4.16 TRANSPORTATION/TRAFFIC

This section analyzes the existing and planned transportation and circulation conditions for the proposed Nakase Nursery/Toll Brothers Project (proposed Project) and the surrounding area, and identifies circulation impacts that may result during, or subsequent to, the development of the proposed Project. The analysis contained in this section is based in part on the *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c), which is provided in Appendix L to this Environmental Impact Report (EIR).

4.16.1 Scoping Process

The City of Lake Forest (City) received 28 comment letters during the public review period of the Initial Study/Notice of Preparation (IS/NOP). For copies of the IS/NOP comment letters, refer to Appendix A of this EIR. Of the 28 comment letters received, 14 included comments related to Transportation/Traffic.

The letter from the Transportation Corridor Agencies (August 14, 2018) requested a map showing the traffic study area. The letter from the City of Irvine (August 14, 2018) requested that the traffic study prepared for the proposed Project include all North Irvine Transportation Mitigation-funded intersections and all City of Irvine intersections and roadway links within these boundaries. In addition, the City of Irvine requested that the traffic study analyze short- and long-term interim year scenarios and future build-out analysis along with the missing segment of Portola Parkway. The letter also suggested clarifying that the proposed Project is part of the Lake Forest Transportation Mitigation fee program.

The letter from the California Department of Transportation (Caltrans) (August 13, 2018) recommended the completion of a Caltrans-formatted Traffic Impact Study and discussion of potential transportation impacts, in addition to the development of a Safe Routes to School program and discussion of the Senior Mobility Program.

The letter from Southern California Edison (SCE) (August 14, 2018) suggests that the EIR analyze traffic impacts associated with project-related utility work.

The letter from Saddleback Valley Unified School District (SVUSD) (July 25, 2018) expressed concern regarding the direct and indirect impacts to SVUSD schools (including traffic, pedestrian safety, bicycle safety, and parking) along with issues raised about traffic conditions during peak hours, vehicle queuing along “BB” street and access points, and pedestrian/bike safety along school routes.

The letter from Loretta Herin (July 25, 2018) expressed concern regarding additional traffic on Bake Parkway. The letter from Bob Holtzclaw (July 25, 2018) expressed concern regarding additional traffic on Bake Parkway. A letter from Jim Johnson (July 25, 2018) expressed concern about additional traffic on Bake Parkway, suggested that Bake Parkways may need to be widened to three or four lanes between Trabuco Road and State Route 241 (SR-241), and suggested evaluation of a traffic signal coordination program along Bake Parkway.

The Letter from Richard Sullivan (July 25, 2018) expressed concern with parking and accidents along Normandale Drive and Oesterman Road. The letter from Sue Nath (July 25, 2018) expressed concern about additional traffic on Bake Parkway. The letter from Charles Larson (August 4, 2018) expressed concern about school-related traffic impacts, particularly at Rancho Parkway and Bake Parkway.

The letter from Andrea Alexander (August 6, 2018) suggested an ordinance to ban trucks and motorcycles on Bake Parkway between Muirlands Boulevard and Trabuco Road and rerouting truck traffic to Alton Parkway. The letter also suggests elimination of tolls on SR-241 at Bake Parkway and Portola Parkway to divert traffic away from Bake Parkway, and the reduction of lanes on Bake Parkway to make Alton Parkway a more desirable route. The commenter was also concerned about the proposed Project's contribution to traffic congestion.

The letter from Judy Esposito (August 6, 2018) expressed concern about potential increases in traffic. The letter from the Autumnwood Homeowner's Association (HOA) (August 8, 2018) requested that the EIR evaluate traffic impacts. Finally, a letter from an Anonymous Sender (August 30, 2018) suggests analysis of circulation throughout the area, north and south, and analysis of a direct route through the Project site from Rancho Parkway south to the Sports Park Complex.

4.16.2 Existing Environmental Setting

The Project site is bordered by Bake Parkway and Rancho Parkway to the west and north, respectively, with Serrano Creek to the east. Lake Forest Drive is located just east of Serrano Creek. In the study area, Bake Parkway and Lake Forest Drive are classified by the City of Lake Forest Arterial Highway Plan as Primary Arterials (4-Lane Divided Roadways). Rancho Parkway is a Commercial Street along the northern Project boundary. As discussed in greater detail below, one study area intersection (#29 – Bake Parkway/Jeronimo Road) is operating at an unacceptable level of service (LOS) (i.e., "E" or worse) in the a.m. peak hour in the Existing condition. All other study area intersections are operating at acceptable LOS in the Existing condition.

The Orange County Transportation Authority (OCTA), a public transit agency, serves Lake Forest and the project area with bus service along Bake Parkway and a portion of Dimension Drive (Route 206). Route 177 serves Lake Forest Drive. OCTA periodically reviews and updates its transit service to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments, which may lead to either enhanced or reduced service where appropriate.

Bike lanes along Bake Parkway, Lake Forest Drive, Rancho Parkway, and Rancho Parkway South are included in the City of Lake Forest General Plan. In addition, Serrano Creek Trail starts at Serrano Creek Park, southerly to the Nakase Property site, and extends northerly to the Limestone/Whiting Ranch Wilderness Park. This multipurpose trail accommodates running, walking, equestrian uses, and biking.

4.16.3 Regulatory Setting

4.16.3.1 Federal Regulations

No relevant federal transportation/traffic regulations apply to the proposed Project.

4.16.3.2 State Regulations

Senate Bill 743. On December 28, 2018, the California Office of Administrative Law cleared the revised *State CEQA Guidelines* for use. Among the changes to the *State CEQA Guidelines* was removal of vehicle delay and LOS from consideration under the California Environmental Quality Act (CEQA). With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT). Lead agencies are allowed to opt in to the revised transportation guidelines, but the new guidelines must be used starting July 1, 2020.

The City has not yet established thresholds related to VMT. However, the State has provided technical guidelines for the implementation of Senate Bill (SB) 743, which identifies potential thresholds against which to measure the proposed Project's impacts related to VMT.

The Technical Advisory for Evaluating Transportation Impacts Under CEQA provides the following guidance:

> "*Recommended threshold for residential projects:* A proposed Project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita. Proposed development referencing a threshold based on city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the number of units specified in the SCS for that city, and should be consistent with the SCS."

4.16.3.3 Regional Regulations

Orange County Congestion Management Program. OCTA is a multimodal 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 regulation of taxi operations. State law requires that a Congestion Management Program (CMP) 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 Orange County CMP.

OCTA adopted the CMP in 1991 to reduce traffic congestion and to provide a mechanism for coordinating land use and development decisions in Orange County. Compliance with the CMP requirements ensures a city's eligibility to compete for State gas tax funds for local transportation projects.

Within Lake Forest, the CMP Highway System includes two arterials: El Toro Road and Trabuco Road. The intersections of El Toro Road/Trabuco Road and El Toro Road/Interstate 5 (I-5) ramps are the only CMP intersections in Lake Forest. The intersection of El Toro Road/Trabuco Road is a study intersection.

Based on CMP requirements, a Traffic Impact Analysis (TIA) is required for CMP purposes for any proposed development generating 2,400 or more daily trips, with the exception of developments that will directly access a CMP Highway System roadway segment, for which the threshold for requiring a TIA is reduced to 1,600 or more trips per day. The proposed Project is estimated to generate a total of 8,739 daily trips. Thus, the proposed Project requires a TIA for CMP purposes.

Based on CMP requirements, the extent of the study area for a TIA is determined by comparing a project's daily trips on a CMP roadway segment to the daily LOS E capacity of that segment. The CMP requires that the study area for a project extend far enough to cover any CMP roadway segment on which the project traffic would represent 3 percent or more of the roadway segment's LOS E capacity.

4.16.3.4 Local Regulations

Lake Forest Traffic Mitigation (LFTM) Program. The LFTM Program was adopted in 2006 and incorporated as Section 7.19 of the City of Lake Forest Municipal Code. The LFTM Program is designed to maintain adequate LOS on the City's arterial street system by planning and funding a set of citywide transportation improvements. The proposed Project was not a planned development project at the time the LFTM Program was adopted; therefore, the proposed Project would not participate in the LFTM Program.

City of Lake Forest General Plan. The City of Lake Forest General Plan contains goals, policies, and plans that are intended to guide land use and development decisions. The Circulation Element contains policies that relate to traffic and circulation.

Six major issues are addressed by the goals, policies, and implementation actions of the Circulation Element: (1) supporting the development of regional transportation facilities; (2) providing a suitable system of City roadways; (3) increasing the use of public transit and non-vehicular modes of travel; (4) ensuring the existence of convenient and suitable parking for vehicles; (5) improving the efficiency of the transportation system and controlling demands on the system; and (6) identifying and utilizing sources of funding for transportation system improvements. Specifically, the City's General Plan includes the following goals and policies:

> **Goal 1.0:** Support for the development of an efficient network of regional transportation facilities.
>
> **Goal 2.0:** A system of roadways in the community that meets local needs.
>
> > **Policy 2.1:** 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 2.3:** Improve the Lake Forest circulation system roadways in concert with land development to ensure adequate levels of service.
>
> **Goal 3.0:** Increased use of public transportation.

Policy 3.1: Promote the provision of public transit facilities within areas of major development.

Policy 3.3: Encourage the provision of special transit services in Lake Forest.

Policy 3.4: Promote access and public transit service between Lake Forest and regional-serving transportation centers.

Goal 4.0: Promotion of non-vehicular modes of travel.

Policy 4.1: Promote the provision of non-vehicular circulation within Lake Forest.

Policy 4.2: 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 4.3: Improve pedestrian access from neighborhoods to commercial areas.

Goal 5.0: Convenient and suitable parking facilities for motorized and non-motorized vehicles.

Policy 5.1: Require sufficient off street parking for all land uses and maximize the use of parking facilities in Lake Forest.

Policy 5.2: Eliminate the use of on street parking on identified arterial streets where maximum traffic flow is desired.

Policy 5.3: Promote the provision of access between the parking areas of adjacent properties along arterial roadways to improve overall traffic flow.

Goal 6.0: Maximized transportation system efficiency.

Policy 6.1: Improve operational measures of the traffic system designed to maximize the efficiency of the system while minimizing delay and congestion.

Policy 6.2: Improve intersection capacity at key intersections to improve traffic flow.

Goal 7.0: Utilization of various financing methods to improve the overall transportation system.

Policy 7.1: Utilize available financing methods and sources of funding to make necessary improvements to the overall transportation system in Lake Forest.

> **Policy 7.3:** Maintain the transportation standards required to qualify for revenue from the Congestion Management Plan and the Revised Traffic Improvement and Growth Management Ordinance (Measure M).

City of Lake Forest Municipal Code. Guidelines and provisions related to traffic and circulation are addressed in Chapter 12 (Vehicles and Traffic) of the City's Municipal Code. Chapter 9 addresses parking.

Chapter 12.04, General Provisions and Administration:

> **Section 12.04.020: Traffic Manual.** To guide the application of the laws contained in the City's Traffic Ordinance not in the California Vehicle Code, the City adopted the California Manual on Uniform Traffic Control Devices (California MUTCD), as it may be amended from time to time by the California Department of Transportation. The California MUTCD defines engineering policies, procedures, and interpretations of traffic engineering practice.
>
> **Section 12.04.040: Traffic Administration.** It shall be the general duty of the Director of Public Works/City Engineer or designee to determine the installation, design, operation, and maintenance of traffic-control devices, design and/or review traffic flow systems and appurtenances, conduct engineering analyses of traffic accidents; devise remedial measures; conduct engineering and traffic investigations of traffic conditions. The Director of Public Works/City Engineer shall also cooperate with the California Highway Patrol, the Orange County Sheriff's Department, the Orange County Fire Authority, and other agencies as appropriate in the development of ways and means to improve traffic conditions and maximize traffic safety.

North Irvine Transportation Mitigation Program. According to Section 6-3-701 of the City of Irvine Municipal Code, the North Irvine Transportation Mitigation Program (NITM Program) was established for the purpose of providing funding for the coordinated and phased installation of required traffic and transportation improvements required under CEQA documents previously certified or adopted by the City of Irvine in connection with land use entitlements for City Planning Areas 1, 2, 5, 6, 8, 9, 30, 40 and 51. Portions of City Planning Areas 1, 2, 5, 6, 8, 9, 30, 40 and 51 are located in Irvine and portions are located outside Irvine but within the City's sphere of influence.

4.16.4 Methodology

The TIA prepared for the proposed Project is consistent with the objectives and requirements of the City, the Orange County CMP, Caltrans methodology, and applicable CEQA provisions.

4.16.4.1 Analysis Scenarios and Study Area

The traffic analysis has evaluated weekday a.m. peak-hour (7:00 a.m. to 9:00 a.m.) and weekday p.m. peak-hour (4:00 p.m. to 6:00 p.m.) traffic conditions at study area intersections for the following analysis scenarios, which are further described below:

- Existing (2017) Conditions
- Existing Plus Project Conditions
- Interim Year Cumulative 2020 Without Project
- Interim Year Cumulative 2020 With Project
- 2040 General Plan Cumulative With Current Approved Project Land Use, Without Portola Westerly Extension (including the five intersection improvement scenarios listed below)
- 2040 General Plan Cumulative With Project, Without Portola Westerly Extension (including the five intersection improvement scenarios listed below)
- 2040 General Plan Cumulative With Current Approved Project Land Use, With Portola Westerly Extension (including the five intersection improvement scenarios listed below)
- 2040 General Plan Cumulative With Project, With Portola Westerly Extension (including the five intersection improvement scenarios listed below)

In addition, all of the 2040 General Plan scenarios include an analysis of these five intersection improvement alternatives:

1. **Intersection Alternative Scenario #1:** The City's current baseline model including all of the LFTM Program improvements, North Irvine Transportation Mitigation (NITM) Program improvements, and Foothill Circulation Phasing Plan (FCPP) improvements.

2. **Intersection Alternative Scenario #2:** Scenario #1 without three (3) LFTM Program improvements in Irvine at intersections of Alton Parkway/Irvine Boulevard (#25), Bake Parkway/Rockfield Boulevard (#31), and Lake Forest Drive and I-5 southbound ramps/Avenida de la Carlota (outside the study area)

3. **Intersection Alternative Scenario #3:** Scenario #2 without the second southbound right turn on El Toro Road and Portola Parkway/Santa Margarita Parkway (#22)

4. **Intersection Alternative Scenario #4:** Scenario #2 without the fourth westbound through lane on Bake Parkway and Trabuco Road/Irvine Boulevard (#27)

5. **Intersection Alternative Scenario #5:** Scenario #2 without both the second southbound right turn on El Toro Road and Portola Parkway/Santa Margarita Parkway (#22), and the fourth westbound through lane on Bake Parkway and Trabuco Road/Irvine Boulevard (#27).

Figure 4.16.1 and Table 4.16.A identify the study area intersections. Off-site study area intersections are generally signalized, except for the intersection of Orchard Road/Bake Parkway.

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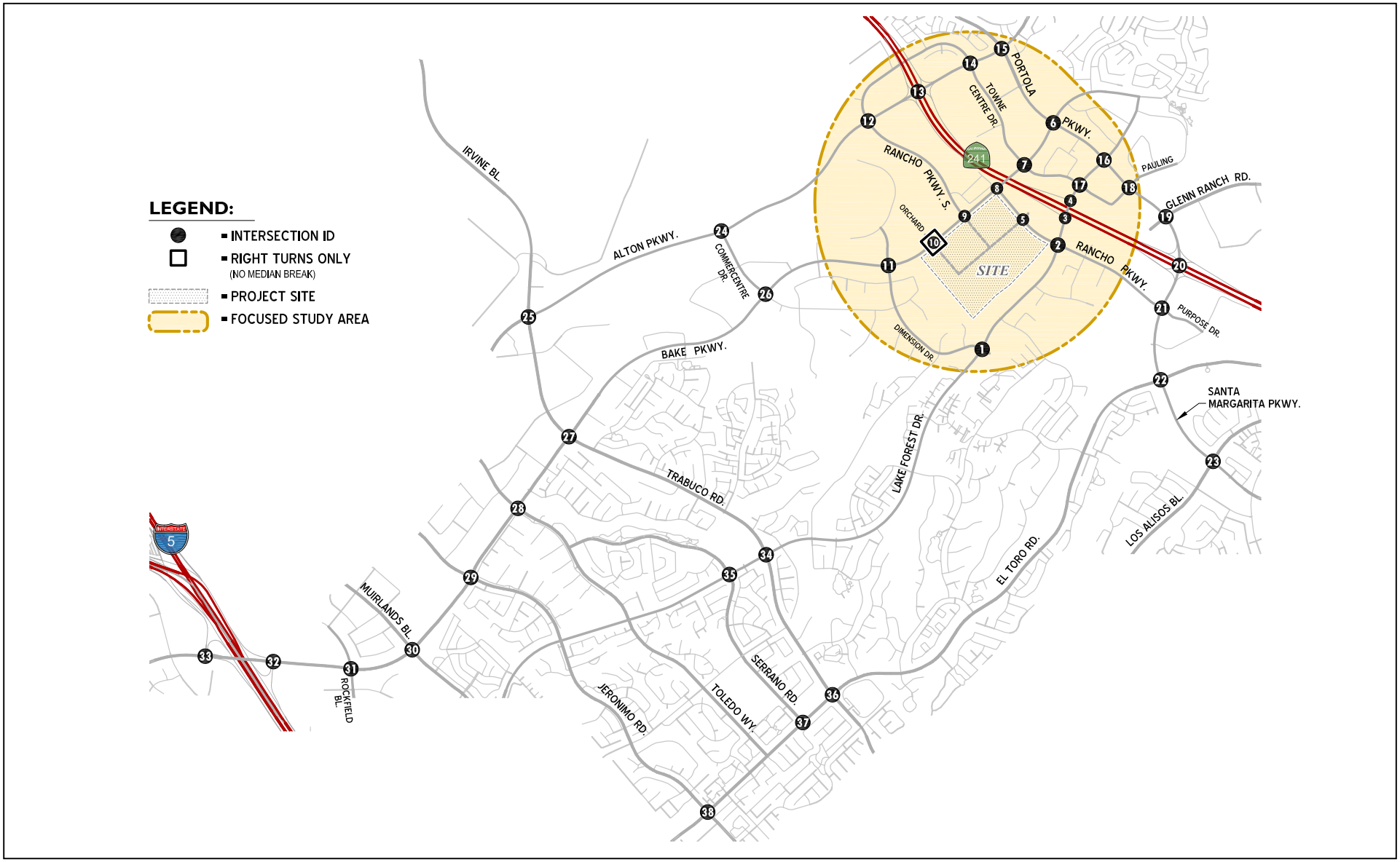

LSA

FIGURE 4.16.1

NO SCALE

SOURCE: Urban Crossroads

Nakase Nursery/Toll Brothers

Study Area Intersections

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Table 4.16.A: Study Intersections

#	Intersection	Jurisdiction	LOS Criteria
1	Lake Forest Drive/Dimension Drive	Lake Forest	D
2	Lake Forest Drive/Rancho Parkway	Lake Forest (LFTM)	D
3	Lake Forest Drive/SR-241 SB Off-Ramp	Caltrans	D
4	Lake Forest Drive/SR-241 NB On-Ramp	Caltrans	D
5	Corridor Center/Rancho Parkway	Lake Forest	D
6	Bake Parkway/Portola Parkway	Lake Forest (LFTM)	D
7	Bake Parkway/Towne Center Drive	Lake Forest	D
8	Bake Parkway/Rancho Parkway	Lake Forest	D
9	Bake Parkway/Rancho Parkway South	Lake Forest	D
10	Bake Parkway/Orchard Road (unsignalized)	Lake Forest	D
11	Dimension Drive/Bake Parkway	Lake Forest	D
12	Alton Parkway/Rancho Parkway South	Lake Forest	D
13	Alton Parkway/SR-241 Ramps	Caltrans	D
14	Alton Parkway/Towne Centre Drive	Lake Forest	D
15	Alton Parkway/Portola Parkway	Lake Forest	D
16	Lake Forest Drive/Portola Parkway	Lake Forest	D
17	Lake Forest Drive/Towne Centre Drive	Lake Forest	D
18	Towne Centre Drive/Portola Parkway	Lake Forest	D
19	Glenn Ranch Road/Portola Parkway	Lake Forest	D
20	Portola Parkway/SR-241 Ramps	Caltrans	D
21	Portola Parkway/Rancho Parkway	Lake Forest	D
22	El Toro Road/Portola Parkway	Lake Forest (LFTM)	D
23	Los Alisos Boulevard/Santa Margarita Parkway	Mission Viejo	D
24	Alton Parkway/Commercentre Drive	Lake Forest	D
25	Alton Parkway/Irvine Boulevard	Irvine (LFTM/NITM)	E
26	Bake Parkway/Commercentre Drive	Lake Forest	D
27	Bake Parkway/Irvine Boulevard-Trabuco Road	Irvine / Lake Forest (LFTM/NITM)	E
28	Bake Parkway/Toledo Way	Irvine / Lake Forest	D
29	Bake Parkway/Jeronimo Road	Irvine / Lake Forest (LFTM/NITM)	D
30	Bake Parkway/Muirlands Boulevard	Irvine	D
31	Bake Parkway/Rockfield Boulevard	Irvine	D
32	Bake Parkway/I-5 NB Ramps	Caltrans	E
33	Bake Parkway/I-5 SB Ramps	Caltrans	E
34	Lake Forest Drive/Trabuco Road	Lake Forest	D
35	Lake Forest Drive/Serrano Road	Lake Forest	D
36	El Toro Road/Trabuco Road	Lake Forest / CMP	E
37	El Toro Road/Serrano Road	Lake Forest	D
38	El Toro Road/Jeronimo Road	Lake Forest	D

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c)
Caltrans = California Department of Transportation
CMP = Congestion Management Program intersection
I-5 = Interstate 5
LFTM = Lake Forest Transportation Mitigation Program intersection
LOS = level of service
NB = northbound
NITM = North Irvine Transportation Mitigation Program intersection
SB = southbound
SR-241 = State Route 241

4.16.4.2 Intersection Level of Service Methodology

Intersection Capacity Utilization (ICU) Methodology. Stantec Consulting prepared the traffic volume forecasts using the Lake Forest Traffic Analysis Model (LFTAM). For signalized intersections in the City and nearby jurisdictions (City of Irvine and City of Mission Viejo), the ICU method is used to determine intersection performance. To calculate the ICU value for an intersection, the volume of traffic using the intersection is compared with the capacity of the intersection.

The term "level of service" (LOS) describes traffic operations of roadway facilities. LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A (representing completely free-flow conditions) to LOS F (representing breakdown in flow resulting in stop-and-go conditions). LOS E represents operations at or near capacity, which is an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow. For signalized intersections, LOS is directly related to the volume-to-capacity (v/c) ratios and is correlated to an LOS designation as described in Table 4.16.B.

Table 4.16.B: LOS/ICU Value Comparison

Level of Service	Intersection Capacity Utilization
A	< 0.60
B	0.61–0.70
C	0.71–0.80
D	0.81–0.90
E	0.91–1.00
F	> 1.00

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c)
ICU = intersection capacity utilization
LOS = level of service

A number of assumptions are required regarding specific input values to the ICU methodology. The specific assumptions include the use of a saturation flow rate of 1,700 vehicles per lane per hour (vplph). No capacity adjustments are applied for protected movements with dedicated lanes (including both right and left turns). A lost time factor of 5 percent is applied to the ICU calculations. Finally, a "de facto" right-turn lane is assumed to exist when the outermost through lane is 19 feet (ft) or greater in width and parking is prohibited.

Highway Capacity Manual (HCM) Methodology. The HCM methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

HCM methodology is used for the signalized intersections under Caltrans jurisdiction as well as unsignalized intersections. Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 4.16.C). At two-way or side-street stop-controlled

Table 4.16.C: LOS/HCM Value Comparison

Level of Service	Signalized Intersection Delay (seconds)	Unsignalized Intersection Delay (seconds)
A	≤10.0	≤10.0
B	>10.0 and ≤20.0	>10.1 and ≤15.0
C	>20.0 and ≤35.0	>15.1 and ≤25.0
D	>35.0 and ≤55.0	>25.1 and ≤35.0
E	>55.0 and ≤80.0	>35.1 and ≤50.0
F	>80.0	>50.0

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c).
HCM = Highway Capacity Manual
LOS = level of service

intersections, LOS is calculated for each controlled movement and for the left-turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop-controlled intersections and signalized intersections, LOS is computed for the intersection as a whole. However, if traffic volume at a signalized intersection exceeds the green light capacity of the traffic signal, then the intersection is determined to operate at LOS F regardless of the average vehicle delay.

4.16.4.3 Potentially Significant Traffic Impact Criteria

Per the City's General Plan, LOS D (i.e., peak-hour ICU less than or equal to 0.90) or better is generally considered acceptable at intersections. However, at Critical Intersections, LOS E (i.e., peak-hour ICU less than or equal to 1.00) is acceptable with the requirement that regular monitoring takes place. Critical Intersections are a set of identified intersections that are either deficient today or are estimated to be deficient in the future even with reasonable improvements, but are considered Principal Intersections and critical to the function of the overall roadway network.

Per the City's General Plan, a project impact occurs when a study area intersection exceeds the acceptable LOS and the impact of the development is greater than 0.01. Project mitigation will be required to bring back the intersection v/c to 0.90 or baseline if the baseline is greater than 0.90 (or 1.00 at Critical Intersections).

For nearby jurisdictions (City of Irvine, City of Mission Viejo, and Caltrans), LOS D or better is generally considered acceptable at intersections, with the exception of the following locations where LOS E is acceptable: Bake Parkway/I-5 ramp intersections (#32 and #33), Alton Parkway/Irvine Boulevard (#25), Bake Parkway/Irvine Boulevard–Trabuco Road (#27), and El Toro Road/Trabuco Road (#36 – CMP intersection).

For ICU greater than the acceptable LOS, mitigation of the project contribution is required to bring the intersection back to an acceptable LOS or to the "without" project conditions if the project contribution is greater than 0.03 at CMP locations outside the City of Irvine (the impact threshold

specified in the CMP), 0.02 or greater at locations in the Cities of Irvine and Mission Viejo, and greater than 0.01 in the City of Lake Forest.

4.16.5 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the *State CEQA Guidelines*. Based on these thresholds, implementation of the proposed Project may have a significant adverse impact with respect to transportation if it would:

Threshold 4.16.1: Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

Threshold 4.16.2: Conflict or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b);

Threshold 4.16.3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

Threshold 4.16.4: Result in inadequate emergency access.

The Initial Study, included as Appendix A, identified potentially significant impacts related to City of Lake Forest performance criteria and potentially hazardous design features. Thresholds related to CEQA Guidelines section 15064.3 and emergency access were not evaluated in the Initial Study. Therefore, all thresholds are analyzed in this EIR.

4.16.6 Project Impacts

Threshold 4.16.1: Would the Project conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Potentially Significant.

Project Construction. The proposed Project would be implemented over an estimated period of 67 months (approximately 5.5 years). Demolition and site preparation would span approximately 3 months, and grading would span approximately 12 months. Paving and infrastructure would take approximately 4 months and 12 months, respectively, and would occur concurrently. Building construction would be implemented over an estimated period of 46 months. Project build out is anticipated to occur in 2025.

The site-specific construction fleet would vary due to actual construction needs, but construction vehicle trips would derive from construction workers, vendor deliveries, and material hauling. According to the City of Lake Forest Municipal Code, noise from construction activities is limited to the hours between 7:00 a.m. and 8:00 p.m. on weekdays and on Saturdays. No noise from construction activities is permitted on Sundays or City holidays.

During demolition, the proposed Project would require the demolition of approximately 2,848 tons of asphalt and 1,161 tons of concrete. The total amount of demolished material that is expected for the Project is approximately 4,009 tons of debris. Hauling trips are based on the assumption that a truck can haul 20 tons (16 cubic yards [cy]) of material per load and assumes that one haul truck importing material would also have a return trip. Therefore, demolition is anticipated to require approximately 401 hauling trips in order to remove 4,009 tons of debris. Over a 66-day period, the Project demolition activity therefore equates to approximately 3 trucks daily (for a total of 6 hauling trips per day) and 15 worker trips per day. In addition, the Project is expected require 150,000 cy of soil export. As such, the Project is expected to generate 18,750 hauling trips in order to export 150,000 cy of soil. Hauling trips are based on the assumption that a truck can haul 20 tons (16 cy) of material per load and assumes that one haul truck exporting material will also have an inbound trip, as noted above. As such, the Project is expected to generate 18,750 hauling trips in order to export 150,000 cy of soil. This potential grading activity equates to approximately 70 hauling trips per day and 20 worker trips per day over a 269-day period. Soil export activity will not be permitted during peak commute hours from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.

The infrastructure, building construction, and architectural coating activity equates to approximately 143 medium-duty truck trips per day, 143 heavy-duty truck trips per day, and 1,034 worker trips per day over a 1,001-day period. The delivery and removal of heavy equipment is recommended to occur outside of the morning and evening peak hours in order to have nominal impacts to traffic and circulation near the vicinity of the Project. With time-of-day restrictions, it is anticipated that traffic impacts associated with the delivery and removal of heavy equipment are less than significant.

Construction employee trips are estimated based on the number of construction workers anticipated to be on site throughout the various stages of construction. Each construction worker is assumed to drive to and from the construction site each day. It has been assumed that construction workers would arrive up to 30 minutes prior to the workday and would leave up to 30 minutes after the workday ends. It is anticipated that the majority of construction employees would arrive between 6:00 a.m. and 7:00 a.m., and depart between 3:30 p.m. and 4:30 p.m.

During all phases of construction, construction trips would be greater than the number of trips associated with the existing nursery operations, but fewer than the number of trips associated with operation of the proposed Project. The most intense level of traffic activity generated by the Project construction phases is estimated to occur in conjunction with infrastructure, building construction, and architectural coating. In comparison to a single car, a truck affects roadway operations based upon several variables (e.g., headway, speed, density). In order to account for these effects, truck volume is converted to passenger car equivalent (PCE) to represent traffic flow. The Project construction activities associated with infrastructure, building construction, and architectural coating could amount to the trips shown in Table 4.16.D.

Table 4.16.D: Infrastructure, Building Construction, and Architectural Coating Trips

Trip Category	Daily Vehicle Trips	PCE Factor	PCE Daily Trips
Medium Truck	143	2	286
Heavy Truck	143	3	429
Worker	1,034	1	1,034
Total	**1,320**		**1,749**

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c)
PCE = passenger car equivalent

These estimated daily construction traffic levels exceed the traffic generated by the existing nursery, which ranges from 127 to 332 trip-ends per day. However, traffic operations during the proposed construction phases of the Project (including vehicle trips associated with construction employees, export of soil, import of construction materials, etc.) are anticipated to occur during off-peak periods. Nevertheless, study area intersections may potentially be impacted by workers and trucks during the various construction phases. More specifically, while the traffic impacts associated with the volume of traffic during construction would be less than the traffic impacts determined through the analysis of Project operation, construction activities would have the potential to reduce roadway capacity. Mitigation Measure 4.16.1 would reduce potential impacts associated with temporary construction traffic, including haul trips and equipment deliveries. Mitigation Measure 4.16.1 requires the development of a Construction Traffic Management Plan (CTMP) that would be required and approved by the City of Lake Forest Director of Public Works/City Engineer. In general, the CTMP would ensure that to the extent practicable, construction traffic would access the Project site during off-peak hours, and that construction traffic would be routed to avoid travel through, or proximate to, sensitive land uses. With incorporation of Mitigation Measure 4.16.1, potential impacts associated with construction traffic would be reduced to a less than significant level.

Project Operation.

City Program, Plan, or Ordinance: Roadway. Existing peak-hour traffic operations have been evaluated for the study intersections based on the analysis methodologies described above. Table 4.16.E identifies the existing LOS for the study intersections. One study area intersection (#29 - Bake Parkway/Jeronimo Road) operates at an unacceptable LOS (LOS E or worse) during the a.m. peak hour in the Existing condition.

The TIA calculates the potential trip generation for the project using rates established in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition). As shown in Table 4.16.F, the proposed Project is anticipated to generate a total of approximately 8,789 trip-ends per day with 1,202 vehicles per hour during the a.m. peak hour, and 879 vehicles per hour during the p.m. peak hour. It should be noted that Table 4.16.F provides a conservative analysis of the Project's new trips without taking credit for existing trip generation at the Project site. The trip distribution patterns for the proposed Project were determined in conjunction with the City traffic modeling consultant and City staff during

Table 4.16.E: Summary of Peak-Hour Intersection Operation – Existing Conditions

Int. #	Intersection	AM Peak Hour		PM Peak Hour	
		ICU/Delay	LOS	ICU/Delay	LOS
1	Lake Forest Drive/Dimension Drive	0.41	A	0.52	A
2	Lake Forest Drive/Rancho Parkway	0.42	A	0.57	A
3	Lake Forest Drive/SR-241 SB Off-Ramp	0.29	A	0.36	A
4	Lake Forest Drive/SR-241 NB On-Ramp	0.24	A	0.28	A
5	Corridor Center/Rancho Parkway	0.25	A	0.27	A
6	Bake Parkway/Portola Parkway	0.42	A	0.49	A
7	Bake Parkway/Towne Center Drive	0.39	A	0.49	A
8	Bake Parkway/Rancho Parkway	0.44	A	0.55	A
9	Bake Parkway/Rancho Parkway South	0.51	A	0.52	A
10	Bake Parkway/Orchard Road (unsignalized)	14.0 sec	B	13.0 sec	B
11	Dimension Drive/Bake Parkway	0.40	A	0.56	A
12	Alton Parkway/Rancho Parkway South	0.48	A	0.39	A
13	Alton Parkway/SR-241 Ramps	0.32	A	0.39	A
14	Alton Parkway/Towne Centre Drive	0.25	A	0.31	A
15	Alton Parkway/Portola Parkway	0.41	A	0.27	A
16	Lake Forest Drive/Portola Parkway	0.36	A	0.49	A
17	Lake Forest Drive/Towne Centre Drive	0.30	A	0.41	A
18	Towne Centre Drive/Portola Parkway	0.38	A	0.55	A
19	Glenn Ranch Road/Portola Parkway	0.41	A	0.48	A
20	Portola Parkway/SR-241 Ramps	0.35	A	0.38	A
21	Portola Parkway/Rancho Parkway	0.42	A	0.50	A
22	El Toro Road/Portola Parkway	0.62	B	0.65	B
23	Los Alisos Boulevard/Santa Margarita Parkway	0.75	C	0.73	C
24	Alton Parkway/Commercentre Drive	0.37	A	0.43	A
25	Alton Parkway/Irvine Boulevard	0.47	A	0.42	A
26	Bake Parkway/Commercentre Drive	0.50	A	0.67	B
27	Bake Parkway/Irvine Boulevard-Trabuco Road	0.63	B	0.68	B
28	Bake Parkway/Toledo Way	0.70	B	0.59	A
29	Bake Parkway/Jeronimo Road	0.94	**E**	0.77	C
30	Bake Parkway/Muirlands Boulevard	0.56	A	0.67	B
31	Bake Parkway/Rockfield Boulevard	0.56	A	0.68	B
32	Bake Parkway/I-5 NB Ramps	0.84	D	0.67	B
33	Bake Parkway/I-5 SB Ramps	0.67	B	0.73	C
34	Lake Forest Drive/Trabuco Road	0.59	A	0.67	B
35	Lake Forest Drive/Serrano Road	0.54	A	0.53	A
36	El Toro Road/Trabuco Road	0.64	B	0.62	B
37	El Toro Road/Serrano Road	0.53	A	0.47	A
38	El Toro Road/Jeronimo Road	0.69	B	0.80	C

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c).
Notes: ICU value is expressed in volume-to-capacity ratio.
Average delay is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **Bold** with gray shading indicates unacceptable LOS.

I-5 = Interstate 5
ICU = Intersection Capacity Utilization
Int. = intersection
LOS = level of service
NB = northbound
SB = southbound
SR-241 = State Route 241

Table 4.16.F: Project Trip Generation Summary

Land Use	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates[1]									
Elementary School (520)	–	Student	1.89	0.36	0.31	0.67	0.08	0.09	0.17
Single Family Detached (210)	–	DU	9.44	0.19	0.55	0.74	0.62	0.37	0.99
Senior Adult Housing – Attached (252)	–	DU	3.70	0.07	0.13	0.20	0.14	0.12	0.26
Neighborhood Park (411)[2]	–	Acre	5.00	0.30	0.21	0.51	0.28	0.23	0.51
Central Park (411)[2]	–	Acre	30.00	1.18	0.82	2.00	1.65	1.35	3.00
Trip Generation									
Zone 1									
Single Family Detached (210)	182	DU	1,718	35	100	135	113	67	180
Senior Adult Housing – Attached (252)	101	DU	374	7	13	20	14	12	26
Neighborhood Park (411)	0.5	Acre	3	0	0	0	0	0	0
Subtotal			**2,095**	**42**	**113**	**155**	**127**	**79**	**206**
Zone 2									
Elementary School (520)	1,000	Student	1,890	360	310	670	80	90	170
Single Family Detached (210)	110	DU	1,038	21	61	82	68	41	109
Neighborhood Park (411)	0.3	Acre	2	0	0	0	0	0	0
Subtotal			2,930	381	371	752	148	131	279
Zone 3									
Single Family Detached (210)	142	DU	1,340	27	78	105	88	53	141
Neighborhood Park (411)	0.4	Acre	2	0	0	0	0	0	0
Central Park (411)	4.8	Acre	144	6	4	10	8	6	14
Subtotal			1,486	33	82	115	96	59	155
Zone 4									
Single Family Detached (210)	241	DU	2,275	46	133	179	149	89	238
Neighborhood Park (411)	0.6	Acre	3	0	0	0	0	0	0
Subtotal			2,278	46	133	179	149	89	238
Net Trip Generation			**8,789**	**503**	**699**	**1,202**	**521**	**358**	**879**

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c)
[1] Trip rates are referenced from the Institute of Transportation Engineers *Trip Generation Manual,* 10th Edition (2017).
[2] Trip rates modified by TIA.
ADT = average daily trips

the traffic study scoping process. They are based upon the LFTAM, combined with Project land use access characteristics and local knowledge of traffic patterns, and project access considerations, such as the locations of right-turn in/out only driveways. Five percent (5%) of trips are anticipated to remain internal to the Project site because of interactions between residential, park, and school uses.

The resulting Project traffic volumes were added to existing traffic volumes, and the intersection LOS was calculated for the Existing Plus Project condition. Table 4.16.G summarizes the intersection analysis results, which indicates that the intersection of Bake Parkway/Jeronimo Road is anticipated to continue to operate at an unacceptable LOS (LOS E or worse) during peak hours with the addition of Project traffic. A change in ICU value of 0.02 indicates a potentially significant impact at this intersection.

Table 4.16.G: Existing Plus Project Intersection Level of Service Summary

Intersection		Existing (2017)				Existing Plus Project				Change With Proposed Project	
		AM		PM		AM		PM		AM	PM
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS		
1	Lake Forest Drive/Dimension Drive	0.41	A	0.52	A	0.42	A	0.52	A	0.01	0.00
2	Lake Forest Drive/Rancho Parkway	0.42	A	0.57	A	0.52	A	0.61	A	0.10	0.04
3	Lake Forest Drive/SR-241 SB Off-Ramp	0.29	A	0.36	A	0.32	A	0.37	A	0.03	0.01
4	Lake Forest Drive/SR-241 NB On-Ramp	0.24	A	0.28	A	0.26	A	0.30	A	0.02	0.02
5	Corridor Center/Rancho Parkway	0.25	A	0.27	A	0.41	A	0.49	A	0.16	0.22
6	Bake Parkway/Portola Parkway	0.42	A	0.49	A	0.44	A	0.50	A	0.02	0.01
7	Bake Parkway/Towne Center Drive	0.39	A	0.49	A	0.42	A	0.50	A	0.03	0.01
8	Bake Parkway/Rancho Parkway	0.44	A	0.55	A	0.47	A	0.57	A	0.03	0.02
9	Bake Parkway/Rancho Parkway South	0.51	A	0.52	A	0.58	A	0.57	A	0.07	0.05
10	Bake Parkway/Orchard Road (unsignalized)	14.0 sec	B	13.0 sec	B	15.9 sec	C	18.3 sec	C	1.9 sec	5.3 sec
11	Dimension Drive/Bake Parkway	0.40	A	0.56	A	0.48	A	0.63	B	0.08	0.17
12	Alton Parkway/Rancho Parkway South	0.48	A	0.39	A	0.51	A	0.39	A	0.03	0.00
13	Alton Parkway/SR-241 Ramps	0.32	A	0.39	A	0.32	A	0.39	A	0.00	0.00
14	Alton Parkway/Towne Centre Drive	0.25	A	0.31	A	0.26	A	0.32	A	0.01	0.01
15	Alton Parkway/Portola Parkway	0.41	A	0.27	A	0.43	A	0.28	A	0.02	0.01
16	Lake Forest Drive/Portola Parkway	0.36	A	0.49	A	0.37	A	0.49	A	0.01	0.00
17	Lake Forest Drive/Towne Centre Drive	0.30	A	0.41	A	0.32	A	0.41	A	0.02	0.00
18	Towne Centre Drive/Portola Parkway	0.38	A	0.55	A	0.38	A	0.56	A	0.00	0.01
19	Glenn Ranch Road/Portola Parkway	0.41	A	0.48	A	0.42	A	0.49	A	0.01	0.01
20	Portola Parkway/SR-241 Ramps	0.35	A	0.38	A	0.35	A	0.38	A	0.00	0.00
21	Portola Parkway/Rancho Parkway	0.42	A	0.50	A	0.45	A	0.52	A	0.03	0.02
22	El Toro Road/Portola Parkway	0.62	B	0.65	B	0.64	B	0.67	B	0.02	0.02
23	Los Alisos Boulevard/Santa Margarita Parkway	0.75	C	0.73	C	0.76	C	0.74	C	0.01	0.01
24	Alton Parkway/Commercentre Drive	0.37	A	0.43	A	0.38	A	0.44	A	0.01	0.01
25	Alton Parkway/Irvine Boulevard	0.47	A	0.42	A	0.47	A	0.43	A	0.00	0.01
26	Bake Parkway/Commercentre Drive	0.50	A	0.67	B	0.54	A	0.71	C	0.04	0.04
27	Bake Parkway/Irvine Boulevard-Trabuco Road	0.63	B	0.68	B	0.65	B	0.70	B	0.02	0.02
28	Bake Parkway/Toledo Way	0.70	B	0.59	A	0.72	C	0.60	A	0.02	0.01
29	Bake Parkway/Jeronimo Road	**0.94**	**E**	0.77	C	**0.96**	**E**	0.78	C	0.02	0.01
30	Bake Parkway/Muirlands Boulevard	0.56	A	0.67	B	0.56	A	0.68	B	0.00	0.01
31	Bake Parkway/Rockfield Boulevard	0.56	A	0.68	B	0.56	A	0.69	B	0.00	0.01
32	Bake Parkway/I-5 NB Ramps	0.84	D	0.67	B	0.85	D	0.69	B	0.01	0.02
33	Bake Parkway/I-5 SB Ramps	0.67	B	0.73	C	0.68	B	0.76	C	0.01	0.03
34	Lake Forest Drive/Trabuco Road	0.59	A	0.67	B	0.60	A	0.68	B	0.01	0.01
35	Lake Forest Drive/Serrano Road	0.54	A	0.53	A	0.54	A	0.53	A	0.00	0.00
36	El Toro Road/Trabuco Road	0.64	B	0.62	B	0.65	B	0.62	B	0.01	0.00
37	El Toro Road/Serrano Road	0.53	A	0.47	A	0.53	A	0.47	A	0.00	0.00
38	El Toro Road/Jeronimo Road	0.69	B	0.80	C	0.70	B	0.82	D	0.01	0.02

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c).
Notes: ICU value is expressed in volume-to-capacity ratio.
Average delay is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **Bold** indicates unacceptable LOS.

I-5 = Interstate 5
ICU = Intersection Capacity Utilization
LOS = level of service
SR-241 = State Route 241
V/C = volume-to-capacity

The addition of a second northbound left-turn lane at the intersection of Bake Parkway/ Jeronimo Road is included in the LFTM and NITM programs. It should be noted that the proposed Project was not a planned development project at the time the LFTM program was adopted; therefore, the proposed Project cannot participate in the LFTM program. However, sufficient funding is available within the LFTM and NITM programs to construct the physical improvement necessary to mitigate the Project's impact. Nevertheless, Mitigation Measure 4.16.2 requires the Project Applicant/Developer to construct the improvements if the improvements are not already completed prior to issuance of the first certificate of occupancy. With implementation of Mitigation Measure 4.16.2, impacts related to potential conflicts with City program, plan, ordinance or policy addressing the circulation system would be reduced below a level of significance.

CMP Program, Plan, or Ordinance: Roadway. Within the study area, Intersection 36 (El Toro Road/Trabuco Road) is monitored in the Orange County CMP. As indicated in Table 4.16.F, this intersection operates at LOS B during the a.m. peak hour and LOS B during the p.m. peak hour in existing conditions. This intersection would continue to operate at LOS B during both the a.m. and p.m. peak hours with the addition of Project traffic. The Project's contribution to intersection ICU is 0.01 or less, which is below the significance threshold established by the Orange County CMP. No mitigation is required.

Caltrans Program, Plan, or Ordinance: Roadway. Table 4.16.A shows that six study intersections are within Caltrans' jurisdiction. The TIA compared the capacity of these intersections to the volume of traffic in Existing, Interim Year Cumulative 2020 conditions, and 2040 General Plan Cumulative conditions. As a result of this analysis, the TIA identified less than significant impacts to the v/c ratio of these Caltrans intersections with implementation of the proposed Project. No mitigation is required.

City Program, Plan, or Ordinance: Transit, Bicycle, and Pedestrian. The proposed Project takes access at existing intersections and would not interfere with transit, bicycle, or pedestrian connectivity. In addition, the Project incorporates pedestrian and bicycle connectivity within the Project site. Therefore, the Project is not anticipated to conflict with program, plan, ordinance or policy addressing the transit, bicycle, and pedestrian facilities.

Summary. The Project's potential impacts to the roadway network during construction would be reduced to a less than significant level with incorporation of Mitigation Measure 4.16.1. The Project's potential impacts to the roadway network upon completion of the Project would be reduced to a less than significant level with incorporation of Mitigation Measure 4.16.2. The Project is not anticipated to have a significant impact to CMP or Caltrans facilities and no mitigation is required. The Project is not anticipated to have a significant impact on transit, bicycle, or pedestrian facilities and no mitigation is required.

Threshold 4.16.2: Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)?

No Impact. According to *State CEQA Guidelines* Section 15064.3(a), project-related transportation impacts are generally best measured by evaluating the project's VMT. VMT refers to the amount and distance of automobile travel attributable to a project.

State CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts, with the applicable methodology based on project type, and specifying other criteria for conducting VMT analysis.

For land use projects, VMT exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects located within 0.5 mile (mi) of an existing high-quality transit corridor[1] should be considered to have a less than significant impact. *State CEQA Guidelines* Section 15064.3(b)(2) addresses VMT associated with transportation projects and states that projects that reduce VMT (e.g., pedestrian, bicycle, and transit projects) should be presumed to have a less than significant impact. Subdivision (b)(3) of *State CEQA Guidelines* Section 15064.3 acknowledges that Lead Agencies may not be able to quantitatively estimate VMT for every project type. In these cases, a qualitative analysis may be used. The regulation further states that Lead Agencies have the discretion to formulate a methodology that would appropriately analyze a project's VMT (*State CEQA Guidelines* Section 15064.3(b)(4)). *State CEQA Guidelines* Section 15064.3(c) states that while an agency may elect to be governed by the provisions of this section immediately, it is not required to perform such analysis until July 1, 2020.

The proposed Project is considered a land use project and is not within 0.5 mi of an existing high-quality transit corridor. Consequently, Section 15064.3 of the *State CEQA Guidelines* is applicable to the proposed Project.

Using the average daily trips (ADT) established in the *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c), the California Emissions Estimator Model (CalEEMod) was used to determine existing and post-project VMT. Under existing conditions, the existing nursery generates an annual VMT of 2,698,384 or 10,836.88 VMT per capita. The proposed Project would generate an annual VMT of 26,098,705. This would be 11,322.65 VMT per capita. Compared to existing conditions, the proposed Project would generate a higher annual VMT per capita.

At this time, the City has not established a methodology that would appropriately analyze VMT impacts within its jurisdiction. In addition, the City has not adopted thresholds or standards for assessing potential VMT impacts. Therefore, this information is provided for disclosure purposes only and traffic impacts in this EIR are based on the City's standard LFTAM, which is based on LOS. No mitigation is required.

[1] According to Public Resources Code (PRC) Section 21155(b), a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

Threshold 4.16.3: Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Potentially Significant Impact.

Construction. Development of the proposed Project would require excavation of the site; delivery of materials, equipment, and personnel; demolition of the 1,744-square-foot (sf) existing structure on the Project site; undergrounding of utilities; construction of the buildings; and installation of landscaping. Demolition, grading, and building activities would involve the use of standard earthmoving equipment (e.g., loaders, bulldozers, cranes and other related equipment). No blasting or pile driving is proposed. All construction equipment, including construction worker vehicles, would be staged on the Project site for the duration of the construction period to the extent feasible. In addition, as required by Mitigation Measure 4.16.1, large construction equipment would be delivered during off-peak times so as to reduce travel during peak travel periods. Construction workers are anticipated to drive standard vehicles that would not result in incompatible uses. Therefore, because construction equipment would be staged on site for the duration of the construction period and would be delivered during non-peak hours as required by Mitigation Measure 4.16.1, Project construction is not anticipated to result in incompatible uses that increase on-road hazards. No additional mitigation is required.

Operation.

Access and On-Site Circulation. Three existing intersections would provide access to the proposed Project (one traffic signal on Bake Parkway, one unsignalized intersection on Bake Parkway, and one traffic signal on Rancho Parkway). The access analysis presented in the TIA demonstrates that each of these intersections is anticipated to operate at a satisfactory LOS.

"A" Street is essentially the easterly extension of Rancho Parkway South, serving as the Project main entrance. At the intersection of Bake Parkway/Rancho Parkway South, northbound traffic entering the site is accommodated by a separate right-turn lane, and two eastbound travel lanes accommodate traffic inbound to the site along "A" Street. "A" Street includes two travel lanes in each direction divided by a raised median. To efficiently serve residential traffic entering and exiting the site, the landscaped median on "A" Street prohibits eastbound traffic from making left turns onto "BB" Street. Traffic exiting the site is served by westbound dual left-turn lanes, a single westbound through lane, and a separate westbound right-turn lane on "A" Street approaching Bake Parkway.

"C" Street extends into the site from a right-in/right-out intersection (no break in the existing median) with Bake Parkway, which provides one travel lane in each direction through to "B" Street. At the Bake Parkway/"C" Street intersection, northbound traffic entering the site is served by a separate right-turn lane**.**

"B" Street includes two lanes in each direction between the Corridor Center/Rancho Parkway intersection and the "BB" Street intersection. At the Corridor Center/Rancho

Parkway intersection, the northbound approach on "B" Street is configured with one left-turn lane, and one shared through right lane. Between "BB" Street and "A" Street, the cross section for "B" Street consists of one southbound lane and two northbound lanes to accommodate turning movements related to the school site. Southwest of "A" Street, "B" Street then transitions into a cross section that accommodates one lane in each direction.

At the intersection of "B" Street/Rancho Parkway South, eastbound traffic entering the site is served by a separate right-turn lane, and two southbound travel lanes accommodate traffic inbound to the site along "B" Street. Traffic exiting the site is served by a northbound left-turn lane as well as a northbound shared through/right-turn lane on "B" Street approaching Rancho Parkway at the existing Corridor Center driveway. Because "BB" Street provides exclusive access to the school site, a separate southbound right-turn lane is provided on "B" Street approaching the "B" Street/"BB" Street intersection. At the "B" Street/"BB" Street intersection, a northbound shared through/left-turn lane is provided in addition to a separate northbound through lane.

"B" Street intersects "A" Street at the center of the Nakase Property development. At the "B" Street/"A" Street intersection, separate eastbound left- and right-turn lanes are provided on "A" Street. In the vicinity of the "B" Street/"A" Street intersection, "B" Street includes one southbound lane and two northbound lanes in order to provide flexibility for left-turn movements. The intersections of "B" Street/"T" Street and "B" Street/"S" Street are restricted to right turns only (no median break) near the "B" Street/"A" Street intersection.

On-street parking would not be allowed on "A" Street. Along "T" Street and "S" Street adjacent to the park, on-street parking is accommodated for community and public events. Along "BB" Street adjacent to the school, on-street parking is accommodated for student drop-off and pick-up purposes. Along "B" Street and "C" Street, on-street parking can be accommodated within 22 ft wide single travel lanes.

Mitigation Measure 4.16.3 requires a sight distance analysis for all Project intersections according to the City of Lake Forest Municipal Code and the Caltrans HCM standards and guidelines. The analysis will indicate limited use areas (e.g., low height landscaping), and on-street parking restrictions (e.g., red curb), if necessary, and any turning restrictions (e.g., right-in/right-out). With implementation of Mitigation Measure 4.16.3, potential impacts related to geometric design features would be reduced below a level of significance.

Pedestrian Safety. Residential streets within Nakase Property include curb extensions/ chokers at intersections to both visually enhance the look and feel of the intersection and to promote pedestrian activity. At key local street intersections, curb extensions have the combined benefits of aesthetic appeal and accommodations for non-motorized travelers. The use of landscaped curb extensions/chokers that project into the street 4 ft to 6 ft at street corners to promote vehicle slowing and to shorten the street-crossing distance for pedestrians would enhance pedestrian safety.

As stated in Mitigation Measure 4.16.4, Rectangular Rapid Flashing Beacons (RRFBs) are required at the crosswalks at the uncontrolled intersection of "B" Street/"BB" Street and the uncontrolled intersection of "A" Street/"D" Street in order to enhance driver's awareness of crosswalks needed for efficient school access. The RRFBs can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. RRFB control at a crosswalk has the potential to be an effective traffic control device since it fulfills a need, commands attention, conveys a clear meaning, commands respect of road users, and gives adequate time for proper response.

On-street parking is allowed on neighborhood streets and segments of "BB" Street, "C" Street, and "B" Street. On-street parking, in effect, reduces the width of the street, leading to slower driving. Parking also separates traveling cars from the sidewalk, helping to improve pedestrian safety. With incorporation of Mitigation Measure 4.16.4, potential impacts related to pedestrian safety would be less than significant.

Threshold 4.16.4: Would the Project result in inadequate emergency access?

Potentially Significant Impact.

Construction. Development of the proposed Project would require excavation of the site; delivery of materials, equipment, and personnel; demolition of the 1,744 sf existing structure on the Project site; undergrounding of utilities; construction of the buildings; and installation of landscaping. The proposed Project would be implemented over an estimated period of 67 months (approximately 5.5 years). Demolition and site preparation would span approximately 3 months, and grading would span approximately 12 months. Paving and installation of infrastructure would take approximately 4 months and 12 months, respectively, and would occur concurrently. Building construction would be implemented over an estimated period of 46 months.

Construction activities would potentially affect emergency access by requiring partial lane closures during street improvements and utility installation or by increasing emergency vehicle response times. Mitigation Measure 4.16.1 requires that the Project Applicant/Developer prepare a CTMP to ensure that emergency vehicles would be able to navigate through streets adjacent to the Project site that may experience congestion due to construction activities. Mitigation Measure 4.16.1 also requires that all emergency access to the Project site and adjacent areas be kept clear and unobstructed during all phases of demolition and construction. Traffic management personnel (flag persons), required as part of the CTMP, would be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access. If a partial street closure (i.e., a lane closure) would be required, notice would be provided to the Orange County Sheriff's Department, and flag persons would be used to facilitate the traffic flow until construction is complete. With implementation of Mitigation Measure 4.16.1, potential impacts related to emergency access during construction would be less than significant. No additional mitigation is required.

Operation. Three existing intersections (one traffic signal on Bake Parkway, one unsignalized intersection on Bake Parkway, and one traffic signal on Rancho Parkway) would provide access

to the project site. The TIA access analysis demonstrates that each of these intersections is anticipated to operate at satisfactory LOS. The Project would not impede existing routes for emergency vehicles, and emergency vehicles would have multiple routes to access the Project site. Further, as part of the Project approval process, emergency access to/from the site would be required to meet all applicable City codes and standards. The Orange County Fire Authority (OCFA) approved a conceptual Fire Master Plan (refer to Figure 4.19.1) in February 2018, a conceptual Fire Protection Plan with Ember Mitigation (refer to Figure 4.19.2) in January 2018, and a conceptual Fuel Modification Plan (refer to Figure 4.19.3) in March 2018. The Fire Master Plan and Fire Protection Plan address specific fire prevention and access elements required by the City of Lake Forest Municipal Code and the California Building Code (CBC). The Fire Master Plan establishes the proper location and adequacy of fire suppression facilities as well as fire access routes on the Project site. The Fire Master Plan also identifies the locations of fire hydrants, a water supply for firefighting, and emergency access to residences and structures on the Project site. According to OCFA, adherence to the elements of the Fire Master Plan is directly correlated with the effectiveness of first responders, including fire and emergency medical personnel. The *Nakase Property Area Plan* (Woodley Architectural Group 2019) meets or exceeds the requirements of OCFA to not hinder fire access and fire department and operations for the planned community. Thus, operational impacts related to emergency access would be considered less than significant, and no mitigation measures are required.

4.16.7 Cumulative Impacts

4.16.7.1 Interim Year (2020)

Interim Year (2020) volume forecasts were developed by the City's traffic model consultant using the LFTAM without the Project land uses (assuming existing commercial nursery operations) and with the proposed Project. LOS calculations were conducted for the study intersections to evaluate their operations with existing off-site roadway and intersection geometrics. Interim Year (2020) intersection analysis results are summarized in Table 4.16.H, which indicates that one study area intersection (Bake Parkway/Trabuco Road) is anticipated to operate at an unacceptable LOS during peak hours without the Project and in the Plus Project condition. The Project does not cause an increase in ICU of greater than 0.01. Therefore, the Project impact is less than significant, and no mitigation is required.

4.16.7.2 General Plan Buildout Year (2040)

The TIA evaluated the Project's potential cumulative impacts in the General Plan Buildout Year (2040) scenario. The Lake Forest General Plan designates the Nakase Property for approximately 1,841,700 sf of business park use. The proposed Project would generate 14,122 fewer trips per day with 1,377 fewer vehicles per hour during the a.m. peak hour and 1,442 fewer vehicles per hour during the p.m. peak hour in comparison to the adopted City of Lake Forest General Plan business park land use for the site.

Table 4.16.H: Interim Year (2020) Intersection Level of Service Summary

	Intersection	Interim Year (2020) Without Project				Interim Year (2020) Plus Project				Change With Proposed Project	
		AM		PM		AM		PM		AM	PM
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS		
1	Lake Forest Drive/Dimension Drive	0.43	A	0.47	A	0.44	A	0.47	A	0.01	0.00
2	Lake Forest Drive/Rancho Parkway	0.50	A	0.59	A	0.63	B	0.73	C	0.13	0.14
3	Lake Forest Drive/SR-241 SB Off-Ramp	0.40	A	0.44	A	0.41	A	0.46	A	0.01	0.02
4	Lake Forest Drive/SR-241 NB On-Ramp	0.32	A	0.36	A	0.32	A	0.37	A	0.00	0.01
5	Corridor Center/Rancho Parkway	0.23	A	0.52	A	0.39	A	0.49	A	0.16	-0.03
6	Bake Parkway/Portola Parkway	0.48	A	0.70	B	0.47	A	0.68	B	-0.01	-0.02
7	Bake Parkway/Towne Center Drive	0.57	A	0.62	B	0.60	A	0.63	B	0.03	0.01
8	Bake Parkway/Rancho Parkway	0.62	B	0.67	B	0.58	A	0.67	B	-0.04	0.00
9	Bake Parkway/Rancho Parkway South	0.69	B	0.65	B	0.71	C	0.68	B	0.04	0.03
10	Bake Parkway/Orchard Road (unsignalized)	20.5 sec	C	14.3 sec	B	21.8 sec	C	22.8 sec	C	1.3 sec	8.5 sec
11	Dimension Drive/Bake Parkway	0.56	A	0.70	B	0.59	A	0.73	C	0.03	0.03
12	Alton Parkway/Rancho Parkway South	0.50	A	0.52	A	0.58	A	0.53	A	0.08	0.01
13	Alton Parkway/SR-241 Ramps	0.44	A	0.42	A	0.44	A	0.42	A	0.00	0.00
14	Alton Parkway/Towne Centre Drive	0.38	A	0.43	A	0.38	A	0.43	A	0.01	0.00
15	Alton Parkway/Portola Parkway	0.44	A	0.31	A	0.43	A	0.32	A	-0.01	0.01
16	Lake Forest Drive/Portola Parkway	0.55	A	0.71	C	0.55	A	0.73	C	0.00	0.02
17	Lake Forest Drive/Towne Centre Drive	0.39	A	0.51	A	0.40	A	0.52	A	0.01	0.01
18	Towne Centre Drive/Portola Parkway	0.62	B	0.64	B	0.61	B	0.64	B	-0.01	0.00
19	Glenn Ranch Road/Portola Parkway	0.59	A	0.60	A	0.59	A	0.59	A	0.00	-0.01
20	Portola Parkway/SR-241 Ramps	0.43	A	0.54	A	0.43	A	0.55	A	0.00	0.01
21	Portola Parkway/Rancho Parkway	0.45	A	0.48	A	0.45	A	0.48	A	0.00	0.00
22	El Toro Road/Portola Parkway	0.59	A	0.78	C	0.62	B	0.78	C	0.03	0.00
23	Los Alisos Boulevard/Santa Margarita Parkway	0.79	C	0.83	D	0.77	C	0.83	D	-0.02	0.00
24	Alton Parkway/Commercentre Drive	0.49	A	0.58	A	0.52	A	0.60	A	0.03	0.02
25	Alton Parkway/Irvine Boulevard	0.79	C	0.71	C	0.79	C	0.71	C	0.00	0.00
26	Bake Parkway/Commercentre Drive	0.61	B	0.74	C	0.64	B	0.75	C	0.03	0.01
27	Bake Parkway/Irvine Boulevard-Trabuco Road	**1.02**	**F**	**0.93**	**E**	**1.03**	**F**	**0.92**	**E**	0.01	-0.01
28	Bake Parkway/Toledo Way	0.76	C	0.65	B	0.76	C	0.66	B	0.00	0.01
29	Bake Parkway/Jeronimo Road	0.85	D	0.80	C	0.87	D	0.80	C	0.02	0.00
30	Bake Parkway/Muirlands Boulevard	0.62	B	0.70	B	0.62	B	0.70	B	0.00	0.01
31	Bake Parkway/Rockfield Boulevard	0.60	A	0.72	C	0.61	B	0.72	C	0.00	0.01
32	Bake Parkway/I-5 NB Ramps	0.88	D	0.63	B	0.88	D	0.64	B	0.01	0.02
33	Bake Parkway/I-5 SB Ramps	0.75	C	0.78	C	0.76	C	0.79	C	0.01	0.01
34	Lake Forest Drive/Trabuco Road	0.83	D	0.79	C	0.82	D	0.82	D	-0.01	0.03
35	Lake Forest Drive/Serrano Road	0.69	B	0.59	A	0.69	B	0.61	B	0.00	0.02
36	El Toro Road/Trabuco Road	0.70	C	0.76	C	0.69	B	0.75	C	-0.01	-0.01
37	El Toro Road/Serrano Road	0.54	A	0.63	B	0.54	A	0.62	B	0.00	-0.01
38	El Toro Road/Jeronimo Road	0.72	C	0.75	C	0.70	B	0.76	C	-0.02	-0.01

Source: *Nakase Property Traffic Impact Analysis* (Urban Crossroads 2019c).
Notes: ICU value is expressed in volume-to-capacity ratio.
Average delay is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **Bold** indicates unacceptable LOS.

I-5 = Interstate 5 LOS = level of service SB = southbound
ICU = Intersection Capacity Utilization NB = northbound SR-241 = State Route 241

The TIA evaluates the Project's potential impacts in multiple scenarios including with and without the western extension of Portola Parkway and with and without several specific LFTM improvements. In each of these scenarios, the Project was found to have less than significant impacts, which can be attributed to the lower trip generation compared to the General Plan land use designation. Therefore, the Project's contribution to cumulative traffic impacts would be less than significant and no mitigation is required.

4.16.8 Level of Significance Prior to Mitigation

Information related to *State CEQA Guidelines* Section 15064.3 subdivision (b) was provided for information purposes only because the City has not yet adopted VMT metrics or thresholds of significance related to VMT. The Project would have a potentially significant impact related to hazards due to geometric design features and emergency access; therefore, mitigation is required. Potential adverse impacts to program, plan, ordinance or policy addressing the circulation system may occur during construction and operation of the Project and mitigation is required. The Project's contribution to cumulative traffic impacts would be less than significant and no mitigation is required.

4.16.9 Regulatory Compliance Measures and Mitigation Measures

4.16.9.1 Regulatory Compliance Measures

There are no Regulatory Compliance Measures (RCMs) related to traffic that are applicable to the proposed Project.

4.16.9.2 Mitigation Measures

Mitigation Measure 4.16.1: **Construction Traffic Management Plan (CTMP).** Prior to the issuance of grading permits, the Project Applicant/Developer shall prepare a CTMP for approval by the City of Lake Forest Director of Public Works/City Engineer, or designee, and shall implement the Plan during Project construction with the goal of maintaining acceptable intersection levels of service (LOS) during peak traffic hours. At a minimum, the CTMP shall include, but not be limited to, the following:

- Provisions for temporary traffic control during all construction activities adjacent to public right-of-way to improve traffic flow on public roadways and ensure the safe access into and out of the site (e.g., warning signs, lights and devices, and flag person).
- The delivery and removal of heavy equipment shall occur outside of the morning and evening peak periods (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., Monday through Friday).

- Routine street closures shall be planned to occur outside the morning and evening peak traffic hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., Monday through Friday).
- Soil import and export activity shall not be permitted during the morning and evening peak traffic hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., Monday through Friday).
- Rerouting construction trucks to reduce travel on congested streets.
- Prohibiting construction-related vehicles from parking on public streets.
- Providing safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers.
- Scheduling construction-related deliveries, other than concrete and earthwork-related deliveries, so as to reduce travel during peak travel periods.
- Obtaining the required permits for truck haul routes from the City of Lake Forest and/or the California Department of Transportation (Caltrans).
- All emergency access to the Project site and adjacent areas shall be kept clear and unobstructed during all phases of demolition and construction.
- The Orange County Sheriff's Department and the Orange County Fire Authority (OCFA) shall be notified a minimum of 1 week (7 days) in advance of any lane closures or roadway work so that emergency vehicles can be rerouted during construction if deemed necessary in the expert opinion of the Orange County Sheriff's Department and/or OCFA.
- The Orange County Transportation Authority (OCTA) shall be notified regarding any affected locations a minimum of 10 working days prior to construction so that transit service can be rerouted if deemed necessary in the expert opinion of the OCTA.
- Flag persons shall be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access.

Mitigation Measure 4.16.2 **Bake Parkway/Jeronimo Road.** Unless physical improvements are already constructed, prior to issuance of the first certificate of occupancy, the Project Applicant/Developer shall construct a second northbound left-turn lane at the intersection of Bake Parkway/Jeronimo Road consistent with the design requirements of the City of Lake Forest.

Mitigation Measure 4.16.3 **Sight Distance Analysis.** Prior to issuance of grading permits and building permits, the Project Applicant/Developer shall prepare a detailed sight distance analysis for all Project intersections. The sight distance analysis shall be prepared according to the City of Lake Forest Municipal Code and the Caltrans *Highway Design Manual* (HCM) standards and guidelines, and indicate limited use areas (e.g., low-height landscaping), and on-street parking restrictions (e.g., red curb), if necessary, and any turning restrictions (e.g., right-in/right-out). Intersections on Bake Parkway, which has a 50-mile-per-hour (mph) posted speed limit, should be provided with a minimum of 430 feet (ft) of stopping sight distance according to the Caltrans *Highway Design Manual*. Intersections internal to the project site would have a 25 mph speed limit and would require a minimum of 150 ft of stopping sight distance according to the Caltrans *Highway Design Manual*. The findings of the sight distance analysis shall be included in a report(s) subject to review and approval by the Directors of Planning and Building and Public Works, or designees.

Mitigation Measure 4.16.4: **Rectangular Rapid Flashing Beacons (RRFBs).** Prior to issuance of the first certificate of occupancy, RRFBs shall be installed at the crosswalks at the uncontrolled intersection of “B” Street/ “BB” Street and the uncontrolled intersection of “A” Street/“D” Street.

4.16.10 Level of Significance after Mitigation

Potential impacts to transportation/traffic associated with Project construction and operation would be reduced to levels that are less than significant with implementation of the mitigation measures listed above.

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