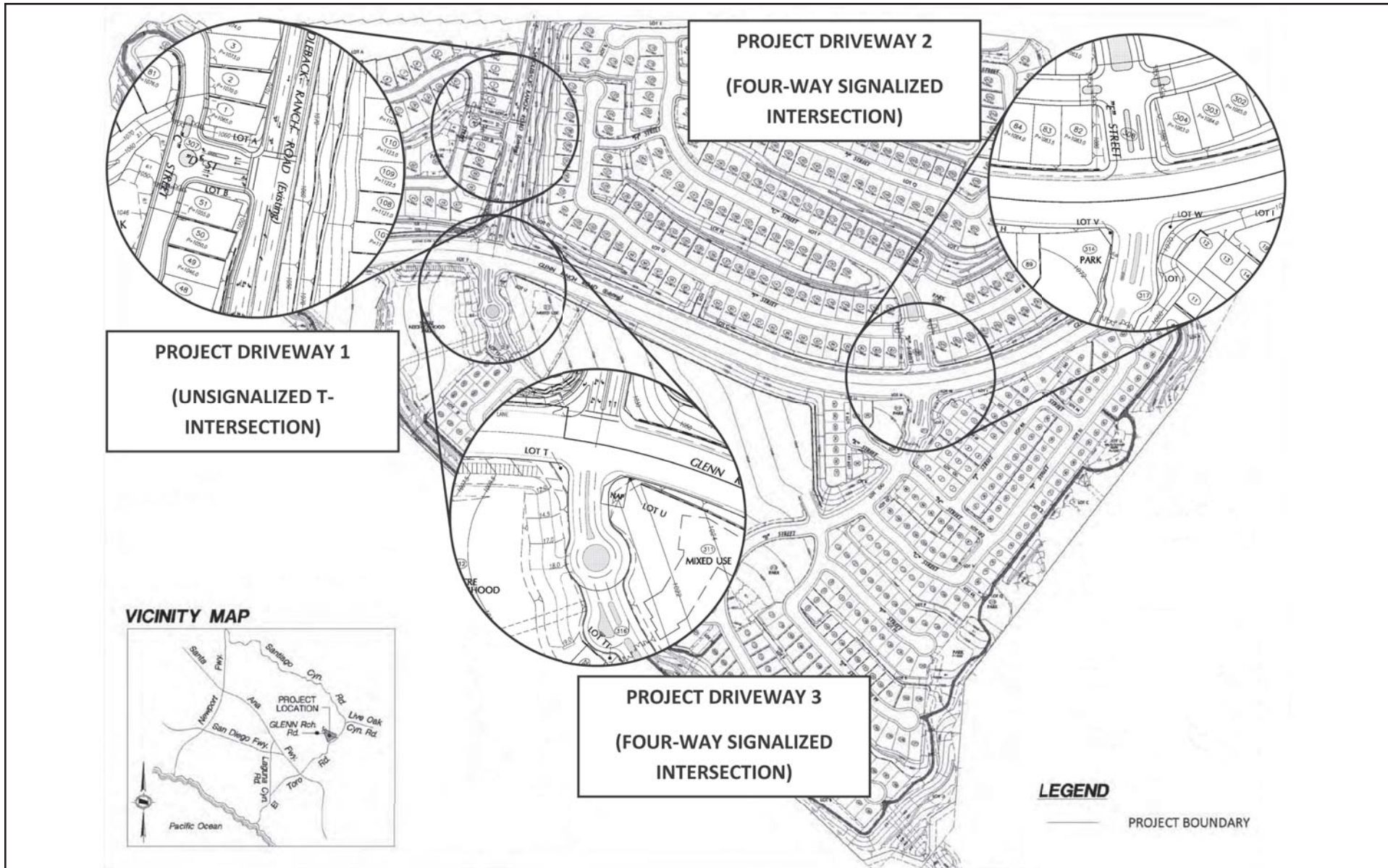
To facilitate the exchange of fill material between the planning areas, access to the Northwest Planning Area via Project Driveway 1, access to the Northeast Planning Area via Project Driveway 2, and access to the South Planning Area via Project Driveway 3 would be established in advance of other grading activities; refer to Exhibit 5.5-2, *Proposed Project Driveways*, for a depiction of the project driveways. The transport of fill material between the South and Northeast Planning Areas would be restricted to occur only at Project Driveway 2 whereas the transport of fill material between the South and Northwest Planning Areas would be between Project Driveways 3 and 1 and utilize the Glenn Ranch Road/Saddleback Ranch Road intersection, as well as the portion of Saddleback Ranch Road located between the two driveways. Hauling of the material would be restricted to occur during the off-peak hours (9:00 a.m. to 3:00 p.m.) and appropriate traffic control personnel (“flaggers”) would be used to ensure construction vehicles operate safely along Saddleback Ranch Road and Glenn Ranch Road and in a manner that minimizes disruption of traffic along these roadways.

It is anticipated that a maximum of 250 workers and an average of 150 workers would be on site at any given time during construction of the project. Many of these workers would stagger their work schedules and would not arrive or depart at the same time. However, as a conservative estimate, if all 250 workers drove individually and arrived and departed during the peak periods, the interim traffic generated by construction workers traveling to and from the project site would be substantially less than what the project would generate when fully constructed and occupied. As indicated in the Project Traffic Generation discussion below, the proposed project is not expected to significantly impact any of the study intersections within the project area. Thus, no significant impacts resulting from construction traffic are anticipated.

In order to reduce the impact of construction-related traffic, implementation of a construction management plan would be developed to implement a variety of measures to minimize traffic and parking impacts upon the local circulation system (Mitigation Measure TRA-1). The construction management plan would include, but not be limited to: prohibit construction worker parking along local streets, identify appropriate haul routes to avoid traffic disruptions, and limit hauling activities to off-peak hours. Implementation of a construction management plan would ensure potential impacts associated with construction related traffic would be reduced to a less than significant level.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.



Source: Wilson & Company, Inc., Engineers & Architects; January 9, 2013.

Note: The project's Tentative Tract Maps have been refined through the planning process since creation of this exhibit.

Refinements to the Tentative Tract Maps do not affect the environmental analysis, findings, or effectiveness of the mitigation measures contained in this SEIR.

NOT TO SCALE



06/13 • JN 10-107644 [130079]

PORTOLA CENTER PROJECT
 SUBSEQUENT ENVIRONMENTAL IMPACT REPORT
Proposed Project Driveways

Exhibit 5.5-2



Additional Mitigation Measures:

TRA-1 Prior to issuance of any grading permits, a Construction Management Plan shall be submitted for review and approval by the Director of Development Services. The Construction Management Plan shall, at a minimum, address the following:

- Traffic control for any street closure, detour, or other disruption to traffic circulation.
- Identify the routes that construction vehicles will utilize for the delivery of construction materials (i.e., lumber, tiles, piping, windows, etc.), to access the site, traffic controls and detours, and proposed construction phasing plan for the project.
- Identify staging areas, stockpiling of materials, and fencing (i.e., temporary fencing with opaque material). Staging areas shall be sited and/or screened in order to minimize public views to the maximum extent practicable.
- Specify the hours during which transport activities can occur and methods to mitigate construction-related impacts to adjacent streets.
- Require the applicant to keep all haul routes clean and free of debris, including but not limited to gravel and dirt as a result of its operations. The applicant shall clean adjacent streets, as directed by the City Engineer (or representative of the City Engineer), of any material which may have been spilled, tracked, or blown onto adjacent streets or areas.
- Hauling or transport of oversize loads shall be allowed between the hours of 9:00 a.m. and 3:00 p.m. only, Monday through Saturday, unless approved otherwise by the City. No hauling or transport will be allowed during nighttime hours, weekends, or Federal holidays, unless otherwise approved by the City.
- Use of local residential streets shall be prohibited.
- Haul vehicles entering or exiting public streets shall yield to public traffic.
- If hauling operations cause any damage to existing pavement, streets, curbs, and/or gutters along the haul route, the applicant shall be fully responsible for repairs. The repairs shall be completed to the satisfaction of the City Engineer.
- All construction-related parking and staging of vehicles shall be kept out of the adjacent public roadways and shall occur on-site or in public parking lots.
- This Plan shall meet standards established in the current California Manual on Uniform Traffic Control Device (MUTCD) as well as City of Lake Forest requirements.

Level of Significance: Less Than Significant With Mitigation Incorporated.

PROJECT TRAFFIC GENERATION

TRA-2 PROJECT IMPLEMENTATION WOULD NOT CAUSE A SIGNIFICANT INCREASE IN TRAFFIC FOR EXISTING AND NEAR TERM YEAR 2015 CONDITIONS WHEN COMPARED TO THE TRAFFIC CAPACITY OF THE STREET SYSTEM.



Impact Analysis: The proposed project would allow for the development of 930 residential units and 10,000 square feet of neighborhood serving commercial space, as well as parkland and recreational facilities. Access to the project site would occur from Glenn Ranch Road and Saddleback Ranch Road through three new project driveways.

Project Trip Generation

An estimate of the number of vehicle trips generated by the proposed project was determined using trip generation rates utilized in the OSA PEIR; refer to Table 5.5-7, Project Trip Generation. These trip generation rates are consistent with the rates used in the LFTAM. The various land uses in the project were each assigned a trip generation rate applicable to that use, including the proposed 18 attached accessory living quarters/secondary units. It is noted that there are no published or established trip rates for accessory dwelling units. The accessory dwelling units proposed would be relatively small in size (under 700 square feet) and attached to the primary residence. However, in order to ensure trips associated with these uses are not underestimated, the multi-family trip rate was assumed. Also, it should be noted that a sports park trip generation rate was used instead of a neighborhood park rate for the proposed five-acre park.

**Table 5.5-7
Project Trip Generation**

Land Use	Amount	Trip Rate	ADT	AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	
Northwest Planning Area										
Single Family Detached	81 du	9.57	775	15	46	61	52	30	82	
Secondary Units	6 du	8.15	49	1	3	4	3	2	5	
Neighborhood Park	0.3 acres	1.59	1	0	0	0	0	0	0	
			<i>Subtotal</i>	16	49	65	55	32	87	
Northeast Planning Area										
Single Family Detached	223 du	9.57	2,134	42	125	167	144	81	225	
Secondary Units	12 du	8.15	98	2	6	8	5	4	9	
Neighborhood Park	0.5 acres	1.59	1	0	0	0	0	0	0	
			<i>Subtotal</i>	44	131	175	149	85	234	
South Planning Area¹										
Single Family Detached	309 du	9.57	2,957	58	174	232	200	112	312	
Multi Family	260 du	8.15	2,119	44	130	174	118	85	203	
Multi Family (affordable)	57 du	8.15	465	10	28	38	26	18	44	
Commercial	10 tsf		1,520	22	14	36	63	69	132	
Active Public Neighborhood Park	5 acres	53.8	269	0	0	0	17	21	38	
Neighborhood Park/HOA Facilities	4.5 acres	1.59	7	0	0	0	0	0	0	
			<i>Subtotal</i>	134	346	480	424	305	729	
			Total	10,395	194	526	720	628	422	1,050

du = dwelling units, tsf = thousand square feet

Notes:

- The project's Tentative Tract Maps have been refined through the planning process since creation of this Traffic Impact Study. These changes have resulted in the addition of five (5) daily trips in the South Planning Area, for a resultant project total of 10,400 daily trips. These refinements to the Tentative Tract Maps do not affect the environmental analysis, findings, or effectiveness of the mitigation measures contained in this Traffic/Circulation analysis. Therefore, the impact analysis in this section is based off of a total daily generation of 10,395 trips.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.



As indicated in [Table 5.5-7](#), the proposed project is forecast to generate approximately 10,395 daily trips, with 720 trips (194 inbound, 526 outbound) produced in the a.m. peak hour and 1,050 trips (628 inbound, 422 outbound) produced in the p.m. peak hour.

The traffic model used for this analysis was based on a previous iteration of the proposed project (April 2011) with more single-family and fewer multi-family homes, which correspondingly produced a higher number of daily trips when compared to the current proposed project. [Table 4.2, Original and Current Project Trip Generation Comparison](#), as included in [Appendix 11.5](#), provides a comparison of the April 2011 project trips and the current project trips. Traffic volumes used for the analysis at the off-site study intersections under the various scenarios (Existing, Near Term, and Buildout) and the determination of significant impacts were based on the April 2011 project traffic generation. At the project driveways, traffic volumes were based on the current project traffic that is shown in [Table 5.5-7](#). Under the current proposed project, p.m. peak trips would be less and the a.m. peak trips would be slightly higher (five additional trips). The five additional a.m. peak trips would be considered to have a negligible effect at off-site intersections and the overall distribution of project trips at offsite intersections based on travel patterns remains the same.

Existing With Project Conditions

The “Existing With Project” scenario was prepared as a result of the Sixth District Court of Appeal decision in *Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council* (2010) 190 Cal.App.4th 1351, which invalidated an EIR prepared for a roadway extension project because it used projected traffic conditions in the year 2020, based on expected growth under the City of Sunnyvale’s General Plan and in neighboring communities as its “baseline” to evaluate the roadway project’s traffic and related impacts. The City in that case took this approach because the project lacked funding and would have taken several years to design and construct. In rejecting the EIR’s analysis, the court found that use of such a baseline could not be upheld since, in the court’s view, CEQA requires a straightforward assessment of the impacts produced by the project alone on the existing environment “normally” meant to be those conditions at the time of issuance of the Notice of Preparation. (CEQA Guidelines, Section 15125, subd. (a).) Thus, according to the court’s reasoning, the analysis within an EIR must consider the impacts of a project at or prior to the date of project approval.

The analyses contained within the traffic and noise studies for this DEIR therefore include an analysis of “Existing With Project” impacts, as required by the recent *Sunnyvale* decision. This is despite the fact that, if approved, the project would not reach peak operational levels until at least 2015.

Figure 5-1, *Intersection Geometrics Existing Plus Project Conditions* and Figure 5-2, *Intersection Peak Hour Traffic Volumes – Existing Plus Project Conditions*, of the Traffic Impact Study (as provided in [Appendix 11.5](#)) illustrate the intersection geometric configurations and peak hour traffic volumes, respectively, for existing plus project conditions.



Intersection Capacity Utilization (ICU) Analysis

Table 5.5-8, *Existing With Project ICU Peak Hour Intersection Analysis*, summarizes the peak hour LOS results at the study intersections for existing with project conditions utilizing the ICU methodology.

**Table 5.5-8
 Existing With Project ICU Peak Hour Intersection Analysis**

Study Intersection		Jurisdiction	AM Peak Hour		PM Peak Hour		Change in ICU	
			ICU	LOS	ICU	LOS	AM	PM
1	Saddleback Ranch Road /Project Driveway 3/Glenn Ranch Road	Lake Forest	0.34	A	0.43	A	-0.04	0.11
2	El Toro Road/Glenn Ranch Road	Lake Forest	0.40	A	0.49	A	0.06	0.00
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	0.63	B	0.65	B	0.06	0.13
4	Marguerite Pkwy/El Toro Road	Mission Viejo	0.39	A	0.55	A	0.03	0.26
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	0.31	A	0.35	A	0.00	0.00
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	0.65	B	0.66	B	0.04	0.11
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	0.70	B	0.66	B	0.01	0.01
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	0.36	A	0.48	A	0.01	0.03
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	0.84	D	0.82	D	0.01	0.00
10	Saddleback Ranch Road/Malabar Road	Lake Forest	0.61	B	0.49	A	0.02	0.03
11	Saddleback Ranch Road/Millwood Road	Lake Forest	0.67	B	0.34	A	0.02	0.05
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	0.49	A	0.37	A	0.01	0.03
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	0.23	A	0.30	A	0.00	0.00
14	Portola Pkwy/SR-241 Ramps	Lake Forest	0.45	A	0.56	A	0.02	0.03
15	Saddleback Ranch Road/Project Driveway 1	Lake Forest	0.37	A	0.26	A	0.37	0.26
16	Project Driveway 2/Glenn Ranch Road	Lake Forest	0.39	A	0.36	A	0.39	0.36

ICU = Intersection Capacity Utilization; LOS = level of service.
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

As indicated in Table 5.5-8, all study intersections are anticipated to operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under existing with project conditions.

Highway Capacity Manual (HCM) Analysis

Table 5.5-9, *Existing With Project HCM Peak Hour Intersection Analysis*, summarizes the peak hour LOS and average delay results at the study intersections for existing with project conditions utilizing the HCM methodology.

As indicated in Table 5.5-9, all study intersections are anticipated to operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under existing with project conditions except for the following intersections:

- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. and p.m. peak hour); and
- 11 – Saddleback Ranch Road and Millwood Road (a.m. peak hour).



Table 5.5-9
Existing With Project HCM Peak Hour Intersection Analysis

Study Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour		Change in Delay	
			Delay ¹	LOS ²	Delay ¹	LOS ²	AM	PM
1 Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	Signal	19.2	B	30.4	C	2.0	11.9
2 El Toro Road/Glenn Ranch Road	Lake Forest	Signal	10.5	B	12.6	B	0.3	1.5
3 Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal	29.4	C	38.5	D	7.9	13.8
4 Marguerite Pkwy/El Toro Road	Mission Viejo	Signal	17.8	B	20.7	C	2.2	4.0
5 Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal	11.2	B	7.8	A	0.9	0.3
6 Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal	47.2	D	27.9	C	11.1	4.9
7 Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal	49.7	D	38.4	D	4.2	3.0
8 Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal	31.7	C	28.9	C	7.5	0.4
9 Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal	82.5	F	70.7	E	0.1	0.8
10 Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC ³	29.0	D	16.1	C	3.9	1.4
11 Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC ³	39.5	E	12.0	B	3.1	1.0
12 Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal	18.3	B	18.6	B	6.2	5.5
13 Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC ³	15.8	C	19.3	C	0.0	0.0
14 Portola Pkwy/SR-241 Ramps	Lake Forest	Signal	13.6	B	13.2	B	3.5	3.3
15 Saddleback Ranch Road/Project Driveway 1	Lake Forest	Signal	14.1	B	10.3	B	14.1	10.3
16 Project Driveway 2/Glenn Ranch Road	Lake Forest	Signal	13.0	B	15.7	B	13.0	15.7

LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control
 Bold values indicate unacceptable LOS E or F
 Notes:
 1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.
 2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7.
 3. At unsignalized intersections, the delay for the stop-controlled approach becomes unreliable when operations approach LOS E/F conditions. The operations are more consistent with the v/c ratio reported for the stop controlled movement.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

Although the Los Alisos Boulevard/Santa Margarita Parkway intersection would continue to operate at an unacceptable LOS under existing with project conditions, the proposed project is not considered to have a significant impact at this intersection since the increase in delay would not exceed the significance threshold (increase of more than two seconds of delay when intersections operate at LOS E or F). As a result, no mitigation would be required.

The Saddleback Ranch Road/Millwood Road intersection would operate at an unacceptable LOS (LOS E) with and without the proposed project. The addition of proposed project traffic would result in an increase in delay by more than two seconds. As stated in the Analysis Methodology section, the projected delays produced by the HCM methodology for unsignalized intersections become unreliable when traffic conditions are projected to be at LOS E or F conditions. Although the adjacent signals at Glenn Ranch Road and Fawn Ridge Road are just over 1,000 feet away, gaps would occur in the traffic flow along Saddleback Ranch Road. The gaps in the traffic flow would allow vehicles to turn onto Saddleback Ranch Road and would not result in the long delays that are produced by the HCM methodology. The HCM V/C ratio of 0.61 (LOS B), as shown in the



detailed HCM LOS worksheets included in Appendix 11.5, for the eastbound movement of the Saddleback Ranch Road and Millwood Road intersection would more accurately reflect the operations of this intersection rather than the LOS E conditions reported by the HCM methodology. This V/C ratio is also consistent with the ICU value of 0.67 shown in Table 5.5-10. As a result, the impact would not be considered significant and no mitigation would be required.

Near Term Year 2015 Without Project Conditions

This section documents the near term year 2015 traffic conditions at the study intersections with traffic from cumulative projects without operation of the proposed project.

Figure 6-1, *Roadway Average Daily Traffic Volumes Near-Term Year 2015 Base Conditions*, and Figure 6-2, *Intersection Peak Hour Traffic Volumes – Near Term 2015 Base Conditions*, of the Traffic Impact Study (as provided in Appendix 11.5) provide the provide the daily and a.m. and p.m. peak hour traffic volumes associated with near term year 2015 conditions.

Intersection Capacity Utilization (ICU) Analysis

Table 5.5-10, Near Term Year 2015 Without Project ICU Peak Hour Intersection Analysis, summarizes the peak hour LOS results at the study intersections under near term year 2015 without project conditions utilizing the ICU methodology.

**Table 5.5-10
Near Term Year 2015 Without Project ICU Peak Hour Intersection Analysis**

Study Intersection		Jurisdiction	AM Peak Hour		PM Peak Hour	
			ICU	LOS	ICU	LOS
1	Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	0.45	A	0.34	A
2	El Toro Road/Glenn Ranch Road	Lake Forest	0.44	A	0.71	C
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	0.54	A	0.56	A
4	Marguerite Pkwy/El Toro Road	Mission Viejo	0.42	A	0.62	B
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	0.58	A	0.60	A
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	0.61	B	0.92	E
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	0.71	C	0.71	C
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	0.41	A	0.49	A
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	0.93	E	0.83	D
10	Saddleback Ranch Road/Malabar Road	Lake Forest	0.60	A	0.47	A
11	Saddleback Ranch Road/Millwood Road	Lake Forest	0.65	B	0.31	A
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	0.49	A	0.35	A
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	0.27	A	0.30	A
14	Portola Pkwy/SR-241 Ramps	Lake Forest	0.43	A	0.55	A

ICU = Intersection Capacity Utilization; LOS = level of service.
 Bold values indicate unacceptable LOS E or F.
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.



As indicated in Table 5.5-10, all study intersections would operate at an acceptable LOS under near term year 2015 without project conditions based on City of Lake Forest and City of Mission Viejo performance criteria except for the following intersections:

- 6 – Portola Pkwy and Santa Margarita Pkwy/El Toro Road (p.m. peak hour); and
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. peak hour).

Highway Capacity Manual (HCM) Analysis

Table 5.5-11, Near Term Year 2015 Without Project HCM Peak Hour Intersection Analysis, summarizes the peak hour LOS and average vehicle control delay results at the study intersections under near term year 2015 without project conditions utilizing the HCM methodology.

**Table 5.5-11
Near Term Year 2015 Without Project HCM Peak Hour Intersection Analysis**

	Study Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
				Delay ¹	LOS ²	Delay ¹	LOS ²
1	Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	Signal	19.2	B	18.8	B
2	El Toro Road/Glenn Ranch Road	Lake Forest	Signal	12.6	B	18.4	B
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal	18.0	B	20.7	C
4	Marguerite Pkwy/El Toro Road	Mission Viejo	Signal	18.0	B	17.3	B
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal	15.3	B	8.3	A
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal	28.7	C	65.5	E
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal	40.2	D	36.4	D
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal	23.3	C	26.1	C
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal	81.6	F	72.5	E
10	Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC ³	32.2	D	14.2	B
11	Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC ³	40.6	E	11.5	B
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal	20.4	C	16.8	B
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC ³	11.6	B	15.1	C
14	Portola Pkwy/SR-241 Ramps	Lake Forest	Signal	12.7	B	16.4	B

LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control

Bold values indicate unacceptable LOS E or F.

Notes:

1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.
2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7.
3. At unsignalized intersections, the delay for the stop-controlled approach becomes unreliable when operations approach LOS E/F conditions. The operations are more consistent with the v/c ratio reported for the stop controlled movement.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

As indicated in Table 5.5-11, all study intersections would operate at an acceptable LOS under near term year 2015 without project conditions based on City of Lake Forest and City of Mission Viejo performance criteria except for the following intersections:

- 6 – Portola Pkwy and Santa Margarita Pkwy/El Toro Road (p.m. peak hour);
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. and p.m. peak hour); and
- 11 – Saddleback Ranch Road and Millwood Road (a.m. peak hour).



As stated in the Analysis Methodology section, the projected delays produced by the HCM methodology for unsignalized intersections becomes unreliable when traffic conditions are projected to be at LOS E or F conditions. Although the adjacent signals at Glenn Ranch Road and Fawn Ridge Road are just over 1,000 feet away from the Saddleback Ranch Road and Millwood Road intersection, gaps would occur in the traffic flow along Saddleback Ranch Road. The gaps in the traffic flow would allow vehicles to turn onto Saddleback Ranch Road and would not result in the long delays that are produced by the HCM methodology. Therefore, the HCM V/C ratio of 0.60 (LOS B), as shown in the detailed HCM LOS worksheets included in [Appendix 11.5](#), for the eastbound movement of the Saddleback Ranch Road and Millwood Road intersection would more accurately reflect the operations of this intersection rather than the LOS E conditions reported by the HCM methodology. This V/C ratio is also consistent with the ICU value of 0.65 shown in [Table 5.5-7](#).

Near Term Year 2015 With Project Conditions

This section analyzes the forecast traffic conditions at the study intersections with the addition of project-generated traffic in the year 2015.

Figure 6-3, *Intersection Geometrics Near-Term Year 2015 Base Plus Project Conditions*, of the Traffic Impact Study (as provided in [Appendix 11.5](#)) illustrates the intersection geometric configurations for near term 2015 with project conditions. Figure 6-4, *Roadway Average Daily Traffic Volumes Near-Term Year 2015 Base Plus Project Conditions*, and Figure 6-5, *Intersection Peak Hour Traffic Volumes – Near Term 2015 Base Plus Project Conditions*, of the Traffic Impact Study (as provided in [Appendix 11.5](#)) illustrate the projected roadway segment ADT and peak hour intersection volumes, respectively, for near term 2015 with project conditions.

Intersection Capacity Utilization (ICU) Analysis

[Table 5.5-12, *Near Term Year 2015 With Project ICU Peak Hour Intersection Analysis*](#), summarizes the peak hour LOS results at the study intersections for near term year 2015 with project conditions utilizing the ICU methodology.

As indicated in [Table 5.5-12](#), all study intersections would continue to operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria except for the following intersections:

- 6 – Portola Pkwy and Santa Margarita Pkwy/El Toro Road (p.m. peak hour); and
- 9 – Los Alisos Boulevard/Santa Margarita Parkway (a.m. peak hour).

Although these intersections would continue to operate at an unacceptable LOS under near term year 2015 with project conditions, the addition of project traffic would result in an increase in the ICU value of 0.01 or less at these intersections and therefore would not exceed the significance threshold (increase in the ICU value of 0.02 or more). Thus, impacts to study intersections would be less than significant.



Table 5.5-12
Near Term Year 2015 With Project ICU Peak Hour Intersection Analysis

Study Intersection		Jurisdiction	AM Peak Hour		PM Peak Hour		Change in ICU	
			ICU	LOS	ICU	LOS	AM	PM
1	Saddleback Ranch Road /Project Driveway 3/Glenn Ranch Road	Lake Forest	0.39	A	0.47	A	-0.06	0.13
2	El Toro Road/Glenn Ranch Road	Lake Forest	0.47	A	0.71	C	0.03	0.00
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	0.60	A	0.62	B	0.06	0.06
4	Marguerite Pkwy/El Toro Road	Mission Viejo	0.44	A	0.64	B	0.02	0.02
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	0.57	A	0.60	A	-0.01	0.00
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	0.62	B	0.91	E	0.01	-0.01
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	0.72	C	0.71	C	0.01	0.00
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	0.42	A	0.51	A	0.01	0.02
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	0.94	E	0.83	D	0.01	0.00
10	Saddleback Ranch Road/Malabar Road	Lake Forest	0.62	B	0.50	A	0.02	0.03
11	Saddleback Ranch Road/Millwood Road	Lake Forest	0.67	B	0.37	A	0.02	0.06
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	0.51	A	0.39	A	0.02	0.04
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	0.27	A	0.30	A	0.00	0.00
14	Portola Pkwy/SR-241 Ramps	Lake Forest	0.48	A	0.59	A	0.05	0.04
15	Saddleback Ranch Road/Project Driveway 1	Lake Forest	0.42	A	0.26	A	0.42	0.26
16	Project Driveway 2/Glenn Ranch Road	Lake Forest	0.41	A	0.39	A	0.41	0.39

ICU = Intersection Capacity Utilization; LOS = level of service.
Bold values indicate unacceptable LOS E or F.
Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

Highway Capacity Manual (HCM) Analysis

Table 5.5-13, *Near Term Year 2015 With Project HCM Peak Hour Intersection Analysis*, summarizes the peak hour LOS and average delay results at the study intersections for near term 2015 with project conditions utilizing the HCM methodology.

As indicated in Table 5.5-13, all study intersections are anticipated to operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under near term year 2015 with project conditions except for the following intersections:

- 6 – Portola Parkway/Santa Margarita Parkway and El Toro Road (p.m. peak hour);
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. and p.m. peak hour); and
- 11 – Saddleback Ranch Road and Millwood Road (a.m. peak hour).

Although the Portola Parkway/Santa Margarita Parkway and El Toro Road and Los Alisos Boulevard and Santa Margarita Parkway intersections would continue to operate at an unacceptable LOS under near term year 2015 with project conditions, the proposed project is not considered to have a significant impact at these intersections since the increases in delay would not exceed the significance threshold (increase of more than two seconds of delay when intersections operate at LOS E or F). As a result, no mitigation would be required.



Table 5.5-13
Near Term Year 2015 With Project HCM Peak Hour Intersection Analysis

Study Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour		Change in Delay	
			Delay ¹	LOS ²	Delay ¹	LOS ²	AM	PM
1 Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	Signal	20.0	B	25.1	C	0.8	6.3
2 El Toro Road/Glenn Ranch Road	Lake Forest	Signal	14.7	B	18.5	B	2.1	0.1
3 Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal	19.5	B	26.0	C	1.5	5.3
4 Marguerite Pkwy/El Toro Road	Mission Viejo	Signal	19.6	B	19.2	B	1.6	1.9
5 Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal	15.4	B	8.3	A	0.1	0.0
6 Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal	30.1	C	66.9	E	1.4	1.4
7 Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal	40.4	D	36.5	D	0.2	0.1
8 Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal	24.1	C	26.6	C	0.8	0.5
9 Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal	82.8	F	73.9	E	1.2	1.4
10 Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC ³	31.9	D	16.8	C	2.6	1.6
11 Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC ³	41.1	E	12.5	B	3.7	1.0
12 Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal	13.0	B	14.2	B	1.5	0.8
13 Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC ³	16.3	C	20.2	C	0.2	0.8
14 Portola Pkwy/SR-241 Ramps	Lake Forest	Signal	13.5	B	18.6	B	0.8	2.2
15 Saddleback Ranch Road/Project Driveway 1	Lake Forest	Signal	15.9	C	10.3	B	15.9	10.3
16 Project Driveway 2/Glenn Ranch Road	Lake Forest	Signal	14.5	B	15.9	B	14.5	15.9

LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control
 Bold values indicate unacceptable LOS E or F
 Notes:
 1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.
 2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7.
 3. At unsignalized intersections, the delay for the stop-controlled approach becomes unreliable when operations approach LOS E/F conditions. The operations are more consistent with the v/c ratio reported for the stop controlled movement.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

The Saddleback Ranch Road/Millwood Road intersection would operate at an unacceptable LOS (LOS E) with and without the proposed project. The addition of proposed project traffic would result in an increase in delay by more than two seconds. As stated in the Analysis Methodology section, the projected delays produced by the HCM methodology for unsignalized intersections become unreliable when traffic conditions are projected to be at LOS E or F conditions. Although the adjacent signals at Glenn Ranch Road and Fawn Ridge Road are just over 1,000 feet away from the Saddleback Ranch Road and Millwood Road intersection, gaps would occur in the traffic flow along Saddleback Ranch Road. The gaps in the traffic flow would allow vehicles to turn onto Saddleback Ranch Road and would not result in the long delays that are produced by the HCM methodology. Therefore, the HCM V/C ratio of 0.63 (LOS B), as shown in the detailed HCM LOS worksheets included in [Appendix 11.5](#), for the eastbound movement of the Saddleback Ranch Road and Millwood Road intersection would more accurately reflect the operations of this intersection rather than the LOS E conditions reported by the HCM methodology. This V/C ratio is also



consistent with the ICU value of 0.67 shown in Table 5.5-12. As a result, the impact would not be considered significant and no mitigation would be required.

Standard Conditions of Approval:

FFP1 Prior to the issuance of a building permit, the applicant shall pay fees to the City of Lake Forest as prescribed in the Major Thoroughfare and Bridge Fee Program, including but not limited to the following:

- Foothill Circulation Phasing Plan – ~~Zone 2, 3, 4, 5 or 8~~
- Foothill/Eastern Transportation Corridor – ~~Zone A or Zone B~~
- Santiago Canyon Road
- Drainage Fees (\$945.00/Acre)
- El Toro Road
- LFTM Program

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

LONG-RANGE (BUILDOUT YEAR 2030 WITH PROJECT) CONDITIONS

TRA-3 DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT AND BUILDOUT OF THE LAKE FOREST GENERAL PLAN WOULD NOT RESULT IN SIGNIFICANT TRAFFIC IMPACTS.

Impact Analysis: The OSA PEIR analysis identifies traffic impacts based on 2030 future traffic conditions in the Traffic Study Area. The OSA PEIR identified several intersections that would have a significant impact with implementation of the OSA. However, the improvements identified to mitigate the impacts are included in the LFTM Program. Therefore, the OSA PEIR concluded that because the LFTM Program is part of the OSA project and implementation of the LFTM Program would ensure that the OSA project impacts are less than significant, no mitigation is required.

Buildout Year 2030 Without Project Conditions

According to the Orange County Master Plan of Arterial Highways (MPAH), El Toro Road has been upgraded to a 6-lane major roadway between Trabuco Road and Live Oak Canyon Road. This improvement is also consistent with the Orange County Public Works Transportation Capital Improvement Program (CIP) and is scheduled to be widened using funds from the El Toro Road Fee Program. Although funds have been identified to widen this facility to a 6-lane roadway, it was assumed that El Toro Road would be widened by at least a lane in each direction and result in a 4-lane roadway. This improvement would affect the intersection of Glenn Ranch Road and Ridgeline Road along El Toro Road and result in two through lanes in each direction. The volumes along



Saddleback Ranch Road decrease between the Year 2015 Conditions and the 2030 Conditions because more traffic is assumed to use El Toro Road instead of Saddleback Ranch Road as a result of these improvements.

At the Santiago Canyon Road and Ridgeline Road intersection, an improvement to signalize this intersection has also been identified in the Orange County Public Works Transportation CIP for Fiscal Year 2011/2012. As a result, a traffic signal has been assumed with no other changes to the lane configurations at the intersection.

Figure 7-3, *Intersection Geometrics Buildout Year 2030 Base Conditions*, of the Traffic Impact Study (as provided in [Appendix 11.5](#)) illustrates the intersection geometrics for Year 2030 without project conditions. All other roadway segments and intersections remain unchanged from the existing and near term year 2015 conditions.

Figure 7-1, *Roadway Average Daily Traffic Volumes Buildout Year 2030 Base Conditions*, and Figure 7-2, *Intersection Peak Hour Traffic Volumes – Buildout Year 2030 Base Conditions*, of the Traffic Impact Study (as provided in [Appendix 11.5](#)) illustrate the projected roadway segment ADT and peak hour intersection volumes, respectively, for buildout year 2030 without project conditions.

Intersection Capacity Utilization (ICU) Analysis

Table 5.5-14, *Buildout Year 2030 Without Project ICU Peak Hour Intersection Analysis*, summarizes the peak hour LOS results at the study intersections for buildout year 2030 without project conditions utilizing the ICU methodology.

**Table 5.5-14
Buildout Year 2030 Without Project ICU Peak Hour Intersection Analysis**

Study Intersection		Jurisdiction	AM Peak Hour		PM Peak Hour	
			ICU	LOS	ICU	LOS
1	Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	0.47	A	0.35	A
2	El Toro Road/Glenn Ranch Road	Lake Forest	0.55	A	0.69	B
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	0.63	B	0.63	B
4	Marguerite Pkwy/El Toro Road	Mission Viejo	0.60	A	0.92	E
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	0.45	A	0.41	A
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	0.82	D	1.01	F
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	0.83	D	0.84	D
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	0.56	A	0.71	C
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	1.07	F	0.87	D
10	Saddleback Ranch Road/Malabar Road	Lake Forest	0.60	A	0.47	A
11	Saddleback Ranch Road/Millwood Road	Lake Forest	0.65	B	0.31	A
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	0.49	A	0.35	A
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	0.47	A	0.46	A
14	Portola Pkwy/SR-241 Ramps	Lake Forest	0.50	A	0.65	B

ICU = Intersection Capacity Utilization; LOS = level of service.

Bold values indicate unacceptable LOS E or F

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.



As indicated in Table 5.5-14, all intersections would operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under buildout year 2030 without project conditions except for the following intersections:

- 4 – Marguerite Parkway and El Toro Road (p.m. peak hour);
- 6 – Portola Parkway/Santa Margarita Parkway and El Toro Road (p.m. peak hour); and
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. peak hour).

Highway Capacity Manual (HCM) Analysis

Table 5.5-15, Buildout Year 2030 Without Project HCM Peak Hour Intersection Analysis, summarizes the peak hour LOS and average vehicle control delay results at the study intersections for buildout year 2030 without project conditions utilizing the HCM methodology.

**Table 5.5-15
Buildout Year 2030 Without Project HCM Peak Hour Intersection Analysis**

Study Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay ¹	LOS ²	Delay ¹	LOS ²
1 Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	Signal	17.9	B	16.3	B
2 El Toro Road/Glenn Ranch Road	Lake Forest	Signal	11.9	B	19.4	B
3 Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal	21.6	C	25.6	C
4 Marguerite Pkwy/El Toro Road	Mission Viejo	Signal	21.6	C	33.0	C
5 Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal	12.6	B	8.0	A
6 Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal	51.3	D	119.6	F
7 Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal	61.3	E	52.4	D
8 Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal	30.9	C	40.7	D
9 Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal	117.8	F	91.7	F
10 Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC ³	26.8	D	15.2	C
11 Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC ³	37.4	E	11.5	B
12 Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal	11.5	B	13.4	B
13 Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC ³	8.5	A	6.9	A
14 Portola Pkwy/SR-241 Ramps	Lake Forest	Signal	16.2	B	20.1	C

LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control

Bold values indicate unacceptable LOS E or F

Notes:

1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.
2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7.
3. At unsignalized intersections, the delay for the stop-controlled approach becomes unreliable when operations approach LOS E/F conditions. The operations are more consistent with the v/c ratio reported for the stop controlled movement.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

As indicated in Table 5.5-15, all intersections would operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under buildout year 2030 without project conditions except for the following intersections:

- 6 – Portola Parkway/Santa Margarita Parkway and El Toro Road (p.m. peak hour);



- 7 – Marguerite Parkway and Santa Margarita Parkway (a.m. peak hour);
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. and p.m. peak hour); and
- 11 – Saddleback Ranch Road and Millwood Road (a.m. peak hour).

As stated in the Analysis Methodology section, the projected delays produced by the HCM methodology for unsignalized intersections becomes unreliable when traffic conditions are projected to be at LOS E or F conditions. Although the adjacent signals at Glenn Ranch Road and Fawn Ridge Road are just over 1,000 feet away from the Saddleback Ranch Road and Millwood Road intersection, gaps would occur in the traffic flow along Saddleback Ranch Road. The gaps in the traffic flow would allow vehicles to turn onto Saddleback Ranch Road and would not result in the long delays that are produced by the HCM methodology. Therefore, the HCM V/C ratio of 0.60 (LOS B), as shown in the detailed HCM LOS worksheets included in [Appendix 11.5](#), for the eastbound movement of the Saddleback Ranch Road and Millwood Road intersection would more accurately reflect the operations of this intersection rather than the LOS E conditions reported by the HCM methodology. This HCM V/C ratio is also consistent with the ICU value of 0.65 shown in [Table 5.5-14](#).

Buildout Year 2030 With Project Conditions

Figure 7-4, *Roadway Average Daily Traffic Volumes Buildout Year 2030 Base Plus Project Conditions*, and Figure 7-5, *Intersection Peak Hour Traffic Volumes – Buildout Year 2030 Base Plus Project Conditions*, of the Traffic Impact Study (as provided in [Appendix 11.5](#)) illustrate the projected roadway segment ADT and peak hour intersection volumes, respectively, for buildout year 2030 with project conditions.

Intersection Capacity Utilization (ICU) Analysis

[Table 5.5-16](#), *Buildout Year 2030 With Project ICU Peak Hour Intersection Analysis*, summarizes the peak hour LOS results at the study intersections for buildout year 2030 with project conditions utilizing ICU methodology.

As indicated in [Table 5.5-16](#), all study intersections would continue to operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under buildout year 2030 with project conditions except for the following intersections:

- 4 – Marguerite Parkway and El Toro Road (p.m. peak hour);
- 6 – Portola Parkway/Santa Margarita Parkway and El Toro Road (p.m. peak hour); and
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. peak hour).

Although these intersections would continue to operate at an unacceptable LOS under buildout year 2030 with project conditions, the addition of project traffic would result in an increase in the ICU value of 0.01 or less at these intersections and therefore would not exceed the significance threshold (increase in the ICU value of 0.02 or more). Thus, impacts to study intersections would be less than significant and no mitigation would be required.



Table 5.5-16
Buildout Year 2030 With Project ICU Peak Hour Intersection Analysis

Study Intersection		Jurisdiction	AM Peak Hour		PM Peak Hour		Change in ICU	
			ICU	LOS	ICU	LOS	AM	PM
1	Saddleback Ranch Road /Project Driveway 3/Glenn Ranch Road	Lake Forest	0.45	A	0.48	A	-0.02	0.13
2	El Toro Road/Glenn Ranch Road	Lake Forest	0.64	B	0.69	B	0.09	0.00
3	Portola Pkwy/Glenn Ranch Road	Lake Forest	0.66	B	0.69	B	0.03	0.06
4	Marguerite Pkwy/El Toro Road	Mission Viejo	0.62	B	0.93	E	0.02	0.01
5	Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	0.45	A	0.42	A	0.00	0.01
6	Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	0.84	D	1.02	F	0.02	0.01
7	Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	0.84	D	0.85	D	0.01	0.01
8	Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	0.58	A	0.69	B	0.02	-0.02
9	Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	1.07	F	0.87	D	0.00	0.00
10	Saddleback Ranch Road/Malabar Road	Lake Forest	0.62	B	0.50	A	0.02	0.03
11	Saddleback Ranch Road/Millwood Road	Lake Forest	0.67	B	0.37	A	0.02	0.06
12	Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	0.51	A	0.39	A	0.02	0.04
13	Ridgeline Road/Santiago Canyon Road	Lake Forest	0.47	A	0.46	A	0.00	0.00
14	Portola Pkwy/SR-241 Ramps	Lake Forest	0.51	A	0.68	B	0.01	0.03
15	Saddleback Ranch Road/Project Driveway 1	Lake Forest	0.36	A	0.26	A	0.36	0.26
16	Project Driveway 2/Glenn Ranch Road	Lake Forest	0.49	A	0.44	A	0.49	0.44

ICU = Intersection Capacity Utilization; LOS = level of service.
 Bold values indicate unacceptable LOS E or F
 Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

Highway Capacity Manual (HCM) Analysis

Table 5.5-17, *Buildout Year 2030 With Project HCM Peak Hour Intersection Analysis*, summarizes the peak hour LOS and average vehicle control delay results at the study intersections for buildout year 2030 with project conditions utilizing the HCM methodology.

As indicated in Table 5.5-17, all study intersections are anticipated to operate at an acceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria under buildout year 2030 with project conditions except for the following intersections:

- 6 – Portola Parkway/Santa Margarita Parkway and El Toro Road (p.m. peak hour);
- 7 – Marguerite Parkway and Santa Margarita Parkway (a.m. peak hour);
- 9 – Los Alisos Boulevard and Santa Margarita Parkway (a.m. and p.m. peak hour); and
- 11 – Saddleback Ranch Road and Millwood Road (a.m. peak hour).

Although the Marguerite Parkway and Santa Margarita Parkway and Los Alisos Boulevard and Santa Margarita Parkway intersections would continue to operate at an unacceptable LOS under buildout year 2030 with project conditions, the proposed project is not considered to have a significant impact at these intersections since the increases in delay would not exceed the significance threshold (increase of more than two seconds of delay when intersections operate at LOS E or F). As a result, no mitigation would be required.



Table 5.5-17
Buildout Year 2030 With Project HCM Peak Hour Intersection Analysis

Study Intersection	Jurisdiction	Traffic Control	AM Peak Hour		PM Peak Hour		Change in Delay	
			Delay ¹	LOS ²	Delay ¹	LOS ²	AM	PM
1 Saddleback Ranch Road /Glenn Ranch Road	Lake Forest	Signal	28.8	C	26.4	C	10.9	10.1
2 El Toro Road/Glenn Ranch Road	Lake Forest	Signal	16.7	B	21.2	C	4.8	1.8
3 Portola Pkwy/Glenn Ranch Road	Lake Forest	Signal	23.9	C	30.5	C	2.3	4.9
4 Marguerite Pkwy/El Toro Road	Mission Viejo	Signal	22.3	C	41.6	D	0.7	8.6
5 Santiago Canyon Road and El Toro Road/Ridgeline Road	Lake Forest	Signal	12.7	B	8.0	A	0.1	0.0
6 Portola Pkwy and Santa Margarita Pkwy/El Toro Road	Lake Forest	Signal	53.6	D	122.0	F	2.3	2.4
7 Marguerite Pkwy/Santa Margarita Pkwy	Mission Viejo	Signal	63.1	E	54.7	D	1.8	2.3
8 Marguerite Pkwy/Los Alisos Blvd	Mission Viejo	Signal	33.8	C	41.7	D	2.9	1.0
9 Los Alisos Blvd/Santa Margarita Pkwy	Mission Viejo	Signal	119.5	F	93.5	F	1.7	1.8
10 Saddleback Ranch Road/Malabar Road	Lake Forest	OWSC ³	31.9	D	16.8	C	5.1	1.6
11 Saddleback Ranch Road/Millwood Road	Lake Forest	OWSC ³	41.1	E	12.5	B	3.7	1.0
12 Saddleback Ranch Road/ Fawn Ridge Road	Lake Forest	Signal	13.0	B	16.7	B	1.5	3.3
13 Ridgeline Road/Santiago Canyon Road	Lake Forest	OWSC ³	8.5	A	9.5	A	0.0	2.6
14 Portola Pkwy/SR-241 Ramps	Lake Forest	Signal	16.7	B	25.2	C	0.5	5.1
15 Saddleback Ranch Road/Project Driveway 1	Lake Forest	Signal	13.8	B	10.3	B	13.8	10.3
16 Project Driveway 2/Glenn Ranch Road	Lake Forest	Signal	14.4	B	17.2	B	14.4	17.2

LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control

Bold values indicate unacceptable LOS E or F

- Notes:
1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement.
 2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7.
 3. At unsignalized intersections, the delay for the stop-controlled approach becomes unreliable when operations approach LOS E/F conditions. The operations are more consistent with the v/c ratio reported for the stop controlled movement.

Source: Wilson & Company, *Portola Center Project Traffic Impact Study*, January 2013.

The Saddleback Ranch Road/Millwood Road intersection would operate at an unacceptable LOS (LOS E) with and without the proposed project. The addition of proposed project traffic would result in an increase in delay by more than two seconds. As stated in the Analysis Methodology section, the projected delays produced by the HCM methodology for unsignalized intersections become unreliable when traffic conditions are projected to be at LOS E or F conditions. Although the adjacent signals at Glenn Ranch Road and Fawn Ridge Road are just over 1,000 feet away from the Saddleback Ranch Road and Millwood Road intersection, gaps would occur in the traffic flow along Saddleback Ranch Road. The gaps in the traffic flow would allow vehicles to turn onto Saddleback Ranch Road and would not result in the long delays that are produced by the HCM



methodology. Therefore, the HCM V/C ratio of 0.63 (LOS B), as shown in the detailed HCM LOS worksheets included in [Appendix 11.5](#), for the eastbound movement of the Saddleback Ranch Road and Millwood Road intersection would more accurately reflect the operations of this intersection rather than the LOS E conditions reported by the HCM methodology. This V/C ratio is also consistent with the ICU value of 0.67 shown in [Table 5.5-16](#). As a result, the impact would not be considered significant and no mitigation would be required.

The Portola Parkway/Santa Margarita Parkway and El Toro Road intersection is anticipated to result in a significant impact under buildout year 2030 with project conditions since the increase in delay would exceed the significance threshold (increase of more than two seconds of delay when intersections operate at LOS E or F). Thus, mitigation would be required. It should be noted that although the results from the ICU analysis are the primary criteria for determining project impacts, the results from the HCM analysis were also used to supplement the traffic analyses and determine if there are additional project impacts that need mitigation.

In order to mitigate the HCM-based operational deficiencies identified under the buildout year 2030 with project condition, the following improvement is recommended at the impacted intersection (Mitigation Measure TRA-2):

- **6 – Portola Parkway/Santa Margarita Parkway and El Toro Road:** Add an overlap phase for the southbound right-turn movement from Portola Parkway to El Toro Road. Prohibit the eastbound U-turn movement along El Toro Road.

[Table 5.5-18, *Buildout Year 2030 With Project HCM Peak Hour Intersection Analysis with Recommended Improvement*](#), summarizes the peak hour LOS and average vehicle control delay results at the Portola Parkway/Santa Margarita Parkway and El Toro Road intersection with implementation of the recommended improvement.

**Table 5.5-18
 Buildout Year 2030 With Project HCM Peak Hour Intersection Analysis with
 Recommended Improvement**

Intersection		Traffic Control	Before Mitigation				With Mitigation				
			AM		PM		AM		PM		
			Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	Delay ¹	LOS ²	
6	Portola Parkway/Santa Margarita Parkway and El Toro Road	Signal	53.6	D	122.0	F	53.2	D	111.0	F	
LOS = level of service; Signal = Traffic Signal; OWSC = One-Way Stop Control Bold values indicate unacceptable LOS E or F Notes: 1. Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one- or two-way stop-controlled intersection, delay refers to the worst movement. 2. LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 7. Source: Wilson & Company, <i>Portola Center Project Traffic Impact Study</i> , January 2013.											



As indicated in [Table 5.5-18](#), the study intersection would continue to operate at an unacceptable LOS based on City of Lake Forest and City of Mission Viejo performance criteria with implementation of the recommended improvement. However, the recommended improvement would improve the delay associated with the study intersection to better than year 2030 without project conditions. Thus, the impact would be mitigated to a less than significant level.

Standard Conditions of Approval: Refer to Standard Condition of Approval FFP1.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures:

TRA-2 Prior to the issuance of building permits, the applicant shall pay its proportionate share contribution to fund the following improvement:

- Portola Parkway/Santa Margarita Parkway and El Toro Road: Add an overlap phase for the southbound right-turn movement from Portola Parkway to El Toro Road. Prohibit the eastbound u-turn movement along El Toro Road.

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

INTERSECTION SPACING AND OPERATION

TRA-4 PROJECT IMPLEMENTATION WOULD NOT CAUSE A SIGNIFICANT OPERATIONAL IMPACT ASSOCIATED WITH THE SADDLEBACK RANCH ROAD AND PROJECT DRIVEWAY 1 INTERSECTION.

Impact Analysis: Project implementation would result in a three-way unsignalized intersection at Saddleback Ranch Road and Project Driveway 1; refer to [Exhibit 5.5-2](#). In order to account for the closely spaced intersections along Saddleback Ranch Road between Millwood Road and Glenn Ranch Road with the addition of Project Driveway 1, an operational analysis was prepared using the SimTraffic model. The analysis considers how the Saddleback Ranch Road/Glenn Ranch Road intersection and the Project Driveway 1/Saddleback Ranch Road intersection would function together. SimTraffic is a microsimulation program that can model closely-spaced intersections and can account for queue spillbacks from adjacent intersections. SimTraffic produces delays and queues that are based on the performance of each vehicle in the network and takes into account the performance of vehicles at congested locations. In general, SimTraffic calculates the delay of each vehicle at each respective intersection (taking into account the performance characteristics of each vehicle) and produces an overall delay for the intersection. The delays and queues generated by SimTraffic are the average of five unique simulation runs for that condition (Existing Conditions, Buildout, etc.) at that period (a.m. or p.m.).

Traffic simulations of the operation of the two intersections were prepared for the following scenarios during the a.m. and p.m. peak hours:



- Existing Conditions;
- Buildout Year 2030 Without Project Conditions; and
- Buildout Year 2030 With Project Conditions.

The Existing Conditions scenario represents the baseline condition without any project traffic or driveways along Saddleback Ranch Road. The Buildout Year 2030 With Project Conditions scenario represents the worst-case conditions assuming the increased traffic volumes in the study area in conjunction with the buildout traffic volumes generated by the project. Results indicate an acceptable LOS D or better operations in both the free-right turn and controlled right turn options at the Saddleback Ranch Road/Glenn Ranch Road intersection. Under both the a.m. and p.m. peak periods, both intersections would operate at an acceptable LOS under all scenarios and result in queue lengths that are contained within the respective turn pockets. Impacts would be less than significant.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

ONSITE QUEUING

TRA-5 PROJECT IMPLEMENTATION WOULD NOT CAUSE A SIGNIFICANT QUEUING IMPACT ASSOCIATED WITH THE GLENN RANCH ROAD AND PROJECT DRIVEWAY 2 INTERSECTION.

Impact Analysis: A peak-hour signal warrant analysis was conducted for the Project Driveway 2 and Glenn Ranch Road intersection based on the criteria outlined in the California Manual of Uniform Traffic Control Devices (MUTCD) 2012 Edition. Based on the results, a traffic signal would be warranted for this location. Therefore, project implementation would result in a four-way signalized intersection at Glenn Ranch Road and Project Driveway 2; refer to [Exhibit 5.5-2](#). Project Driveway 2 would provide access to the 223 residential units proposed within the Northeast Planning Area of the project. A queuing analysis was conducted at the Glenn Ranch Road/Project Driveway 2 intersection under the near term year 2015 and buildout year 2030 scenarios to determine the potential for queuing vehicles inside Driveway 2 during the a.m. and p.m. peak periods to cause an operational deficiency. [Table 5.5-19, Glenn Ranch Road/Project Driveway 2 Queuing Analysis](#), summarizes the results of the queuing analysis.

As indicated in [Table 5.5-19](#), the queues for the southbound approach of Project Driveway 2 in either the near term year 2015 or buildout year 2030 scenarios would be approximately 20 feet or one vehicle in length. The expected queue length would not exceed the available storage length of 125 feet, and therefore, would not result in operational deficiencies. Given that a.m. and p.m. peak hour traffic conditions at this driveway are comparable, it is reasonable to assume that the



northbound approach of Project Driveway 2 would also not result in queues that exceed the available storage length. The queuing worksheets are provided in [Appendix 11.5](#), as Appendix G of the Traffic Impact Study. Impacts would be less than significant in this regard.

**Table 5.5-19
Glenn Ranch Road/Project Driveway 2 Queuing Analysis**

Intersection	Movement	Storage Length (feet)	95th Percentile Queue Length (feet) ¹			
			Near Term Year 2015		Buildout Year 2030	
			AM	PM	AM	PM
16 Project Driveway 2/Glenn Ranch Road	SB TH-LT	125	20	20	20	20
	SB RT	125	20	20	20	20
SB = southbound; TH = through; LT = left; RT = right Note: 1. Queue lengths have been rounded up to the nearest 20 feet. Source: Wilson & Company, <i>Portola Center Project Traffic Impact Study</i> , January 2013.						

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

HAZARDOUS TRAFFIC CONDITIONS

TRA-6 DEVELOPMENT OF THE PROPOSED PROJECT WOULD NOT RESULT IN A HAZARDOUS TRAFFIC CONDITION EITHER ON-SITE OR IN THE SURROUNDING AREA.

Impact Analysis: The project would provide access to the Planning Areas through three new project driveways; refer to [Exhibit 5.5-2](#). The project proposes the option to gate the entrances. Gated entrances have been designed in accordance with Orange County design standards for gated entrances (OC Standard Plan 1107). Compliance with these standards would ensure an adequate queue length between each project entrance and the gates would be provided in order to prevent cars from backing up into the adjoining intersection and onto City streets. As proposed, the project's entrances would exceed the design standards with the majority of the project entrances exceeding the standards by a factor of two or more. Thus, the proposed project would not result in a hazardous traffic condition either on-site or in the surrounding area. Impacts would be less than significant in this regard.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.



Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

CONFLICT WITH POLICIES, PLANS, OR PROGRAMS

TRA-7 IMPLEMENTATION OF THE PROJECT WOULD NOT RESULT IN A DECREASE OF THE PERFORMANCE OR SAFETY OF PUBLIC TRANSIT, BICYCLE, OR PEDESTRIAN FACILITIES AS A RESULT OF A CONFLICT WITH ADOPTED POLICIES, PLANS, OR PROGRAMS.

Impact Analysis: There are currently no bus routes directly adjacent to the project site. OCTA would continue to provide bus service through existing routes within the area. Implementation of the proposed project would not interfere with the establishment of new or expanded bus routes within the area.

Sidewalks would be constructed as part of Tentative Tract Maps 15353 and 17300, in accordance with City standards, which would provide pedestrian access to and within the proposed development. The internal street system would provide pedestrian sidewalks along all single family residential streets, separated from the roadways by a landscaped parkway.

Project Driveways 2 and 3 along Glenn Ranch Road would accommodate pedestrian crossings at all legs of the intersections. Project Driveway 1 would accommodate pedestrian crossings at the west leg of the intersection only, and pedestrians would not be permitted to cross Saddleback Ranch Road at this unsignalized intersection. With the installation of a traffic signal at Project Driveway 2 and the modification of the traffic signal at Project Driveway 3 (Saddleback Ranch Road/Glenn Ranch Road intersection), the signal timings would be adjusted to allow for the minimum time required for pedestrians to cross the street and would meet the minimum pedestrian crossing speed of 3.5 feet per second as outlined in the California MUTCD. Additionally, Mitigation Measure TRA-3 would require a pedestrian/equestrian push button be installed on the signal mast arm poles at the northwest and northeast corners of the Saddleback Ranch Road/Glenn Ranch Road intersection in order to allow for controlled pedestrian crossings across the north leg of the intersection.

The project proposes approximately 1.5 lineal miles (1.5 acres) of new hiking and walking trails and trail amenities including rest areas, viewing areas, and par course-style activity nodes encircling the South Planning Area with connections from the 5.0 acre public Neighborhood Park on the western edge of the site to the eastern edge of Glenn Ranch Road. Class II bicycle trails would be located along Glenn Ranch Road and Saddleback Ranch Road.

The proposed trail system would also provide linkage points from the project to the existing system of trails located within the open space areas around the project site. An expanded eight-foot-wide sidewalk/pedestrian pathway beginning along the east side of Saddleback Ranch Road at the northern edge of the project boundary would extend through the project and terminate at one of the project's pedestrian parks located at the northeastern driveway along Glenn Ranch Road. The



pathway would connect the existing Portola Hills Community to the proposed five-acre Neighborhood Park and Mixed Use area. The existing Aliso Serrano Riding and Hiking Trail located adjacent to the north side of Glenn Ranch Road would remain within the existing easement. The project would provide enhancements including landscaping, fencing, and decorative block walls to the existing Aliso Serrano Riding and Hiking Trail.

The Northwest Planning Area would connect to the existing Coyote Bush Road dirt trail in Whiting Ranch. Another trail connection would be provided in the South Planning Area for a future connection to the Aliso Creek Riding and Hiking Trail located within the existing Aliso Creek corridor to the southeast of the project site.

The proposed project would not conflict with any of the following Circulation Element policies pertaining to public transit, bicycle, or pedestrian facilities:

- Promote the provision of non vehicular circulation within Lake Forest. (Policy 4.1)
- Provide and maintain a non vehicular component of the Lake Forest overall circulation system that supports bicycles, equestrians, and pedestrians and is coordinated with those of other service districts in Lake Forest and with adjacent jurisdictions. (Policy 4.2)
- Improve pedestrian access from neighborhoods to commercial areas. (Policy 4.3)

Thus, implementation of the proposed project would not conflict with adopted policies, plans, or programs that would result in a decrease of the performance or safety of public transit, bicycle, or pedestrian facilities. Impacts in this regard are less than significant with implementation of mitigation.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures:

TRA-3 Prior to issuance of certificates of occupancy, the applicant shall install a pedestrian/equestrian push button on the signal mast arm poles at the northwest and northeast corners of the Saddleback Ranch Road/Glenn Ranch Road intersection in order to allow for controlled pedestrian crossings across the north leg of the intersection.

Level of Significance: Less Than Significant Impact with Mitigation Incorporated.

5.5.6 CUMULATIVE IMPACTS

Table 4-1, *Cumulative Projects List*, identifies the related projects and other possible development in the area determined as having the potential to interact with the proposed project to the extent that a



significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

■ **CONSTRUCTION OF THE PROPOSED PROJECT, AND OTHER RELATED CUMULATIVE PROJECTS, COULD INCREASE TRAFFIC WHEN COMPARED TO THE TRAFFIC CAPACITY OF THE EXISTING STREET SYSTEM.**

Impact Analysis: Construction activities associated with the proposed project and cumulative projects may overlap, resulting in traffic impacts to local roadways. However, as stated, construction of the proposed project would not result in significant traffic impacts to study intersections. Further, the project would be required to prepare a Construction Management Plan in order to reduce the impact of construction-related traffic upon the local circulation system within the project area. The cumulative development projects would also be required to reduce construction traffic impacts on the local circulation system and implement any required mitigation measures that may be prescribed pursuant to CEQA provisions. Therefore, the project's contribution to cumulative construction traffic impacts would be less than significant.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: Refer to Mitigation Measure TRA-1.

Level of Significance: Less Than Significant With Mitigation Incorporated.

■ **IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS, WOULD NOT CAUSE A SIGNIFICANT INCREASE IN TRAFFIC FOR EXISTING AND NEAR TERM YEAR 2015 CONDITIONS WHEN COMPARED TO THE TRAFFIC CAPACITY OF THE STREET SYSTEM.**

■ **IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS, WOULD NOT CAUSE A SIGNIFICANT INCREASE IN TRAFFIC FOR BUILDOUT YEAR 2030 CONDITIONS.**

Impact Analysis: Traffic from cumulative projects was considered in the near term year 2015 and buildout year 2030 conditions. The analysis provided above within Section 5.5.5 inherently includes cumulative impacts related to the identified cumulative projects within Section 4.0, *Basis of Cumulative Analysis*.

As determined in Section 5.5.5, the proposed project would not result in a cumulatively considerable traffic impacts in regards to local intersections with implementation of mitigation. Impacts would be less than significant in this regard.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.



Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: Refer to Mitigation Measure TRA-2.

Level of Significance: Less Than Significant With Mitigation Incorporated.

■ **IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS WOULD NOT CAUSE A SIGNIFICANT OPERATIONAL IMPACT ASSOCIATED WITH THE SADDLEBACK RANCH ROAD AND PROJECT DRIVEWAY 1 INTERSECTION.**

Impact Analysis: Project implementation would result in a three-way unsignalized intersection at Saddleback Ranch Road and Project Driveway 1. Due to the closely spaced intersections that would occur with the addition of Project Driveway 1, an operational analysis was conducted to consider how the Saddleback Ranch Road/Glenn Ranch Road intersection and the Project Driveway 1/Saddleback Ranch Road intersection would function together for existing and buildout year 2030 without and with project conditions. Results indicate an acceptable LOS D or better operations in both the free-right turn and controlled right turn options at the Saddleback Ranch Road/Glenn Ranch Road intersection. Under both the a.m. and p.m. peak periods, both intersections would operate at an acceptable LOS under all scenarios and result in queue lengths that are contained within the respective turn pockets. Thus, the project would not cause a significant operational impact at the Saddleback Ranch Road/Glenn Ranch Road intersection.

Traffic from cumulative projects was considered in the analysis for buildout year 2030 conditions. As stated, the Saddleback Ranch Road/Glenn Ranch Road intersection would operate at an acceptable LOS under buildout year 2030 with project conditions and queue lengths would be contained within turn pockets. Therefore, the proposed project would not result in a cumulatively considerable traffic impact associated with the addition of the Saddleback Ranch Road and Project Driveway 1 intersection. Impacts would be less than significant in this regard.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

■ **IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS WOULD NOT CAUSE A SIGNIFICANT QUEUING IMPACT ASSOCIATED WITH THE GLENN RANCH ROAD AND PROJECT DRIVEWAY 2 INTERSECTION.**



Impact Analysis: Project implementation would result in a four-way signalized intersection at Glenn Ranch Road and Project Driveway 2. A queuing analysis was conducted at the Glenn Ranch Road/Project Driveway 2 intersection under the near term year 2015 and buildout year 2030 scenarios to determine the potential for queuing vehicles inside Driveway 2 during the a.m. and p.m. peak periods to cause an operational deficiency. The expected queue length would not exceed the available storage length of 125 feet, and, therefore, would not result in operational deficiencies at the Glenn Ranch Road and Project Driveway 2 intersection. Impacts would be less than significant in this regard.

Traffic from cumulative projects was considered in the analysis for near term 2015 and buildout year 2030 conditions. As stated, the proposed project would not result in a significant queuing impact associated with the Glenn Ranch Road and Project Driveway 2 intersection. Therefore, the proposed project would not result in a cumulatively considerable traffic impact associated with queuing at the Glenn Ranch Road and Project Driveway 2 intersection. Impacts would be less than significant in this regard.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

■ **DEVELOPMENT OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN A HAZARDOUS TRAFFIC CONDITION EITHER ON-SITE OR IN THE SURROUNDING AREA.**

Impact Analysis: As stated, the project would provide access to the Planning Areas through three new project driveways with an option to gate the entrances. Gated entrances have been designed in accordance with Orange County design standards for gated entrances (OC Standard Plan 1107). Compliance with these standards would ensure an adequate queue length between each project entrance and the gates would be provided in order to prevent cars from backing up into the adjoining intersection and onto City streets. As proposed, the project's entrances would exceed the design standards with the majority of the project entrances exceeding the standards by a factor of two or more. Thus, the proposed project would not result in a cumulatively considerable hazardous traffic conditions.

Cumulative development projects would be reviewed on a project-by-project basis to ensure that hazardous conditions do not occur. Individual projects would be required to implement required mitigation measures that may be prescribed pursuant to CEQA provisions. Project impacts would not be cumulatively considerable and impacts in this regard would be less than significant.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.



Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact.

■ **IMPLEMENTATION OF THE PROJECT AND RELATED CUMULATIVE PROJECTS WOULD NOT RESULT IN A DECREASE OF THE PERFORMANCE OR SAFETY OF PUBLIC TRANSIT, BICYCLE, OR PEDESTRIAN FACILITIES AS A RESULT OF A CONFLICT WITH ADOPTED POLICIES, PLANS, OR PROGRAMS.**

Impact Analysis: Cumulative projects would be required to comply with each respective City's adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities on a project-by-project basis.

Implementation of the proposed project would not impede the existing public transit, bicycle, or pedestrian facilities. Sidewalks would be constructed as part of Tentative Tract Maps 17300 and 15353, in accordance with City standards, which would provide pedestrian access to and within the proposed development. Additionally, Mitigation Measure TRA-3 would provide controlled pedestrian crossing at the Saddleback Ranch Road and Glenn Ranch Road intersection. The project proposes approximately 1.5 lineal miles (1.5 acres) of new hiking and walking trails and trail amenities, as well as enhancements and connections to existing trails. The proposed project would not conflict with any of the applicable policies of the Circulation Element pertaining to public transit, bicycle, or pedestrian facilities. Thus, implementation of the proposed project would not conflict with adopted policies, plans, or programs that would result in a decrease of the performance or safety of public transit, bicycle, or pedestrian facilities. Project impacts would not be cumulatively considerable and impacts in this regard would be less than significant.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: No OSA Mitigation Measures are applicable to this topical area.

Additional Mitigation Measures: Refer to Mitigation Measure TRA-3.

Level of Significance: Less Than Significant With Mitigation Incorporated.

5.5.7 SIGNIFICANT UNAVOIDABLE IMPACTS

No significant unavoidable impacts related to traffic and circulation have been identified.