PUBLIC REVIEW DRAFT
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Bake Parkway/Jeronimo Road Intersection Improvements Project

LEAD AGENCY:

City of Irvine
One Civic Center Plaza
Irvine, California 92606
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PREPARED BY:

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December 2023

This document is designed for double-sided printing to conserve natural resources.

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LIST OF ACRONYMS AND ABBREVIATIONS

2022 AQMP	*2022 Air Quality Management Plan*
SCS	Sustainable Communities Strategy
AB	Assembly Bill
ADA	Americans with Disabilities Act
ADT	average daily traffic
AQMP	Air Quality Management Plan
AT&SF	Atchison, Topeka, and Santa Fe Railway
Basin	South Coast Air Basin
BIOS	Biogeographic Information and Observation System
BMPs	Best Management Practices
BNSF	Burlington Northern Santa Fe
BSA	Biological Study Area
CAAP	Climate Action and Adaptation Plan
CAD	computer-aided design
Caltrans	California Department of Transportation's
CARB	California Air Resources Board
CC NCCP/HCP	*County of Orange Central and Coastal Subregion Natural Community Conservation Plan and Habitat Conservation Plan*
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFG Code	California Fish and Game Code
CGS	California Geological Survey
CH_4	methane
CHL	California Historical Landmarks
CHRIS	California Historical Resources Inventory System
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO Plan	*Federal Attainment Plan for Carbon Monoxide*
CO_2	carbon dioxide
CO_2eq	CO2 equivalent
Construction General Permit	NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ
County	County of Orange
CPHI	California Points of Historical Interest
CREC	controlled recognized environmental condition
CRHR	California Register of Historical Resources

CSP	corrugated-steel pipe
dB	decibels
dBA	A-weighted decibels
DTSC	California Department of Toxic Substances Control
EB	eastbound
EIR	Environmental Impact Report
Energy Plan	*City of Irvine Energy Plan*
EO	Executive Order
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
HREC	historical recognized environmental condition
I-	Interstate
ICU	Intersection Capacity Utilization
IPCC	Intergovernmental Panel on Climate Change
Irvine General Plan	*City of Irvine General Plan*
IRWD	Irvine Ranch Water District
IS/MND	Initial Study with Proposed Mitigated Negative Declaration
ISA	*Initial Site Assessment Bake Parkway and Jeronimo Road Improvement Project CIP 314210 Irvine and Lake Forest, California*
Kizh Nation	San Gabriel Band of Mission Indians – Kizh Nation
kV	kilovolt
Lake Forest 2040	*Lake Forest 2040 General Plan*
L_{dn}	Day-Night Average Sound Level
Lead Agency	City of Irvine
L_{eq}	Equivalent Sound Level
LFTM	Lake Forest Transportation Mitigation
L_{max}	Maximum Sound Level
L_{min}	Minimum Sound Level
LOD	limits of disturbance
LOS	level of service
LST	Localized Significance Threshold
LUST	Leaking Underground Storage Tank
LXX	Percentile-Exceeded Sound Level
MMT	million metric tons
N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NB	northbound
NITM	North Irvine Transportation Mitigation
NMFS	National Marine Fisheries Service

NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OCFCD	Orange County Flood Control District
ºF	degrees Fahrenheit
OPR	State Office of Planning and Research
PCB	polychlorinated biphenyl
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Proposed Project	Bake Parkway and Jeronimo Road Intersection Improvements Project
PWQMP	Preliminary Water Quality Management Plan
RCPG	*Regional Comprehensive Plan and Guide*
REC	recognized environmental condition
ROW	right of way
ROG	reactive organic gasses
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	southbound
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SLF	Sacred Lands File
SP	service population
SR-	State Route
SRA	Sensitive Receptor Area
SWPPP	Stormwater Pollution Prevention Plan
TCR	Tribal Cultural Resource
TMP	Traffic Management Plan
TNM	Traffic Noise Model
Traffic Analysis	*Bake Parkway/Jeronimo Road Improvements PA/ED Traffic Analysis*
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geographical Society
V/C	volume-to-capacity

VMT	vehicle-miles traveled
Water Boards	California State Water Resources Control Board
WB	westbound
Working Group	SCAQMD GHG CEQA Significance Threshold Working Group
Zoning Ordinance	City of Irvine Zoning Ordinance

1.0 INTRODUCTION

The City of Irvine proposes to provide improvements for the Bake Parkway and Jeronimo Road Intersection Improvements Project (Proposed Project), located in the cities of Irvine and Lake Forest. The Proposed Project would improve the current intersection performance to an acceptable level of service (LOS) and reduce traffic congestion. The intersection borders the cities of Irvine and Lake Forest, wherein the westerly portion of the intersection is within the City of Irvine, and the easterly portion of the intersection is within the City of Lake Forest; the Proposed Project is a joint effort between both cities. However, the City of Irvine is the Lead Agency and has discretionary approval over the Proposed Project. As such, the City of Irvine is required to evaluate the Proposed Project in accordance with the provisions of the California Environmental Quality Act (CEQA). This Initial Study addresses the direct, indirect, and cumulative environmental effects of the Project, as proposed.

1.1 STATUTORY AUTHORITY AND REQUIREMENTS

In accordance with California Code of Regulations (CCR) section 15051, the City of Irvine is identified as the Lead Agency for the Proposed Project. Under CEQA (California Public Resources Code [PRC] § 21000–21177) and pursuant to CCR section 15063, the City of Irvine is required to undertake the preparation of an Initial Study to determine if the Proposed Project would have a significant environmental impact. If, as a result of the Initial Study, the Lead Agency finds that there is evidence that any aspect of the project may cause a significant environmental effect, then the Lead Agency will further find that an Environmental Impact Report (EIR) is warranted to analyze project-related and cumulative environmental impacts. Alternatively, if the Lead Agency finds that there is no evidence that the Project, either as proposed or as modified to include the mitigation measures identified in the Initial Study, may cause a significant effect on the environment, then the Lead Agency will find that the Proposed Project would not have a significant effect on the environment and will prepare a Negative Declaration. Such determination can be made only if "there is no substantial evidence in light of the whole record before the Lead Agency" that such impacts may occur (PRC § 21080(c)).

The environmental documentation, which the City of Irvine would ultimately select in accordance with CEQA, is intended as an informational document undertaken to provide an environmental basis for subsequent discretionary actions on the project. The resulting documentation is not: however, a policy document, and its approval and/or certification neither presupposes nor mandates any actions on the part of those agencies from whom permits, and other discretionary approvals would be required.

The environmental documentation and supporting analysis is subject to a public review period. During this review, public agency comments on the document relative to environmental issues would be addressed to the City of Irvine. Following review of any comments received, the City of Irvine would consider these comments as a part of the project's environmental review and include them with the Initial Study documentation for the City of Irvine's consideration.

1.2 PURPOSE

CEQA Guidelines (CCR, Title 14, Division 6, Chapter 3) section 15063 identifies specific disclosure requirements for inclusion in an Initial Study. Pursuant to those requirements, an Initial Study will include the following.

- A description of the project, including the location of the project
- Identification of the environmental setting
- Identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries
- Discussion of ways to mitigate significant effects identified, if any

- Examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls
- The name(s) of the person(s) who prepared or participated in the preparation of the Initial Study

1.3 CONSULTATION

This Initial Study/Proposed Mitigated Negative Declaration (IS/MND) has been distributed to potentially affected agencies and individuals. Notices of availability of the IS/MND and Notice of Intent to Adopt a Mitigated Negative Declaration have been posted in appropriate public notice bulletin boards, newspapers, and at the City of Irvine Public Works and Transportation Department webpage. The IS/MND document will be available at the City of Irvine for public review during the 30-day public review period in accordance with Section 15073 of the State CEQA Guidelines. During review of the IS/MND, affected regulatory agencies and the interested public should focus on the document's adequacy in identifying and analyzing the potential environmental impacts and ways in which the potentially significant effects of the project can be avoided or mitigated. Questions and comments should be directed to the following: City of Irvine, Amir Ainechi, One Civic Center Plaza, Irvine, 92606. Following receipt and evaluation of comments from public agencies, organizations, and/or individuals, the City of Irvine will determine whether any substantial new environmental issues have been raised.

1.4 INCORPORATION BY REFERENCE

The following documents were utilized during preparation of this Initial Study and are incorporated into this document by reference.

- **City of Irvine General Plan** (adopted various dates since 1973). The *City of Irvine General Plan* (Irvine General Plan; City of Irvine 2015a) is a comprehensive, long-range statement of the City of Irvine's development and preservation policies. It is intended to be used by residents, business owners, city officials, and all those interested in the direction of the City of Irvine. The Irvine General Plan is composed of elements that address a broad and evolving range of issues. Each element of the plan identifies and describes goals, objectives, and implementing actions which provide specific direction for decision making and formulation of public policy. The Irvine General Plan contains mandated elements that State planning, zoning, and developments laws require. Eight optional elements also relate to development in the City of Irvine.
    - Mandated Elements
        - Land Use
        - Circulation
        - Housing
        - Conservation and Open Space
        - Noise
        - Safety
    - Optional Elements
        - Public Facilities
        - Waste Management
        - Energy
        - Parks and Recreation
        - Cultural Resources

  - Growth Management
  - Seismic
  - Irvine Business Complex

- **City of Irvine Zoning Ordinance** (codified through Ordinance No. 13-08, enacted January 14, 2014 [Supp. No. 40]). The City of Irvine Zoning Ordinance (Zoning Ordinance), establishes standards consistent with the Irvine General Plan that regulate land uses and development throughout the City of Irvine to ensure compatibility of land uses and to avoid issues associated with incompatibility. The Zoning Ordinance is intended to protect, promote, and enhance the public health, safety, and general welfare for people living and working within the City of Irvine. The Zoning Ordinance promotes compatibility between the natural and built environment and ensures compatibility with corresponding Irvine General Plan land use designations and intensities. It also promotes the development of a safe, effective circulation and transportation network that accommodates the needs of all modes of transportation.

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2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

As mentioned in section 1.0, *Introduction*, the Proposed Project borders the cities of Irvine and Lake Forest. The westerly leg of the intersection is within the City of Irvine, and the remaining legs of the intersection are within the City of Lake Forest. Both cities are within the County of Orange (County); refer to Exhibit 2-1, *Regional Map*. The Proposed Project site is approximately 0.98 mile east-northeast of Interstate (I-) 5. The site includes the Bake Parkway/Jeronimo Road intersection and extends outwardly along Bake Parkway, approximately 736 feet to the northeast and 832 feet to the southwest, and along Jeronimo Road, approximately 959 feet to the northwest and 1,480 feet to the southeast; refer to Exhibit 2-2, *Site Vicinity Map*.

2.2 ENVIRONMENTAL SETTING

PROJECT SITE

The Proposed Project site is in an urbanized and developed intersection, including curb, gutter, and sidewalk, within the cities of Irvine and Lake Forest. Bake Parkway is a northeast–southwest arterial, and Jeronimo Road is a northwest–southeast arterial. The current intersection configuration consists of the following.

- **Northbound (NB) Bake Parkway**: One left-turn lane, three through lanes, and one defacto right-turn lane
- **Southbound (SB) Bake Parkway**: One left-turn lane, three through lanes, and one defacto right-turn lane
- **Eastbound (EB) Jeronimo Road**: Two left-turn lanes, two through lanes, and one standard right-turn lane
- **Westbound (WB) Jeronimo Road**: One left-turn lane, two through lanes, and no right-turn lane

Refer to Exhibit 2-3, *Existing Conditions*, for a depiction of the existing intersection configuration.

Various utilities, including overhead and underground electrical, fiber-optic, gas, telephone, water, sewer, and storm drain lines are within and adjacent to the intersection.

A mix of residential and business/industrial areas are adjacent to the eastern and western sides of Bake Parkway. There are service driveways constructed for adjacent parcels west of Bake Parkway. An existing railroad overhead is approximately 830-feet south of the Bake Parkway and Jeronimo Road intersection. Along Bake Parkway, there are Class II bicycle lanes in both directions. Additionally, Bake Parkway is a designated truck route between Rockfield Boulevard and Jeronimo Road within the City of Irvine.

An existing 300-kilovolt (kV) Southern California Edison (SCE) transmission electrical overhead line is on the westerly side of Bake Parkway; a total of five electrical poles are within the Proposed Project limits, all inside City of Irvine and City of Lake Forest right of way (ROW), and three existing streetlights along Bake Parkway and Jeronimo Road are also within the Proposed Project limits. In addition to these SCE transmission poles, the existing Serrano Creek Channel is on the westerly side of Bake Parkway; the Orange County Flood Control District (OCFCD) owns and maintains this channel.

Within the Proposed Project Site, two existing bus stops are on Jeronimo Road. Jeronimo Road also includes Class II bicycle lanes in both directions that ends approximately 300 feet from the intersection.

SURROUNDING USES

Residential uses are found to the east and south of Bake Parkway, whereas industrial uses exist north and west. The San Diego Freeway (i.e., I-5) is 0.98 mile to the southwest of the Proposed Project. The Great Park is approximately 2 miles to the northwest.

NOT TO SCALE

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
BAKE PARKWAY AND JERONIMO ROAD INTERSECTION IMPROVEMENT PROJECT

Regional Map

Exhibit 2-1

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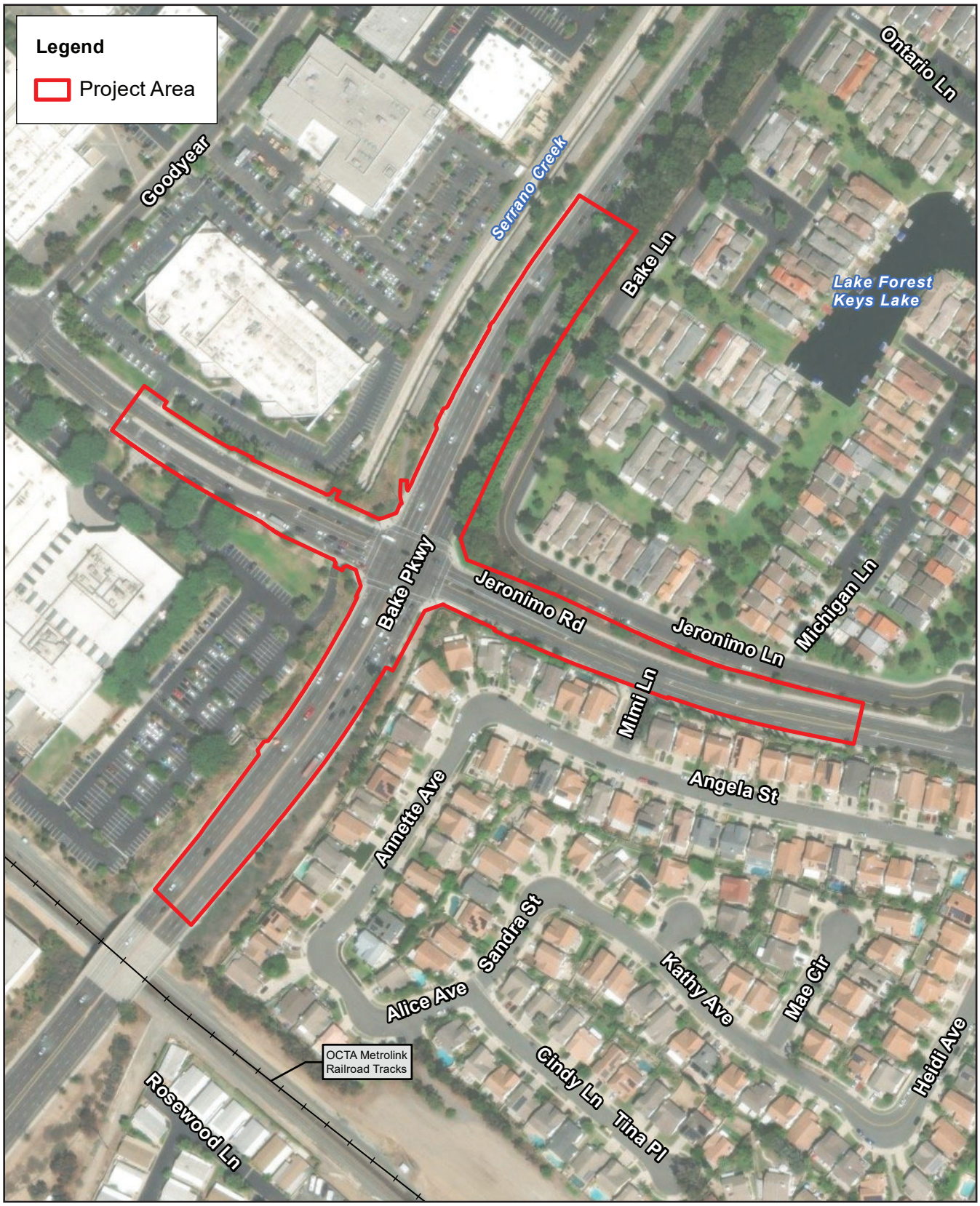

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
BAKE PARKWAY AND JERONIMO ROAD INTERSECTION IMPROVEMENT PROJECT

Site Vicinity Map

Exhibit 2-2

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Source: Mark Thomas

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
BAKE PARKWAY AND JERONIMO ROAD INTERSECTION IMPROVEMENT PROJECT

Existing Conditions

Exhibit 2-3

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2.3 EXISTING GENERAL PLAN AND ZONING

According to Figure B-1, *Master Plan of Arterial Highways*, of the Irvine General Plan's *Circulation Element* (City of Irvine 2015e), Bake Parkway is designated as a *Major Highway Six-lanes,* whereas Jeronimo Road is identified as a *Primary Highway,* in the vicinity of the Proposed Project site. Irvine General Plan Figure B-2, *Operational Characteristics*, identifies both Bake Parkway and Jeronimo Road as *Parkways*, and Irvine General Plan Figure B-3, *Public Transit*, identifies both roadways as *Inter-City Transit Corridors*. According to Figure M-I, *Mobility Network*, of the *Lake Forest General Plan 2040*'s (Lake Forest 2040; City of Lake Forest 2020a) *Mobility Element* (City of Lake Forest 2020b), Bake Parkway is identified as a *Major Arterial,* whereas Jeronimo Road is identified as a *Primary Arterial*.

The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest.

2.4 PROJECT BACKGROUND

Mitigations for the Proposed Project's intersection were originally identified in the *2003 North Irvine Transportation Mitigation (NITM) Program Nexus Study* (AFA 2003) and were subsequently reiterated in the 2010 NITM study update. Additionally, the City of Irvine is currently in the midst of completing another NITM Study Update. The purpose of the NITM program was to establish a funding mechanism for the transportation-improvement mitigation measures identified in the EIRs for three development projects in north Irvine, as follows.

- One additional WB through lane on Jeronimo Road
- One additional NB left-turn lane on Bake Parkway
- One additional SB through lane on Bake Parkway

The Lake Forest Transportation Mitigation (LFTM) Program (Lake Forest Municipal Code, Chapter 7.19) also identified a mitigation measure for the Proposed Project's intersection. The LFTM program was established to implement and expedite circulation improvements identified in connection with the *Opportunities Study Area Environmental Impact Report* (EIP 2008). The improvement proposed in the LFTM program is the following.

- One additional NB left-turn lane on Bake Parkway

The Cities of Irvine and Lake Forest signed a cooperative agreement in which they agreed to cooperate and jointly fund the implementation of Proposed Project improvements, as described in the following section. Proposed Project improvements include elements from both the NITM and LFTM programs.

In accordance with CEQA Guidelines, an Initial Study with Proposed Mitigated Negative Declaration (IS/MND) has been prepared for the Proposed Project. A 30-day public review period of the Draft IS/MND would be circulated for public review and comment.

2.5 PROJECT CHARACTERISTICS

To improve the current intersection performance to an acceptable LOS and reduce traffic congestion, the Proposed Project would include the following improvements along each respective roadway at the intersection of Bake Parkway and Jeronimo Road.

BAKE PARKWAY

- Maintain the existing six-lane facility (i.e., three travel lanes in each direction)
- Add one additional left-turn lane for NB Bake Parkway.
- Maintain a single SB left-turn lane.
- Add a 9-foot-wide chevron-striped buffer zone in the SB direction.
- Maintain an 8-foot-wide on-street bicycle lane for the NB direction to accommodate Proposed Project improvements.
- Provide a 7-foot-wide on-street bicycle lane for the SB direction to accommodate Proposed Project improvements.
- Realign the existing 5-foot-wide curb-adjacent sidewalk along SB Bake Parkway, south of the intersection, to accommodate the Proposed Project's design.
- Reduce SB sidewalk width, north of the intersection, to 5 feet within the Proposed Project limits.
- Relocate existing catch basins currently located on the northeastern corner of the intersection.
- Relocate existing SCE wooden poles along SB Bake Parkway to accommodate the Proposed Project improvements.
- Construct Americans with Disabilities Act (ADA)-compatible curb ramps for the intersection.
- Reconstruct the existing raised median, south of the intersection, to maintain a 2-foot-minimum median width. Additionally, remove the existing stamped-concrete material and replace it with cobblestone material up to the railroad limits at the existing bridge crossing.
- Protect the existing median, north of the intersection, in place. Replace the existing stamped-concrete material with cobblestone material.
- Remove and reconstruct an existing OCFCD access-roadway driveway currently located on SB Bake Parkway.

Four existing SCE wooden poles are along the westerly sidewalk and would need to be relocated due to the proposed widening. An existing SCE transmission steel pole is also located approximately 350 feet south of the intersection. To protect the existing SCE steel pole and provide a minimum of 2 feet of clearance between the existing SCE steel pole and foundation and the new curb, the proposed median would transition from 4 feet at the median nose to a minimum of 2 feet.

To minimize impacts to the existing OCFCD channel, the westerly widening of Bake Parkway would require a retaining wall, approximately 250 feet north from the intersection. The shift in improvements would require approximately 4 feet of additional ROW. In accordance with ADA requirements, to provide an access route around the utility poles, a wider sidewalk would be required.

JERONIMO ROAD

- Maintain an existing four-lane facility (i.e., two travel lanes in each direction).
- Add one additional left-turn lane for WB Jeronimo Road.
- Maintain two left-turn lanes for EB Jeronimo Road.
- Provide 8-foot-wide on-street bicycle lanes for both WB and EB Jeronimo Road.
- Provide a 6-foot-wide bicycle lane between the through and right-turn lanes for EB Jeronimo Road as it approaches the intersection.
- Provide a 12-foot-wide right-turn lane in the EB direction.
- Provide westbound defacto right-turn lane.
- Realign the existing 5-foot-wide curb-adjacent sidewalk along both EB and WB Jeronimo Road to accommodate the Proposed Project's design.
- Provide an 8-foot-wide sidewalk at the existing bus stop locations.

- Construct retaining walls along WB Jeronimo Road to minimize the required impact on the adjacent residential property.
- Remove and reconstruct an existing OCFCD access-roadway driveway currently located on WB Jeronimo Road.

As mentioned in section 2.4, *Project Background*, the proposed intersection improvements would be consistent with the NITM program, and with the LFTM program. To adequately address current and forecast traffic conditions, alternative NITM improvements were proposed and approved instead of the original NITM improvements. Per requirements of the NITM program, these alternative improvements were shown to satisfy both cities traffic mitigation requirements and not result in any new impacts. Therefore, the Proposed Project intersection improvements include the following: one additional northbound left turn lane on Bake Parkway; one additional westbound left turn lane on Jeronimo Road; westbound defacto right-turn lane on Jeronimo Road; and extension of all Class II bike lanes on Jeronimo Road to the intersection. Refer to Exhibit 2-4, *Site Plan*, for an illustration of the proposed intersection improvements.

The Proposed Project consists of nonstandard 11-foot-wide through lanes. The City of Irvine would need to approve a variance consideration during the final design phase of the Proposed Project. The new pavement-improvement areas would generally match and be consistent with the existing pavement structure of the project site.

The existing traffic-signal system at the intersection of Bake Parkway and Jeronimo Road would be modified, but would be consistent with current City of Irvine standards.

Table 2.5-1. Proposed Right of Way and Temporary Construction Easements

Parcel	Required Right of Way (square feet)	Required Temporary Construction Easement (square feet)
APN 614-595-06	0	246
APN 614-595-05	160	767
APN 614-595-04	0	306
APN 614-191-75*	6,840	5,896
APN 591-014-02	22	675
APN 591-014-01	2,615	10,092
APN 591-011-12	751	4,026
TOTAL	**10,388**	**22,008**

Source: Mark Thomas 2023.
Note: This table summarizes the required right of way and temporary construction easements needed for the Proposed Project and not the total area of disturbance.
* = APN 614-191-75 requires right of way for the proposed retaining wall. The majority of the disturbance area is accounted for within the proposed right of way area. The area outside of the new right of way would consist of temporary construction easements.

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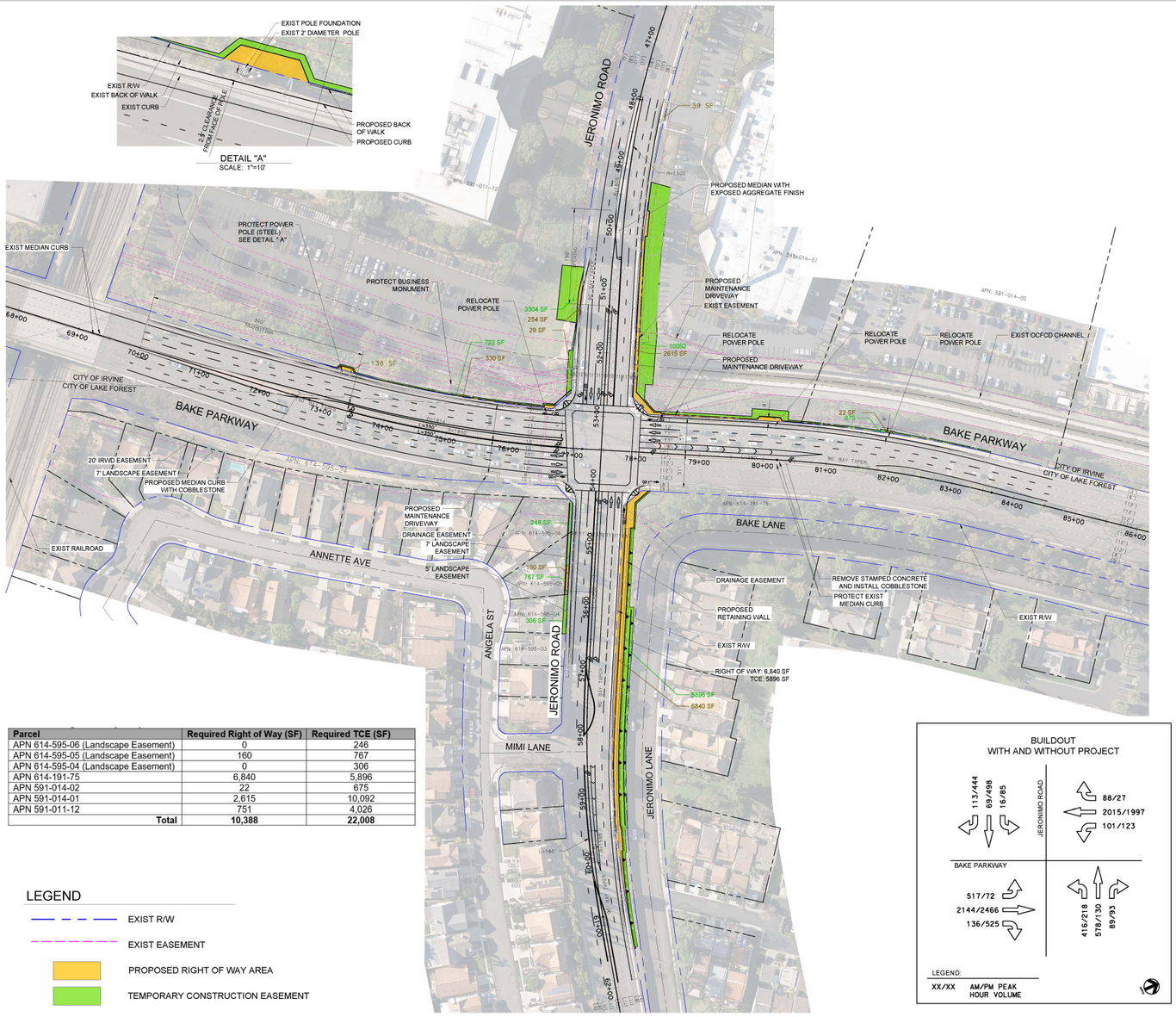
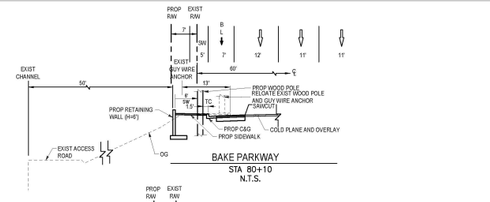
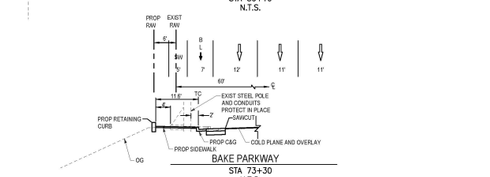


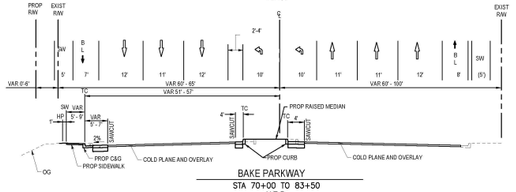
Parcel	Required Right of Way (SF)	Required TCE (SF)
APN 614-595-06 (Landscape Easement)	0	246
APN 614-595-05 (Landscape Easement)	160	767
APN 614-595-04 (Landscape Easement)	0	306
APN 614-191-75	6,840	5,896
APN 591-014-02	22	675
APN 591-014-01	2,615	10,092
APN 591-011-12	751	4,026
Total	**10,388**	**22,008**

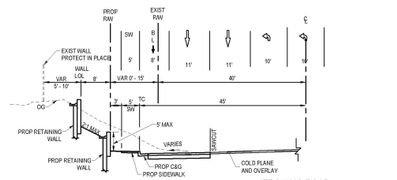
LEGEND

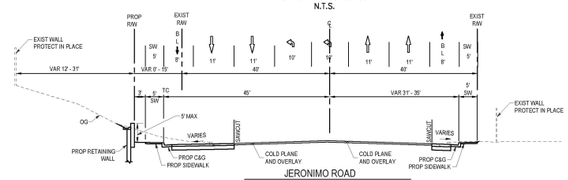
- EXIST R/W
- EXIST EASEMENT
- PROPOSED RIGHT OF WAY AREA
- TEMPORARY CONSTRUCTION EASEMENT

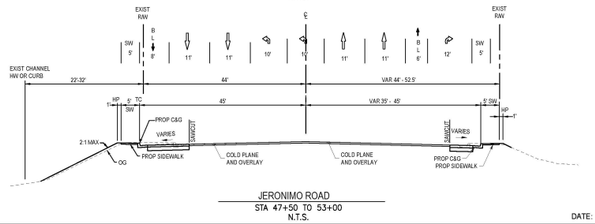












DATE: 11/7/23

Source: Mark Thomas

NOT TO SCALE

Site Plan

Exhibit 2-4

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2.6 OTHER IMPROVEMENTS AND PROJECT PHASING

Two existing catch basins are within the Proposed Project area, one in the southeastern corner and the other at the northeastern corner of the intersection. Additionally, an existing OCFCD concrete channel is on the western side of Bake Parkway. It is anticipated that the Proposed Project would not affect the existing OCFCD channel. The roadway storm-drain system ultimately flows to Serrano and San Diego creeks. A project-specific Preliminary Water Quality Management Plan (PWQMP) has been developed for the Proposed Project.

An existing 10-inch double-check backflow assembly is sited approximately 210-feet west of the intersection, adjacent to EB Jeronimo Road. This is an existing fire-service facility that serves the adjacent Karma Automotive business complex. Based on the proposed improvements, this existing Irvine Ranch Water District (IRWD) facility would need to be relocated. An existing IRWD access road between NB Bake Parkway and the adjacent residential property's wall would need to be maintained during project construction.

The intersection improvements are planned to be constructed in several phases. Phase 1 consists of constructing outside improvements such as curb and gutter, sidewalks, curb ramps, and retaining walls along both Bake Parkway and Jeronimo Road. Phase 2 would consist of improvements within the existing median areas. The last phase would consist of grind and overlay of the existing pavements, landscaping, signage, and striping improvements. Construction is anticipated to begin in 2025 and would last approximately 12 months.

2.7 PERMITS AND APPROVALS

The Proposed Project would require permits and approvals from the City of Irvine and other agencies prior to construction. These permits and approvals are described below and may change as the Proposed Project proceeds.

- City of Irvine
    - CEQA Clearance
    - Construction Bid Documents Approval
    - City of Lake Forest Encroachment Permit
- Santa Ana Regional Water Quality Control Board (RWQCB)
    - Santa Ana RWQCB-issued Order No. R8-2009-0030, National Pollutant Discharge Elimination System (NPDES) Permit No. CAS618030, as Amended by Order No. R8-2010-0062, *Waste Discharge Requirements*
- California State Water Resources Control Board (Water Boards)
    - NPDES Construction General Permit
- County of Orange
    - Encroachment Permit

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3.0 INITIAL STUDY CHECKLIST

3.1 BACKGROUND

1. Project Title: Bake Parkway/Jeronimo Road Intersection Improvements Project
2. Lead Agency Name and Address: City of Irvine One Civic Center Plaza Irvine, California 92606
3. Contact Person and Phone Number: Mr. Amir Ainechi City of Irvine 949.724.7370
4. Project Location: Regionally, the Proposed Project site is in the southeastern portion of the City of Irvine and the southeastern portion of the City of Lake Forest, within the County of Orange. The westerly leg of the intersection is within the City of Irvine, and the remaining legs of the intersection are within the City of Lake Forest. The Proposed Project site is approximately 0.98-mile northeast of I-5. The site includes the Bake Parkway/Jeronimo Road intersection and extends outwardly along Bake Parkway, approximately 735 feet to the northeast and 830 feet to the southwest, and along Jeronimo Road, approximately 960 feet to the northwest and 1,480 feet to the southeast.
5. Project Sponsor's Name and Address: City of Irvine One Civic Center Plaza Irvine, California 92606
6. General Plan Designation: According to Figure B-1, *Master Plan of Arterial Highways*, of the Irvine General Plan's Circulation Element (City of Irvine 2015e), Bake Parkway is designated as a *Major Highway Six-lanes*, whereas Jeronimo Road is identified as a *Primary Highway*. Irvine General Plan Figure B-2, *Operational Characteristics*, identifies both Bake Parkway and Jeronimo Road as *Parkways*, and Irvine General Plan Figure B-3, *Public Transit*, identifies both roadways as *Inter-City Transit Corridors*. According to Figure M-I: *Mobility Network of the Lake Forest General Plan 2040's Mobility Element*, Bake Parkway is identified as a *Major Arterial*, whereas Jeronimo Road is identified as a *Primary Arterial*.

7. Zoning:

The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low and Medium Residential* within the City of Lake Forest.

8. Description of the Project:

The Proposed Project would improve the current intersection performance to an acceptable LOS and reduce traffic congestion. The Proposed Project would involve the following intersection improvements on each respective roadway, as follows.

Bake Parkway

- Maintain the existing six-lane facility (i.e., three travel lanes in each direction)
- Construct one additional left-turn lane for NB Bake Parkway.
- Maintain a single SB left-turn lane.
- Construct a 9-foot-wide chevron-striped buffer zone in the SB direction.
- Maintain an 8-foot-wide on-street bicycle lane for the NB direction to accommodate the improvements.
- Provide a 7-foot-wide on-street bicycle lane for the SB direction to accommodate the improvements.
- Realign the existing 5-foot-wide curb-adjacent sidewalk along SB Bake Parkway, south of the intersection, to accommodate the proposed design.
- Reduce SB sidewalk width, north of the intersection, to 5 feet within the Proposed Project limits.
- Relocate existing catch basins currently located on the northeastern corner of the intersection.
- Relocate existing SCE wooden poles currently located along SB Bake Parkway to accommodate the Proposed Project improvements.
- Construct ADA-compatible curb ramps for the intersection.
- Reconstruct the existing raised median, south of the intersection, to maintain a 2-foot-minimum median width. Additionally, remove the existing stamped-concrete material and replace it with cobblestone material up to the railroad limits at the existing bridge crossing.
- Protect the existing median, north of the intersection, in place. Replace the existing stamped-concrete material with cobblestone material.
- Remove and reconstruct an existing OCFCD access-roadway driveway located on SB Bake Parkway.
- Relocate four SCE overhead-powerline poles.
- Construct a retaining wall approximately 250 feet north from the intersection to minimize impacts on the existing OCFCD channel.

Jeronimo Road

- Maintain an existing four-lane facility (i.e., two travel lanes in each direction)
- Construct one additional left-turn lane for WB Jeronimo Road.
- Maintain two left-turn lanes for EB Jeronimo Road.
- Provide 8-foot-wide on-street bicycle lanes for both WB and EB Jeronimo Road.
- Provide a 6-foot-wide bicycle lane between the through and right-turn lanes for EB Jeronimo Road as it approaches the intersection.
- Provide a 12-foot-wide right-turn lane in the EB direction.
- Provide westbound defacto right-turn lane.
- Realign the existing 5-foot-wide curb-adjacent sidewalk along both EB and WB Jeronimo Road to accommodate the Proposed Project design.

- Provide an 8-foot-wide sidewalk at the existing bus stop locations.
- Construct retaining walls along WB Jeronimo Road to minimize the required impact on the adjacent residential property.
- Remove and reconstruct an existing OCFCD access-roadway driveway currently located on WB Jeronimo Road.

The Proposed Project would also require partial ROW acquisition of approximately 10,388 square feet. Additional details regarding the proposed improvements are provided in section 2.5, *Project Characteristics*.

9. Surrounding Land Uses and Setting:

The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest. As such, industrial uses are found north and west of Bake Parkway, and residential uses are found south and to the east. The San Diego Freeway (i.e., I-5) is located 0.98 mile to the southwest of the Proposed Project (at its closest point). The Great Park is approximately 2 miles to the northwest. Various utilities are currently located within the project area, including overhead electrical lines, streetlights, drainage features, and gas lines.

10. Other public agencies whose approval is required (e.g., permits, financing approval or participation agreement):

Refer to section 2.6, *Permits and Approvals*, for a description of the range of regional and local approvals anticipated to be required for the Proposed Project. Additional approvals may be required as the Proposed Project entitlement process moves forward.

3.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Proposed Project, involving at least one impact that is a "Potentially Significant Impact" or "Less-than-Significant Impact with Mitigation Incorporated," as indicated by the checklists on the following pages.

	Aesthetics		Mineral Resources
	Agriculture and Forestry Resources	✓	Noise
	Air Quality		Population and Housing
✓	Biological Resources	✓	Public Services
✓	Cultural Resources		Recreation
✓	Geology and Soils	✓	Transportation/Traffic
	Greenhouse Gas Emissions	✓	Tribal Cultural Resources
✓	Hazards & Hazardous Materials		Utilities & Service Systems
	Hydrology & Water Quality	✓	Wildfire
	Land Use and Planning	✓	Mandatory Findings of Significance

3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

This section analyzes the potential environmental impacts associated with the Proposed Project. The issue areas evaluated in this Initial Study include the following.

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The environmental analysis in this section is patterned after the Initial Study Checklist that the CEQA Guidelines recommends and the City of Irvine uses in its environmental-review process. For the preliminary environmental assessment undertaken as part of this Initial Study's preparation, a determination that there would be a potential for significant effects indicates the need to more fully analyze the Proposed Project's impacts and identify appropriate mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated, and an answer is provided, according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the Proposed Project. To each question, there are four possible responses, as follows.

1. ***No Impact.*** The Proposed Project would not have any measurable impact on the environment.

2. ***Less-than-Significant Impact*****.** The Proposed Project would have the potential to create an impact on the environment, although the impact would be below established thresholds that are considered to be significant.

3. ***Less-than-Significant Impact with Mitigation Incorporated*****.** The Proposed Project would have the potential to generate impacts that may be considered as significant effects on the environment, although mitigation measures or changes to the Proposed Project's physical or operational characteristics may reduce these impacts to levels that are less than significant.

4. ***Potentially Significant Impact***. The Proposed Project would have impacts that are considered significant, and additional analysis would be required to identify mitigation measures that could reduce these impacts to less-than-significant levels.

Where potential impacts are anticipated to be significant, mitigation measures would be required so that impacts may be avoided or reduced to insignificant levels.

4.0 ENVIRONMENTAL ANALYSIS

The following is a discussion of potential project impacts as identified in the Initial Study/Environmental Checklist. Explanations are provided for each item.

4.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?				✓
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			✓	
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			✓	

a) Have a substantial adverse effect on a scenic vista?

No Impact. The Proposed Project site is within a fully developed area of the cities of Irvine and Lake Forest, along Bake Parkway and Jeronimo Road. From the Proposed Project site, there are distant views to the San Joaquin Hills (to the west) and the Santiago Hills (to the north); however, there are no unique aesthetic features or scenic vistas in the area. According to the Figure A-4, *Scenic Highways Map*, of the Irvine General Plan's *Land Use Element* (City of Irvine 2015b), neither of the two roadways is considered a State Scenic Highway or contains a Major View. Furthermore, the Proposed Project would consist of intersection improvements, and would not result in any view blockage of either the San Joaquin or Santiago hills. No impact would occur.

Mitigation Measures: No mitigation is required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. According to the California Department of Transportation's (Caltrans) *California State Scenic Highway System Map* (Caltrans 2019), no officially Designated, nor Eligible, State Scenic Highways are within proximity to the Proposed Project site. The nearest Eligible State Scenic Highway is California State Route (SR-) 1, approximately 8.3-miles southwest of the Proposed Project site (at its closest point). Thus, implementation of the Proposed Project would not affect scenic resources along a State Scenic Highway.

Mitigation Measures: No mitigation is required.

c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-Significant Impact. Construction activities associated with the Proposed Project would temporarily affect the visual character and quality of the Proposed Project area by exposing surfaces, producing construction debris, and utilizing equipment and construction vehicles in the area. These construction features would temporarily affect views from surrounding uses, as well as the views of motorists, bicyclists, and pedestrians traveling in the vicinity. In addition, nighttime construction is not anticipated to be required as part of the Proposed Project. The construction activities and construction features would be temporary, only lasting during the duration of construction, as such, construction-related impacts would be less than significant.

A project is considered to have a *significant visual impact* if it substantially changes the character of the project site in a way that it becomes visually incompatible or visually unexpected when viewed in the context of its surroundings, resulting in degradation of the existing visual character or quality of the site and its surroundings. The Proposed Project consists of intersection improvements that would be consistent with the existing visual character along Bake Parkway and Jeronimo Road and would not include any new land uses or structures that would alter the visual characteristics of the project area in a significant way. Any vegetation affected would be protected in place, replaced in-kind, or replaced with native plantings in accordance and in coordination with each City's standards, thus minimizing potential impacts on vegetation.

The proposed intersection improvements would include turn lanes, Class II bicycle lanes, traffic-signal modifications, ADA-compliant curb ramps and bus stops, grading, sidewalks, and adjustments to and/or relocation of existing utilities, landscaping, and retaining walls. These improvements would not be considered degradation of the existing visual character or quality of the site. Impacts would be less than significant.

Mitigation Measures: No mitigation is required.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. There are two primary sources of light: (1) light emanating from building interiors that pass through windows; and (2) light from exterior sources (i.e., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Light introduction can be a nuisance to adjacent uses and diminish the view of the clear night sky. Currently, light and glare in the Proposed Project vicinity are produced by vehicle headlights, street lighting, and lighting from the adjacent industrial and residential uses. Construction equipment used during construction activities would not produce substantial glare. In addition, nighttime construction activities are not expected to occur during implementation of the Proposed Project. Thus, impacts related to light and glare during construction are not anticipated.

The Proposed Project would not create a new source of light or glare during operations. Two existing streetlights along eastbound Jeronimo Road at approximately Station 55+50 and Station 57+00 would be relocated due to the Proposed Project. The relocated streetlights would be closer in proximity to the adjacent residential area compared with existing conditions. However, lighting intensity would not be altered, no additional streetlighting is proposed, and the streetlight relocations would not be expected to substantially increase light or glare in the Proposed Project area in comparison to existing conditions. Therefore, operational impacts would be less than significant.

Mitigation Measures: No mitigation is required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement. Methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	**Potentially Significant Impact**	**Less-than-Significant Impact with Mitigation Incorporated**	**Less-than-Significant Impact**	**No Impact**
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?				✓
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				✓
d. Result in the loss of forest land or conversion of forest land to non-forest use?				✓
e. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				✓

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The Proposed Project is in a fully developed area of the cities of Irvine and Lake Forest. According to the California Department of Conservation's *California Important Farmland Finder* (2022), the Proposed Project is in an area designated as *Urban and Built-Up Land*. As such, the Proposed Project site is not in an area of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No Impact would occur.

Mitigation Measures: No mitigation is required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest. Industrial uses are found north and west of Bake Parkway, and residential uses found south and to the east. No agricultural-zoning designation exists within the Proposed Project site or its vicinity. According to the Department of Conservation's *State of California Williamson Act Contract Land Map* (2017), the Proposed Project site is outside the Williamson Act-designated area. No impact would occur.

Mitigation Measures*:* No mitigation is required.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest. No zoning for forest land or timberland exists within the Proposed Project area. Therefore, no impacts would occur in this regard.

Mitigation Measures*:* No mitigation is required.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest. No forest land exists within the Proposed Project area. Therefore, no impacts would occur in this regard.

Mitigation Measures*:* No mitigation is required.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact*.* The Proposed Project is in an area designated as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest. No farmland or forest land exists within the Proposed Project area. Therefore, no impacts would occur in this regard.

Mitigation Measures*:* No mitigation is required.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations. Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?			✓	
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			✓	
c. Expose sensitive receptors to substantial pollutant concentrations?			✓	
d. Result in other emissions (e.g., those leading to odors) adversely affecting a substantial number of people?			✓	

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. According to the CEQA *Air Quality Handbook*, in order to determine consistency with the South Coast Air Quality Management District's (SCAQMD) *Air Quality Management Plan* (AQMP) two main criteria must be addressed.

Criterion 1

With respect to the first criterion, SCAQMD methodologies require that an air-quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

1. Would the project result in an increase in the frequency or severity of existing air quality violations?

Because the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of the Proposed Project's pollutant emissions relative to localized pollutant concentrations has been used as the basis for evaluating project consistency. As discussed in section 4.3(d), below, localized concentrations of carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) would be less than significant. Therefore, the Proposed Project would not result in an increase in the frequency or severity of existing air-quality violations. Because reactive organic gasses (ROG) are not a criteria pollutant, there is no ambient standard or localized threshold for ROGs. Because of the role that ROGs play in ozone formation, they are classified as precursor pollutants, for which only a regional emissions threshold has been established.

2. Would the project cause or contribute to new air quality violations?

As discussed in section 4.3(b), the Proposed Project would result in emissions that would be below the SCAQMD thresholds. Therefore, the Proposed Project would not have the potential to cause or affect a violation of the ambient air-quality standards.

3. *Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*

As discussed in section 4.3(d), the Proposed Project would result in less-than-significant impacts with regard to localized concentrations during construction. As such, the Proposed Project would not delay the timely attainment of air-quality standards or AQMP emissions reductions.

Criterion 2

With respect to the second criterion for determining consistency with SCAQMD and Southern California Association of Governments (SCAG) air-quality policies, it is important to recognize that air-quality planning within the South Coast Air Basin (Basin) focuses on attainment of ambient air-quality standards at the earliest feasible date. Projections for achieving air-quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether the Proposed Project exceeds the assumptions utilized in preparing the forecasts presented in the AQMP. Determining whether a project exceeds the assumptions reflected in the AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

1. *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?*

A project is consistent with the AQMP, in part, if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. In the case of the *2022 Air Quality Management Plan* (2022 AQMP (SCAQMD 2022), four sources of data form the basis for the projections of air pollutant emissions: the Irvine General Plan, Lake Forest 2040, SCAG's *Growth Management Chapter* of the *Regional Comprehensive Plan and Guide* (RCPG), and SCAG's 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS also provides socioeconomic forecast projections of regional population growth. The Proposed Project involves intersection improvements along the Bake Parkway/Jeronimo Road intersection. The intersection improvements would enhance traffic capacity within the Bake Parkway/Jeronimo Road intersection. Therefore, the Proposed Project would be considered consistent with the current Irvine General Plan and Lake Forest 2040 land-use designations. Furthermore, the Proposed Project does not involve any uses that would increase population beyond what is considered in the Irvine General Plan and Lake Forest 2040; therefore, it would not affect citywide plans for population growth at the Proposed P site. Thus, the Proposed Project is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the RCPG. The population, housing, and employment forecasts, which SCAG's Regional Council adopted, were based on the local plans and policies applicable to both cities; SCAG uses these in all phases of implementation and review. Additionally, because SCAQMD has incorporated these same projections into the 2022 AQMP, it can be concluded that the Proposed Project would be consistent with the projections.

2. *Would the project implement all feasible air quality mitigation measures?*

The Proposed Project would result in less-than-significant air quality impacts. Compliance with emission reduction measures identified by the SCAQMD would be required as identified in section 4.3(b). As such, the Proposed Project meets this AQMP consistency criterion.

3. *Would the project be consistent with the land use planning strategies set forth in the AQMP?*

The Proposed Project would implement various City of Irvine, City of Lake Forest, and SCAG policies. The Proposed Project is within a developed portion of the City and would enhance traffic capacity within the Bake Parkway/Jeronimo Road intersection.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The Proposed Project would not result in a long-term impact on the region's ability to meet federal and State air quality standards. As discussed above, the Proposed Project's long-term influence would also be consistent with the goals and policies of the *2022 AQMP* and is, therefore, considered consistent with the SCAQMD's *2022 AQMP*.

Mitigation Measures: No mitigation is required.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less--than-Significant Impact.

Cumulative Construction Impacts

With respect to the Proposed Project's construction-period air-quality emissions and cumulative Basin-wide conditions, SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the *2022 AQMP* pursuant to Federal Clean Air Act mandates. As such, the Proposed Project would comply with SCAQMD Rule 403 requirements. Rule 403 requires that fugitive dust be controlled with the best-available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the Proposed Project. In addition, the Proposed Project would comply with adopted *2022 AQMP* emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include related projects.

Table 4.3-1. *Construction Air Emissions*, depicts the construction emissions associated with the Proposed Project. Construction activities would involve site preparation, demolition, grading, and paving. The duration of construction activities associated with the Proposed Project is estimated to last approximately 12 months and commence in 2025.

Emitted pollutants would include ROG, CO, NO_X, PM_{10}, and $PM_{2.5}$. The largest amount of ROG, CO, and NO_X emissions would occur during the earthwork phase. PM_{10} and $PM_{2.5}$ emissions would occur from fugitive dust (due to earthwork and excavation) and from construction-equipment exhaust. Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the Proposed Project site, emissions produced on site as the equipment is used, and emissions from trucks transporting materials to and from the site.

Table 4.3-1. Construction Air Emissions

Construction Emissions Source	Pollutant (pounds/day) [1]					
	ROG	NO_X	CO	SO_2	PM_{10} [2]	$PM_{2.5}$ [2]
2025						
Emissions	4.24	40.33	43.2	0.11	11.68	3.56
SCAQMD Thresholds	75	100	550	150	150	55
Is Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

Source: Refer to Appendix A, *Road Construction Emissions*, for detailed model input/output data.
[1] Emissions were calculated using the California Emissions Estimator Model, as recommended by SCAQMD.
[2] $PM_{2.5}$ and PM_{10} emissions were calculated under the assumption that watering would be implemented in accordance with Rule 403.
CO = carbon monoxide; NO_X = nitrogen oxides; PM_{10} = particulate matter up to 10 microns; $PM_{2.5}$ = particulate matter up to 2.5 microns; ROG = reactive organic gases; SO_2 = sulfur dioxide.

As depicted in Table 4.3-1, construction-related emissions would not exceed the established SCAQMD thresholds for criteria pollutants. During construction activities, the Proposed Project would also be required to comply with standard SCAQMD regulations, such as Rule 403, *Dust Control*. Compliance with SCAQMD standard regulations, would result in a less-than-significant construction impact.

Compliance with SCAQMD rules and regulations would reduce the Proposed Project's construction-related impacts to a less-than-significant level. Thus, it can be reasonably inferred that the project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality. Thus, a less-than-significant impact would occur in this regard.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types, such as tremolite and actinolite, are also found in California. Asbestos is classified as a known human carcinogen by international, federal, and State agencies and the California Air Resources Board (CARB) identified it as a toxic air contaminant in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air-quality and human-health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere from vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos- bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), serpentinite and ultramafic rocks are not known to occur within the Proposed Project area. Thus, there would be no impact in this regard.

Cumulative Long-Term Impacts

Long-term air-quality impacts would consist of mobile-source emissions generated from project-related traffic. Although the Proposed Project would provide additional turn/through lanes within the LOD, it would not generate any new vehicular trips. Rather, the Proposed Project would relieve traffic congestion, increase mobility, and accommodate existing traffic conditions in the area. Additionally, the proposed roadway improvement would not generate any stationary source emissions.

Mitigation Measures: No mitigation required.

The Proposed Project would not result in long-term air quality impacts because it is not considered a trip-generating land use and would improve traffic conditions. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Emission-reduction technology, strategies, and plans are constantly being developed. As a result, the Proposed Project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, cumulative operational impacts associated with implementation of the Proposed Project would be less than significant.

Mitigation Measures: No mitigation required.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65 years old, children under 14 years old, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

Sensitive uses closest to the Proposed Project site include residential uses along the eastern boundaries of the Proposed Project site and a church located to the west of the Proposed Project site. In order to identify impacts to sensitive receptors, SCAQMD recommends addressing localized significance thresholds (LSTs) for construction and operations impacts (area sources only).

Localized Significance Thresholds

LSTs were developed in response to SCAQMD's Governing Boards' Environmental Justice Enhancement Initiative (I-4). SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level Proposed Projects. The SCAQMD provides the LST lookup tables for 1-, 2-, and 5-acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates were not designed to evaluate localized impacts from mobile sources traveling over the roadways. The Proposed Project is within Sensitive Receptor Area (SRA) 19, Saddleback Valley, and SRA 20, Central Orange County Coastal. However, because the sensitive receptors for the Proposed Project area are in SRA 19, the LSTs for SRA 19 were used.

The Proposed Project would disturb approximately up to 5 acres; therefore, the LST thresholds for 5 acres was utilized for the construction LST analysis. It is noted that an operational LST analysis was not prepared because the Proposed Project would not result in operational emissions. The closest sensitive receptors to the Proposed Project site are adjoining residential uses to the east, north of the Proposed Project site, and religious land uses to the west of the Proposed Project site. These sensitive land uses may be potentially affected by air-pollutant emissions generated during onsite construction activities. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. Notwithstanding, the SCAQMD Methodology explicitly states: "It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters." Therefore, LSTs for receptors located at 25 meters were utilized in this analysis.

Table 4.3-2. *Localized Significance of Emissions*, shows the construction-related emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the LSTs for SRA 19, Saddleback Valley, because the sensitive receptors for the Proposed Project are in the City of Lake Forest, which is in SRA 19. As shown in Table 4.3-2, construction emissions would not exceed the LSTs for SRA 19. Therefore, localized significance impacts from construction would not be potentially significant.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle-idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels (e.g., adversely affecting residents, school children, hospital patients, the elderly). SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the *intersection capacity utilization*) by 0.02 (i.e., 2 percent) for any intersection with an existing level of service LOS D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

Table 4.3-2. Localized Significance of Emissions

Source	Pollutant (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction				
SRA 19 – Saddleback Valley				
Total Mitigated Onsite Emissions	40.33	43.2	11.68	3.56
Localized Significance Threshold [1]	197	1,804	12	8
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Source: Refer to Appendix A for detailed model input/output data.
[1] The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$ (SCAQMD 2003). The Localized Significance Threshold was based on the anticipated daily acreage disturbance for construction, the distance to sensitive receptors, and the source receptor area (i.e., SRA 19).
CO = carbon monoxide; NO_X = nitrogen oxides; PM_{10} = particulate matter up to 10 microns; $PM_{2.5}$ = particulate matter up to 2.5 microns; SCAQMD = South Coast Air Quality Management District; SRA = Sensitive Receptor Area.

The Basin is designated as an attainment/maintenance area for the federal CO standards and an attainment area for State standards. CO emissions have declined, even though vehicle miles traveled (VMT) on U.S. urban and rural roads has increased. On-road mobile-source CO emissions declined 24 percent between 1989 and 1998, despite a 23 percent rise in motor VMT over the same 10 years. California trends have been consistent with national trends: CO emissions declined 20 percent in California from 1985 through 1997, whereas VMT increased 18 percent in the 1990s. CO emissions have continued to decline since this time. The Basin was re-designated as attainment in 2007 and is no longer addressed in the SCAQMD's AQMP. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the *Federal Attainment Plan for Carbon Monoxide* (*CO Plan*; CARB 1996) for the 2003 AQMP, which is the most recent AQMP that addresses CO concentrations. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the Basin and would likely experience the highest CO concentrations. Thus, CO analysis within the CO Plan is utilized in a comparison to the Proposed Project because it represents a worst-case scenario with heavy traffic volumes within the Basin.

Of these locations, the Wilshire Boulevard/Veteran Avenue intersection in Los Angeles experienced the highest CO concentration (i.e., 4.6 parts per million [ppm]), which is well below the 35-ppm 1-hr CO federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in southern California, with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day. Because the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any intersections within the Cities of Irvine or Lake Forest near the Proposed Project site due to the lower volume of traffic experienced in Irvine and Lake Forest. Additionally, the Proposed Project would not generate any new traffic trips, and ADT would be the same with and without project implementation.

As previously discussed, the Proposed Project would reduce congestion and provide traffic capacity enhancement within the Bake Parkway/Jeronimo Road intersection. Thus, LOS would improve, and idling time would be reduced. Furthermore, reduced idling time would result in reduced CO emissions: the longer a vehicle idles in a single location, the more air-pollutant emissions are generated over the course of its travel than would otherwise have been emitted with reduced idling. For the reasons described, impacts would be less than significant in this regard.

Mitigation Measures: No mitigation required.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less-than-Significant Impact. According to the SCAQMD *CEQA Air Quality Handbook* (1993), land uses associated with odor complaints typically include agricultural uses, wastewater-treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Proposed Project involves intersection improvements and does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the Proposed Project may generate detectable odors from heavy-duty equipment exhaust. Construction-related odors would be short term in nature and cease upon project completion. Any impacts to existing adjacent land uses would be short term and are less than significant.

Mitigation Measures: No mitigation is required.

4.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				✓
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				✓
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				✓
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		✓		
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		✓		
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				✓

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. A significant impact would occur if the Proposed Project directly resulted in take, or removed or modified habitat for any species identified as a Candidate, Sensitive, or Special-Status Species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS).

Sensitive biological resources potentially occurring within the Biological Study Area (BSA; i.e., project footprint plus a 250-foot buffer) were investigated through a desktop analysis and field survey, and a literature and records search was performed to identify biological resources within the Proposed Project site. Due to the highly developed nature of the Proposed Project site and the lack of any natural vegetation communities in the surrounding area, the database queries were restricted to the U.S. Geological Survey (USGS) quadrangle in which the Proposed Project occurs, the El Toro

7.5-minute topographic quadrangle (USGS 1968). ICF biologist Vincent Baker conducted a site visit on March 30, 2022, to evaluate the land-cover types and suitability of the Proposed Project site to support special-status species and wildlife movement. A formal jurisdictional delineation was not performed for the Proposed Project.

The Proposed Project site includes Bake Parkway and Jeronimo Road, which comprise paved roadways and associated infrastructure (e.g., bus stops, sidewalks, utility structures). Land use within the BSA is highly developed, consisting of residential and commercial development, paved roads, and parking lots, with ornamental landscaping and turf lawns interspersed (see Exhibit 2-2. *Site Vicinity Map*). Surrounding land uses consist primarily of densely developed urban areas, with I-5 and I-405 to the west and SR-241 to the north. Open space within the project region includes the Santa Ana Mountains, approximately 3.5 miles to the north, and the San Joaquin Hills, approximately 3.4 miles to the south. However, these open areas, which contain native habitats and could support special-status species, are isolated from the BSA by extensive, dense development and major highways (e.g., I-5, SR-241).

Four land-cover types were identified within the BSA during the site visit, as described below. No native habitat was present within the BSA. The urban, developed condition of the Proposed Project site is generally not suitable to support special-status plant or animal species, although trees and shrubs could support nesting birds (discussed under section 4.4(d), below).

Ornamental Landscaping

The Ornamental Landscaping land-cover type consists of planted ornamental trees, shrubs, and grasses that are primarily associated with the abutting residential neighborhoods, commercial businesses, and slopes along the sidewalks spanning the Bake Parkway and Jeronimo Road intersection and median. Along the intersection are a variety of ornamental tree species, such as gum (*Eucalyptus sp.*), sycamore (*Platanus racemosa*), Aleppo pine (*Pinus halepensis*), ngaio (*Myoporum laetum*), magnolia (*Magnolia grandiflora*), Peruvian peppertree (*Schinus molle*), camphor tree (*Cinnamomum camphora*), acacia (*Acacia* sp.), and Chinese banyan (*Ficus microcarpa*), which are associated with landscaping between the roadway and adjacent residential tracts and business complexes. Shrub species and ornamental flowering plants along the slopes bordering the sidewalks include Indian hawthorn (*Rhaphiolepis indica*), climbing fig (*Ficus pumila*), treasure flower (*Gazania rigens*), moss-rose purslane (*Portulaca grandiflora*), rose (*Rosa californica*), desert carpet (*Acacia redolens*), natal plum (*Carissa macrocarpa*), Cape leadwort (*Plumbago auriculata*), Japanese euonymus (*Euonymus japonicas*), lantana (*Lantana camara*), and fountain grass (*Pennisetum setaceum*).

Open Water

The Open Water land-cover type comprises open water associated with the Serrano Creek Channel and a human-made lake within the Lake Forest Keys residential community. An OCFCD flood-control channel that is concrete lined and channelized, Serrano Creek Channel runs parallel to the western side of Bake Parkway, north of Jeronimo Road, and is outside of the Proposed Project LOD. The lake is a 36-acre human-made lake that is associated with the Lake Forest II Master Homeowners Association and is located north and outside of the BSA, east of Bake Parkway. A small portion of the lake overlaps with the northern border of the BSA, outside of the Proposed Project LOD. The bank of the lake contains houses and boat docks and is either unvegetated or planted with turf lawn.

Disturbed

The Disturbed land cover type comprises areas that feature scattered nonnative grasses and forbs, includes areas predominately lacking vegetation, and features bare ground that is not developed or is otherwise disturbed from mowing or similar activities. Disturbed areas are found in patches along the road shoulders of Bake Parkway and the Atchison, Topeka, and Santa Fe (AT&SF) rail line, as well as in an undeveloped lot toward the far western reach of the BSA, along Jeronimo Road. Species in this community primarily consist of invasive, nonnative grasses and forbs, such as

red brome (*Bromus rubens*), soft brome (*Bromus hordeaceus*), bindweed (*Convolvulus arvensis*), redstem filaree (*Erodium cicutarium*), shortpod mustard (*Hirschfeldia incana*), annual yellow sweetclover (*Melilotus indicus*), stinknet (*Oncosiphon pilulifer*), Spanish false fleabane (*Pulicaria paludosa*), smilo grass (*Stipa miliacea*), and common dandelion (*Taraxacum officinale*).

Developed

The remainder of the BSA consisted of Developed lands in the form of paved roadways, residential and commercial properties, and other human-made features, including utility structures. Little to no vegetation is associated with this community, aside from the plants and gardens associated with residential yards and trees within parking lots.

Special-Status Plant Species

No Impact. A literature review of the California Natural Diversity Database (CNDDB; CDFW 2022a), California Native Plant Society's Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022), and USFWS Information for Planning and Consultation*'s Proposed, Threatened, and Endangered Species, and Critical Habitats Resource List* (USFWS 2022a) determined that 19 special-status plant species may potentially occur within the BSA. Three of these species are listed as federally and/or state-threatened and/or endangered: Braunton's milkvetch (*Astragalus brauntonii*), thread-leaved brodiaea (*Brodiaea filifolia*), and Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovatifolia*).

All of the plant species identified within the BSA during the 2022 field survey were ornamental plantings and commonly associated garden weeds, including lantana, fountain grass, gum, magnolia, and Peruvian peppertree. No native plant species were detected (see section 4.4(a), above, for details).

The BSA does not contain suitable habitat to support any of the 19 special-status plant species identified in the literature review, and all were determined to be absent due to a lack of suitable habitat and the highly urbanized nature of the BSA. In addition, there are no extant records of occurrence reported for any special-status plant species within the BSA (Calflora 2022; CDFW 2022a; USFWS 2021), and none were detected during the field survey. Therefore, no impacts on any special-status plants species, including federally and/or state-threatened and/or endangered plants, are anticipated as a result of the Proposed Project.

Special-Status Wildlife Species

No Impact. A literature review of the CNDDB (CDFW 2022a), USFWS Information for Planning and Consultation's *Proposed, Threatened, and Endangered Species, and Critical Habitats Resource List* (USFWS 2022a), and National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries)) *West Coast Region California Species List* (NOAA Fisheries 2016) determined that 27 special-status wildlife species may potentially occur within the BSA. Seven of these species are federally and/or state-listed as endangered or threatened or are Candidate species, including monarch butterfly (*Danaus plexippus*), Riverside fairy shrimp (*Streptocephalus woottoni*), steelhead trout (Southern California Coast Distinct Population Segment; *Oncorhynchus mykiss*), arroyo toad (*Anaxyrus californicus*), tricolored blackbird (*Agelaius tricolor*), coastal California gnatcatcher (*Polioptila californica californica*), and least Bell's vireo (*Vireo bellii pusillus*).

Fifteen species of wildlife were detected within the BSA during the 2022 field survey, all of which were birds: mallard (*Anas platyrhynchos*; flyover), Canada goose (*Branta canadensis*; flyover), mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), Swinhoe's white-eye (*Zosterops simplex*), house finch (*Haemorhous mexicanus*), red-tailed hawk (*Buteo jamaicensis*; flyover), American crow (*Corvus brachyrhynchos*), white-throated swift (*Aeronautes saxatalis*), black phoebe (*Sayornis nigricans*), Cassin's kingbird (*Tyrannus vociferans*), lesser goldfinch

(*Spinus psaltria*), song sparrow (*Melospiza melodia*), bushtit (*Psaltriparus minimus*), and Allen's hummingbird (*Selasphorus sasin*). These species are common to the region and acclimated to human environments.

The BSA does not contain suitable habitat to support any of the 27 special-status wildlife species identified in the literature review, and all were determined to be absent due to a lack of suitable habitat and the highly urbanized nature of the BSA. In addition, there are no extant records of occurrence reported for any special-status wildlife species within the BSA (CDFW 2022a; eBird 2022; USFWS 2021), and none were detected during the field survey. Therefore, no impacts on any special-status wildlife species, including federally and/or state-threatened and/or endangered wildlife, are anticipated as a result of the Proposed Project.

***Mitigation Measures**:* No mitigation is required.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. A significant impact would occur if the Proposed Project substantially removed or modified any riparian habitat or other sensitive natural communities as defined by CDFW, USFWS, or local or regional plans, policies, or regulations.

The Proposed Project site is entirely comprised of urban land cover types in a developed portion of Orange County (see Exhibit 2-3. *Existing Conditions*). In its existing condition, the Proposed Project site contains paved roadways, residential developments, parking lots, and commercial buildings, with turf grass and ornamental landscaping throughout (see section 4.4(a), above, for details).

Based on the record search, four sensitive natural communities were reported to occur within the USGS's El Toro 7.5-minute topographic quadrangle: Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Riparian Scrub, and Southern Sycamore Alder Riparian Woodland (CDFW 2022a). No riparian habitats or other sensitive natural communities were observed within the Proposed Project site during the field survey. Because there are no riparian habitats or other sensitive natural communities in the BSA, there would be no direct impacts on them as a result of the Proposed Project.

No USFWS-designated critical habitat occurs within the BSA (USFWS 2022b). Therefore, no impacts on critical habitat would occur, and no further action is required.

***Mitigation Measures**:* No mitigation is required.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. A significant impact would occur if federally protected wetlands or nonwetland waters of the United States or vegetated or unvegetated waters of the State (as defined by of the California Fish and Game Code (CFG Code) section 1602 *et seq.*) were removed or substantially modified.

Aquatic resources within the BSA were investigated through desktop analysis and a general field survey; a formal jurisdictional delineation was not performed for the Proposed Project. Potential federal- and state-jurisdictional aquatic features were observed downstream within the BSA outside of the Proposed Project LOD during the field survey: Serrano Creek Channel and the human-made lake (see section 4.4(a), above, for details). The portion of Serrano Creek Channel within the BSA is depicted on the USGS El Toro quadrangle map as a perennial blue-line stream

(USGS 1997). The USFWS National Wetlands Inventory depicts it as a semi-permanently flooded riverine feature with artificial substrate (USFWS 2022c), and the USGS National Hydrography Dataset depicts it as a stream/river (USGS 2022). The human-made lake is depicted on the USGS El Toro quadrangle map as a perennial lake (USGS 1997) and the USFWS National Wetlands Inventory (USFWS 2022c) classifies it as lake habitat.

Although potential federal- and state-jurisdictional aquatic features occur within the BSA, they are both located outside of the Proposed Project LOD and are not anticipated to be affected by the Proposed Project. Therefore, the Proposed Project would not have a substantial adverse effect on protected wetlands, and no compensatory mitigation is needed.

***Mitigation Measures**:* No mitigation is required.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact with Mitigation Incorporated. A significant impact would occur if the Proposed Project interfered with the movement of any native wildlife or fish species through a migratory wildlife corridor or impeded the use of a native wildlife nursery site.

Based on a records search of CDFW's Biogeographic Information and Observation System (BIOS) Viewer (CDFW 2022b), the NOAA Fisheries' West Coast Region California Species List (NOAA Fisheries 2016), and the National Oceanic and Atmospheric Administration's (NOAA) Essential Fish Habitat Mapper (NOAA 2022), no identified wildlife-movement corridors or linkages are on or adjacent to the BSA, including missing linkages, essential habitat-connectivity areas, landscape blocks, or Essential Fish Habitat. No major drainages with vegetative cover, contiguous habitat, or other topographic or structural features (e.g., canyons, washes) are present that would provide cover and facilitate the movement of wildlife within the Proposed Project site or region. Serrano Creek Channel may provide some connection for terrestrial wildlife, such as small and medium-sized mammals (e.g., opossum [*Didelphis virginiana*], raccoon [*Procyon lotor*], skunk [*Mephitis mephitis*], coyote [*Canis latrans*]) and aquatic species (when there is flow in the channel during a storm event) between the earthen portion of Serrano Creek that contains riparian woodland habitat to the north and urban areas to the south. However, the portion of Serrano Creek Channel that is present within the BSA is a concrete-lined flood-control channel that is highly modified, unvegetated, and surrounded by urban development, so its suitability as a corridor would be limited to regional wildlife movement for species acclimated to disturbed, urban environments and would not provide live-in shelter or breeding habitat. In addition, Serrano Creek Channel is located outside of the Proposed Project LOD, and no work would be performed within the channel. Furthermore, the Proposed Project will implement BMPs to ensure that runoff and discharges during the construction phase would not violate water quality standards, as further discussed in Section 4.10, Hydrology and Water Quality. Thus, implementation of the Proposed Project would not adversely affect the regional movements of fish or other wildlife.

The BSA contains suitable nesting habitat (e.g., mature trees, shrubs, grasses, open areas for ground-nesting birds) for a variety of avian species, including raptors, that are protected by the Migratory Bird Treaty Act or CFG Code sections. Vegetation within the BSA provides suitable habitat for nesting birds and is likely utilized by many birds in the Proposed Project area, although disturbances (e.g., traffic, noise, night lighting, human activity) from the surrounding heavily urbanized area would preclude nesting by species that are sensitive to human presence, including most special-status species. The Proposed Project has the potential to affect active native resident and/or migratory bird nests if, and to the extent that, those trees and shrubs are trimmed or removed, or ground cover is removed, during the avian nesting season, and they contain nests. Because tree trimming and removals are anticipated with the Proposed Project, landscaping within the Proposed Project work area, which contains suitable nesting habitat, would be disturbed. In addition, construction could occur adjacent to active nests, potentially causing nest failures or abandonment. Therefore, Mitigation Measure BIO-1 should be implemented to avoid and/or minimize any potential impacts on nesting birds. With

the implementation of Mitigation Measure BIO-1, the impact would be less than significant, and no compensatory mitigation would be required.

Mitigation Measures:

BIO-1 If vegetation clearing or ground disturbance in areas suitable to support nesting birds (e.g., trees, shrubs, grasses) is to occur during the breeding season for passerine birds (i.e., February 1–September 1) or raptors (i.e., January 1–September 1), then the designated biologist will conduct a preconstruction survey of construction areas and an appropriate buffer to identify the locations of avian nests no more than 72 hours prior to vegetation-clearing or ground-disturbing activities. Should nests be found, then a qualified biologist will establish an appropriate buffer around each nest site. To the extent feasible, no construction activities will take place within this buffer until the nest is no longer active. In the event that construction must occur within the buffer areas, the designated biologist will ensure that construction activities do not disturb or disrupt nesting activities. If the designated biologist determines that construction activities are disturbing or disrupting nesting activities, then they will notify the City. Nesting-bird habitat within the BSA will be resurveyed during the breeding bird season if there is a lapse in construction activities longer than 7 days.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less-than-Significant Impact with Mitigation Incorporated. A significant impact would occur if the Proposed Project conflicted with any local policies or ordinances protecting biological resources.

The City of Irvine's *Landscape Manual and Standard Plans* (City of Irvine 2009), Urban Forest Ordinance (City of Irvine Municipal Code § 5-7-401), and Tree Removal Ordinance (City of Irvine Municipal Code § 5-7-410) and the City of Lake Forest's Eucalyptus Tree Conservation Ordinance (Ordinance 171 § 1, 2007) and Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees (Lake Forest Municipal Code Chapters 6-20 and 6-20-035), as well as other City ordinances, pertain to the BSA under the protection of protected trees and street trees.

Should any protected trees be present within the Proposed Project work area and require pruning or removal during construction activities, then the Proposed Project would conflict with City of Irvine and/or City of Lake Forest local tree ordinances and/or municipal codes. Because tree trimming and removals are anticipated as a part of the Proposed Project, and the Proposed Project would need to adhere to the local city ordinances regarding tree removals to be in compliance with the City of Irvine's Urban Forest Ordinance (City of Irvine Municipal Code § 5-7-401) and Tree Removal Ordinance (City of Irvine Municipal Code § 5-7-410) and City of Lake Forest's Eucalyptus Tree Conservation Ordinance (Ordinance 171 § 1, 2007) and Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees (Lake Forest Municipal Code Chapters 6-20 and 6-20-035), as well as any other municipal codes that pertain to biological resources.

The City of Irvine's Urban Forest Ordinance (City of Irvine Municipal Code § 5-7-401) and Tree Removal Ordinance (City of Irvine Municipal Code § 5-7-410) state that a permit is required to remove any significant tree on either public or private land to which the ordinance applies. The ordinance further states that all trees removed must be replaced at a 1:1 ratio, either on site in a similar location, on site in a different location, or off site as prescribed in the *Urban Forestry Guideline Manual* (City of Irvine Municipal Code Title 5, Chapter 4) based on the determination of the City Arborist. Because the Proposed Project also falls within the City of Lake Forest jurisdiction, the Eucalyptus Tree Conservation Ordinance (Ordinance 171 § 1, 2007) and Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees (Lake Forest Municipal Code Chapters 6-20 and 6-20-035) would need to be adhered to because the Proposed Project may require removal of several eucalyptus trees, as well as other nonnative landscaped trees along the Bake Parkway/Jeronimo Road intersection. A permit is required for any trimming, removal, or transportation

of eucalyptus trees during the restricted period (April 1–October 31) due to potential infestations by eucalyptus longhorn borer beetle (*Phoracantha semipunctata*). No permit is required for trimming, removal, or transportation of eucalyptus trees during the permitted period (November 1–March 31). All landscaping would be consistent with the City of Irvine's Landscape Manual and Standard Plans (City of Irvine 2009). With the implementation of Mitigation Measures BIO-1 and BIO-2, the impact would be less than significant, and the Proposed Project would be in compliance with local tree policies and ordinances.

Mitigation Measures:

BIO-2 If tree trimming or removals are required, then the City of Irvine's Urban Forest Ordinance (City of Irvine Municipal Code § 5-7-401) and Tree Removal Ordinance (City of Irvine Municipal Code § 5-7-410) will be adhered to accordingly for any trees requiring removal within the City of Irvine's jurisdiction. Per the ordinance, tree removals require a permit following the City Arborist's criteria, and trees removed will be replaced on a 1:1 ratio, either on site in a similar location, on site in a different location, or off site as prescribed in the Urban Forestry Guideline Manual. based on the determination of the City Arborist. If eucalyptus trees are to be removed within the City of Lake Forest jurisdiction, then the Eucalyptus Tree Conservation Ordinance (Ordinance 171 § 1, 2007) and Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees (City of Lake Forest Municipal Code Chapters 6-20 and 6-20-035) will be adhered to accordingly. This ordinance stipulates that if trimming, removals, or transportation of eucalyptus trees occurs between April 1 and October 31, then an application for a permit will be obtained and include the number and location of the eucalyptus tree(s) to be cut, pruned, moved, or removed.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. A significant impact would occur if the Proposed Project were inconsistent with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved state, regional, or local habitat conservation plan.

The BSA is within the plan area for the *County of Orange Central and Coastal Subregion Natural Community Conservation Plan and Habitat Conservation Plan* (CC NCCP/HCP; CDFW 1996) and occurs within the boundaries of the Central Subregion, but is not located within any CC NCCP/HCP-designated reserve or conservation easement lands (EMA 1996). The nearest reserve lands are approximately 1.5 miles to the northeast of the BSA and separated from the Proposed Project site by existing development. Implementation of the Proposed Project would not affect any Coastal Sage Scrub Plant community or other CC NCCP/HCP-covered habitats and is not expected to affect any of the 39 Target and Identified Species covered under the CC NCCP/HCP. As such, implementation of the Proposed Project would be consistent with the rules and regulations of the CC NCCP/HCP, and, therefore, there would be no impact. The BSA does not occur within any other habitat conservation plans, natural community conservation plans, or other conservation lands (CDFW 2022c).

Mitigation Measures: No mitigation is required.

4.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to PRC § 15064.5?				✓
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to PRC § 15064.5?		✓		
c. Disturb any human remains, including those interred outside of dedicated cemeteries?		✓		

CEQA requires that all private and public activities not specifically exempted be evaluated for the potential to affect the environment, including effects on historical resources. In the protection and management of the cultural environment, both the statute and its CEQA Guidelines provide definitions and standards for cultural-resources management. Pursuant to CEQA Guidelines section 15064.5(a), the term *historical resource* includes the following.

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.

2. A resource included in a local register of historical resources, or identified as significant in a historical resource survey…shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript, which a Lead Agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record. Generally, a…resource shall be considered by the Lead Agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources… including the following:

    a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b. Is associated with the lives of persons important in our past;
    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    d. Has yielded, or may be likely to yield, information important in prehistory or history.

4. The fact that a resource is not listed in, or determined to be eligible for listing in, the California Register of Historic Resources…not included in a local register of historical resources…or identified in a historical resources survey…does not preclude a Lead Agency from determining that the resource may be a historical resource.

CEQA Guidelines section 15064.5(b)(1) explains that effects on cultural properties that qualify as historical resources would be considered adverse if they involve physical demolition, destruction, relocation, or alteration of the resource

or its immediate surroundings such that the significance of the resource would be materially impaired. The California Office of Historic Preservation established the California Register of Historical Resources (CRHR), which is a public listing of specific properties to be protected from substantial adverse change. Resources younger than 50 years old are generally not considered for CRHR listing because sufficient time has not passed to understand the resource's historical importance. As explained above, any resource eligible for listing in the CRHR must also be considered under CEQA.

a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

No Impact. In April 2022, ICF received the results of a records search from the South Central Coastal Information Center (SCCIC) of the California Historical Resources Inventory System (CHRIS). The records search area consisted of the Proposed Project area and a 0.5-mile radius from the Proposed Project boundaries. The purpose of the search was to identify any previously documented archaeological and historic resources and previous studies that intersect or are adjacent to the Proposed Project area. No previously recorded cultural resources were found within the Proposed Project area, but one built-environment resource is adjacent to the Proposed Project area: P-30-176663. This resource is the Burlington Northern Santa Fe (BNSF) railway, formerly known as the AT&SF railway. It is currently an active railway that serves Metrolink commuter trains, Amtrak intercity trains, and BNSF Railway and Union Pacific Railroad freight trains. As currently recorded, P-30-176663 extends from the Los Angeles County–Orange County line in Buena Park, in the north, to the Orange County–San Diego County line in the south. The AT&SF/BNSF railway has been previously determined ineligible for listing in the National Register of Historic Places (NRHP) and CRHR (Shepard 2003; Meiser 2012; Tang and Ballester 2016; HDR 2018) and is not a historical resource pursuant to CEQA Guidelines section 15064.5.

Other sources consulted included the NRHP, CRHR, California Historical Landmarks (CHL), California Points of Historical Interest (CPHI), the City of Irvine's map of historical/archaeological landmarks (included in the Irvine General Plan), and the websites for the Orange County Historical Society and the Irvine Historical Society. ICF also conducted a desktop review of the Proposed Project area.

A 1972 historic aerial photograph of the Proposed Project area (USGS 1972) shows evidence of initial grading in the Proposed Project area for the Bake Parkway/Jeronimo Road intersection and nearby parcels, but no extant buildings, structures, or roads. Based on these results, a built-environment study was not conducted for the Proposed Project because no potential built-environment resources aged 50 years or older occur within or adjacent to the Proposed Project area. Because there are no historical resources in or adjacent the Proposed Project area, no impacts on historical resources would occur.

Mitigation Measures*:* No mitigation is required.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less-than-Significant Impact with Mitigation Incorporated. As noted above, the SCCIC records search included a search for archaeological records. The record search was negative for any prehistoric or any significant historical archaeological resources within or adjacent to the Proposed Project boundaries and within the 0.5-mile radius. The record search indicated that a total of 25 cultural resources investigations have been completed previously within a 0.5-mile radius of the Proposed Project site. Of these 25 studies, seven included portions of the Proposed Project site and consisted of four field studies, one literature search, and two management documents or other archaeological research documents. As described above, other sources consulted include the NRHP, CRHR, CHL, CPHI, the City of Irvine's map of historical/archaeological landmarks (found in the Irvine General Plan), and the websites for the Orange County Historical Society and the Irvine Historical Society. On April 15, 2022, an archaeological pedestrian survey was

also conducted of the Proposed Project area, which was negative for archaeological resources. The results of the background research and archaeological survey indicated that no recorded archaeological resources occur in the Proposed Project area or in the immediate vicinity of the Proposed Project area.

Given the disturbed nature of the Proposed Project area, the potential for discovery of intact archaeological deposits, including buried archaeological deposits, materials, or features, is low. However, work that extends into undisturbed soils, such as the relocation of existing facilities to accommodate the road widening, may encounter intact archaeological deposits. The Proposed Project area lies on Pleistocene to Holocene Age alluvium and marine deposits, which is typical of floodplain development and conducive to the nondestructive burial of archaeological sites. Therefore, it is possible that previously unknown buried archaeological resources could be discovered and damaged or destroyed during ground-disturbing work, which, absent mitigation, would constitute a significant impact. With the implementation of Mitigation Measure CUL-1, potential impacts on unknown archaeological resources that may underlie the Proposed Project site would be reduced to less-than-significant levels.

Mitigation Measures:

CUL-1 In the event that archaeological resources are encountered during earth-disturbing activities, the construction contractor will immediately notify the City of Irvine Director of Project Delivery and Sustainability. The City of Irvine will retain a qualified archaeologist to evaluate the find. Work in the vicinity of the find (i.e., a minimum 50-foot radius) will be immediately halted until it can be evaluated by the archaeologist. The archaeologist will prepare and complete a standard mitigation program for the recovery and treatment of identified resources.

In the event Native American resources are discovered, the City of Irvine will consult with a Native American monitor and affected tribe(s). If requested by the affected tribe(s), the City of Irvine will consult on the discovery and its disposition (e.g., avoidance, preservation, return of artifacts to the appropriate tribe).

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less-than-Significant Impact with Mitigation Incorporated. No conditions exist that suggest human remains are likely to be found on the Proposed Project site. Due to the level of past disturbance on site, it is not anticipated that human remains, including those interred outside of formal cemeteries, would be encountered during earth-removal or disturbance activities. However, in the event that unknown human remains are found, proper treatment is required in accordance with applicable laws. With the implementation of Mitigation Measure CUL-2, potential impacts on unknown human remains would be reduced to less than significant.

Mitigation Measures:

CUL-2 In the event that unknown human remains are found, proper treatment in accordance with applicable laws is required. State of California Health and Safety Code sections 7050.5–7055 describe the general provisions for human remains. Specifically, Health and Safety Code Section 7050.5 describes the requirements in the event that any human remains are accidentally discovered during excavation of a site. As required by State law, the requirements and procedures set forth in PRC section 5097.98 would be implemented, including notification of the County Coroner, notification of the Native American Heritage Commission (NAHC), and consultation with the individual that the NAHC identifies as the Most Likely Descendant. If human remains are found during excavation, then excavation must stop in the vicinity of the find and in any area that is reasonably suspected to overlay adjacent remains until the County Coroner has been called out, the remains have been investigated, and appropriate recommendations have been made for the treatment and disposition of the remains. Following

compliance with existing State regulations, which detail the appropriate actions necessary in the event that human remains are encountered, impacts in this regard would be considered less than significant.

4.6 ENERGY

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			✓	
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✓

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-than-Significant Impact. The short-term construction and long-term operation of the Proposed Project would require the consumption of energy resources in several forms at the Proposed Project site and within the Proposed Project area. Construction and operational energy consumption are evaluated in detail below.

Electricity

Construction

SCE, or other electricity providers within the County, would provide temporary electric power for potential, as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers. The electricity used for such activities would be temporary, have a negligible contribution to the Proposed Project's overall energy consumption, and have a minimal effect on energy consumption in the region.

Operations

The Proposed Project operations would require electricity similar to that currently utilized, including electricity for existing traffic signals and streetlights. The electricity associated with operation of the Proposed Project would be created off site. Otherwise, the Proposed Project operations would not require additional notable electricity for daily operations, nor create new or additional electricity needs.

For comparison, nonresidential electricity demand for the County in 2021 was 11,659.6 gigawatt-hours per year (CEC 2023). The Proposed Project's operational energy use would be negligible and result in a minimal, if any, increase in electricity consumption compared to the total demand in the County. Therefore, impacts related to operational electricity use would be less than significant.

Natural Gas

Construction and Operations

Natural gas is not anticipated to be required during construction or operation of the Proposed Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the Petroleum Fuel subsection. Therefore, there would be no impacts related to construction and operational natural-gas use.

Petroleum Fuel

Construction

The Proposed Project would require the use of nonrenewable energy resources in the form of fossil fuels to operate equipment and fuel vehicle trips during construction and operation. Diesel and gasoline fuels would be consumed during the Proposed Project's construction activities. Energy expenditures during construction would be temporary, lasting for approximately 12 months. Construction would not result in wasteful or inefficient use of energy. Table 4.6-1. *Project Construction – Annual Petroleum Consumption* shows projected fuel consumption during construction, which represents the anticipated total fuel use over the 12-month construction period.

Table 4.6-1. Project Construction – Annual Petroleum Consumption

Source	Diesel (gallons)	Gasoline (gallons)
Off-road Equipment [air compressor (1), crawler tractor (1), excavators (3), generator set (1), graders (3), paver (1), paving equipment (1), plate compactor (1), pumps (1), rollers (4), rough terrain forklift (1), rubber tire dozer (1), scrapers (3), signal boards (12), tractors/loader/backhoes (10)]	72,324	–
Haul Trucks	10,586	–
Workers	–	6,899
Estimated Total Fuel Consumption	**82,910**	**6,899**

Note: Parentheses indicate anticipated number of each construction equipment.
Source: ICF 2023. Petroleum consumption calculated by ICF based on emissions estimated using the SMAQMD Road Construction Emission Model (version 9.0)" .

During the Proposed Project's construction period, diesel and gasoline would be used to fuel the onsite construction equipment, offsite hauling vehicles, and working automobiles. Construction of the Proposed Project would consume an estimated 82,910 gallons of diesel and 6,899 gallons of gasoline (see Appendix A). In the County, approximately 46,000,000 gallons of diesel and approximately 1,159,000,000 gallons of gasoline are consumed annually (CEC 2021). The Proposed Project's diesel consumption would represent less than 0.181 percent of the County's use, and gasoline consumption would represent 0.0006 percent of the County's use. Therefore, energy consumed during the Proposed Project construction would be minimal, and impacts would be less than significant.

Operations

The Proposed Project has no projected operational fuel consumption. The Proposed Project would not increase roadway capacity, nor generate additional VMT to the vehicle fleet mix. The Proposed Project is expected to reduce traffic delays and improve vehicle queue lengths at the Proposed Project site. Therefore, associated petroleum-fuel consumption with motor vehicles traveling to and from the Proposed Project site would not increase. As such, energy consumed during Proposed Project operations would be minimal and not expected to exceed the consumption that would be expected if the Proposed Project were not constructed. Impacts would be less than significant.

Mitigation Measures: No mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The current and applicable local plan for renewable energy or energy efficiency for the Proposed Project is the *Energy Element* of the Irvine General Plan (City of Irvine 2015c). The Irvine General Plan was last updated in June 2015, but it should be noted that the City of Irvine is currently in process of developing a Climate Action and Adaptation Plan (CAAP) to set goals for GHG-reduction targets for 2030, 2035, and 2045. However, the City of Irvine has not yet adopted or published the CAAP. The Lake Forest 2040's *Public Facilities Element* (City of Lake Forest 2020c) addresses the City of Lake Forest's plans and goals for energy management.

Table 4.6-2. Consistency of the Proposed Project with the City of Irvine General Plan – Energy Plan

Goal	Target	Project Consistency Assessment
Objective 1-1: *Energy Conservation*	Maximize energy efficiency through land use and transportation planning. • **Policy A**: Encourage energy-efficient landscaping (i.e., water conserving plants, indigenous vegetation, and use of onsite water runoff) consistent with the City's Sustainability and Landscaping Ordinance. Encourage, as part of required landscape plans, plant types and irrigation systems that minimize water usage, provide cooling opportunities during summer, and minimize conflicts with solar access during winter.	**Compliant.** The Proposed Project would implement landscaping and vegetation in compliance with this statute.
Objective 1-3: *Municipal Conservation*	Maximize energy efficiency of the City's facilities and operations by using recycled materials, renewable sources, and conservation measures. • **Policy A**: Management program to reduce energy consumption for municipal facilities and operations, including: o Public buildings and facilities o Street lighting o City vehicle-fleet management o Appliance/equipment procurement o Employee energy-awareness program	**Compliant.** The Proposed Project would relocate power poles and street lighting to be compliant with this statute.

Source: City of Irvine 2015a.

Table 4.6-3. Consistency of the Proposed Project with the Lake Forest 2040's *Public Facilities*

Goals	Targets	Project Consistency Assessment
PF-6.5: *Conservation*	Promote conservation strategies during design, construction, and maintenance of facilities.	**Compliant.** The Proposed Project would be considerate of conservation strategies during construction.
PF-6.3: *City-Sponsored Projects and Activities*	Evaluate renewable-energy capacity on municipal property and renewable-energy use in City-sponsored projects and activities.	**Not Applicable.** The Proposed Project would not introduce any new energy uses for operation, but would only relocate power poles.

Source: City of Lake Forest 2020.

As discussed in Table 4.6-2 and Table 4.6-3, the Proposed Project would be consistent with Irvine General Plan and Lake Forest 2040 goals that are applicable to the Proposed Project. Therefore, the Proposed Project would not conflict with a local plan for renewable energy or energy efficiency, and there would be no impact.

***Mitigation Measures**:* No mitigation is required.

4.7 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				✓
2) Strong seismic ground shaking?			✓	
3) Seismic-related ground failure, including liquefaction?			✓	
4) Landslides?				✓
b. Result in substantial soil erosion or the loss of topsoil?			✓	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			✓	
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			✓	
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				✓
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓		

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

1. Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. *Active faults* are defined as those that have experienced surface displacement within the Holocene age (i.e., approximately the last 11,000 years) and/or are in a state-designated Alquist–Priolo Earthquake fault zone. According to the California Geological Survey's (CGS) *Earthquake Zones of Required Investigation* (2022), no fault zones traverse the project site, and the closest active fault zone is the Elsinore fault, approximately 14.5 miles to the northeast. In addition, Irvine General Plan Figures D-1, *Regional Geology*, and D-2, *Inactive Fault Locations*, do not

identify any major faults, fault zones, or inactive faults within the immediate vicinity of the Proposed Project. Thus, the rupture of a known, active, or inactive earthquake fault would not occur, and there would be no impact.

***Mitigation Measures**:* No mitigation is required.

2. Strong seismic ground shaking?

Less-than-Significant Impact. The City of Irvine is in a seismically active area, as is the majority of southern California. As depicted in Irvine General Plan Figures D-1, *Regional Geology,* the Newport–Inglewood, Whittier–Elsinore, San Andreas, and San Jacinto faults are the regional faults closest to the Proposed Project. As a result, the Proposed Project could be subject to future seismic shaking and/or strong ground motion resulting from seismic activity, and damage could occur.

However, the Proposed Project would result in intersection improvements and is not expected to draw a substantial amount of people to the Proposed Project area, either during the Proposed Project construction or afterward. Moreover, no structures intended for human occupation would be built; thus, potential risk to roadway users would be limited. Furthermore, a project-specific geotechnical study would be prepared, and the findings, conclusions and recommendations found within the study would be considered and applied during the Proposed Project's construction. Finally, construction of the Proposed Project would be subject to applicable ordinances and existing City of Irvine standards, including Title 5, Division 10, Chapter 1 of the City of Irvine's Municipal Code, and recommendations contained in the geotechnical study, which would reduce anticipated impacts related to the proximity of earthquake faults by requiring the Proposed Project to be built to withstand seismic ground shaking. Thus, potential impacts associated with strong seismic ground shaking would be reduced to less-than-significant levels.

***Mitigation Measures**:* No mitigation is required.

3. Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. Liquefaction occurs when saturated, low-density, loose materials (e.g., sand, silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure from strong ground motion from an earthquake. Liquefaction more often occurs in areas underlain by silts and fine sands and where shallow groundwater exists (generally 50-feet below ground surface or less).

According to the Irvine General Plan's *Seismic Element*'s Figure D-3, *Seismic Response Areas* (City of Irvine 2015d), the Proposed Project site is in an SRA-2 area characterized as an area of denser soils and deeper ground water. According to the Irvine General Plan, the predominant potential seismic hazard in SRA-2 is ground motion with a remote potential for liquefaction. Furthermore, the Proposed Project site is not in a CGS Earthquake Zone of Required Investigation for liquefaction. As mentioned previously, construction of the Proposed Project would be subject to applicable ordinances and existing City of Irvine standards and recommendations that would be contained in the Proposed Project's specific geotechnical study, which would further reduce the low potential for liquefaction. Impacts would be less than significant.

***Mitigation Measures**:* No mitigation is required.

4. Landslides?

No Impact. Landslides, slope failures, and mudflows of earth materials generally occur where slopes are steep and/or earth materials are too weak to support themselves. Earthquake-induced landslides may also occur from seismic ground shaking. The Proposed Project site is not within a CGS Earthquake Zones of Required Investigation for landslides, nor is it within an area designated as SRA-4, *Highlands Over 20 Percent Slope,* or SRA-5, *Less Stable*

Geologic Formations, in the Irvine General Plan, both of which mark areas of potential landslides. Lastly, the Proposed Project site and surrounding area are relatively flat and not within proximity to hillsides or steep slopes capable of resulting in landslides. No impact would occur.

Mitigation Measures*:* No mitigation is required.

b) Result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. *Erosion* is a condition that could adversely affect development on any site. Construction activities could exacerbate erosion conditions by exposing soils and adding water to the soil from irrigation and runoff from new impervious surfaces. Any project involving grading of an area greater than 1 acre is required to obtain NPDES coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (Construction General Permit; State Water Boards 2020). Construction activities covered under the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation. The Construction General Permit would require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes Best Management Practices (BMPs) for regulating stormwater runoff, including measures to prevent soil erosion (e.g., installation of silt fences, straw waddles, sediment traps, gravel sandbag barriers) and loss of topsoil. Adherence to Construction General Permit requirements during construction would reduce the potential for soil erosion to less than significant. Because the Proposed Project would result in intersection improvements, exposed soil is expected to be minimal; thus, potential impacts associated with erosion during operations would be less than significant.

Mitigation Measures*:* No mitigation is required.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. The analyses involving potential impacts associated with liquefaction and landslides are discussed above is sections 4.7a)3 and 4.7a)4, respectively. Also, according to the USGS's *Areas of Land Subsidence in California* (USGS n.d.), the Proposed Project is not located in an area of historical or current subsidence.

Construction of the Proposed Project would be subject to applicable ordinances and existing City of Irvine standards and recommendations that would be contained in the project-specific geotechnical study, which would further reduce any potential for impacts associated with unstable soils or geologic units. In addition, the Proposed Project would consist of intersection improvements and would not introduce new habitable structures. Impacts would be less than significant.

Mitigation Measures*:* No mitigation is required.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less-than-Significant Impact. According to the U.S. Department of Agriculture (USDA 2023), the Proposed Project site is underlain by Myford sandy loam, and these onsite soils could include expansive soils. However, all proposed intersection improvements would be required to conform City of Irvine grading and construction requirements detailed in its Municipal Code. Compliance with these regulations would minimize the potential for hazards due to expansive soils. Given that the Proposed Project consists of intersection improvements and would not introduce new habitable structures, impacts related to expansive soils would be less than significant.

***Mitigation Measures**:* No mitigation is required.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. No septic tanks or alternative-wastewater systems are located on site, nor would they be constructed as part of the Proposed Project. No impacts would occur in this regard.

***Mitigation Measures**:* No mitigation is required.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact with Mitigation Incorporated. According to Irvine General Plan Figure E-2, *Paleontological Sensitivity Zones*, and Figure 3.6-7, *Paleontological Sensitivity*, as included in the *City of Lake Forest Public Draft Environmental Impact Report for the 2040 Lake Forest General Plan* (De Novo 2019), the Proposed Project area is considered to have low potential for paleontological resources.

Proposed grading and excavation for the majority of the Proposed Project site is not anticipated to exceed a depth of 4-feet below ground surface, with deeper excavations required for traffic signals (approximately 15 feet), retaining walls, and relocation of the existing SCE powerline poles. It is anticipated that the foundations for the traffic signals, retaining walls, and relocated SCE poles would be drilled/augured. With incorporation of Mitigation Measure GEO-1, impacts on paleontological resources would be less than significant.

Mitigation Measures:

GEO-1 In the event that paleontological resources are discovered during earthwork/grading activities, the construction contractor will immediately notify the City of Irvine Director of Project Delivery and Sustainability. The City of Irvine will retain a qualified paleontologist to evaluate the find. Work in the vicinity of the find (i.e., a minimum of 50-foot radius) will be halted until the paleontologist can evaluate it. If any paleontological resources are found, then the paleontologist will prepare and complete a standard paleontological mitigation plan for the salvage and curation of identified resources.

4.8 GREENHOUSE GASES

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✓	
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			✓	

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact.

Global Climate Change

California is a substantial contributor of global greenhouse gases (GHGs), emitting more than 400-million tons of carbon dioxide (CO_2) per year (CalEPA 2017). Climate studies indicate that California is likely to see an increase of 3–4 degrees Fahrenheit (ºF) over the next century. Methane is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect of increasing the Earth's ability to absorb heat in the atmosphere. Given that primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

The impact of anthropogenic activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, methane (CH_4), and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. It was found that CO_2 concentrations for that period ranged from 180 ppm to 300 ppm. For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range (CalEPA 2017).

The Intergovernmental Panel on Climate Change (IPCC) developed several emission trajectories of GHGs needed to stabilize global temperatures and climate-change impacts. The IPCC concluded that a stabilization of GHGs below 450 ppm CO_2 equivalent[1] (CO_2eq) concentration is likely to limit global mean warming below 2 degrees Celsius, which in turn is assumed necessary to avoid significant levels of climate change (IPCC 2015).

[1] *Carbon dioxide equivalent* (CO_2eq) is a metric used to compare the emissions from various GHGs based on their global warming potential.

Executive Order (EO) S-3-05 was issued in June 2005, which established the following GHG-emission reduction targets.

- **2010**: Reduce GHG emissions to 2000 levels.
- **2020**: Reduce GHG emissions to 1990 levels.
- **2050**: Reduce GHG emissions to 80-percent below 1990 levels.

Assembly Bill (AB) 32 required that CARB determine what the statewide GHG-emissions level was in 1990 and approve a statewide GHG-emissions limit that is equivalent to that level, to be achieved by 2020. CARB has approved a 2020 emissions limit of 427 million metric tons (MMT) of CO_2eq.

EO B-30-15, issued in April 2015, requires statewide GHG emissions to be reduced 40-percent below 1990 levels by 2030. Senate Bill (SB) 32, signed into law in September 2016, codifies the 2030 GHG-reduction target in EO B-30-15. The bill authorized CARB to adopt an interim GHG-emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions. AB 1279 also mandates an 85-percent reduction in statewide GHG emissions (from 1990 levels) by 2045, and requires that State agencies aim to achieve net-zero GHG emissions resulting from their operations no later than 2035, or as soon as feasible thereafter. *California's 2017 Climate Change Scoping Plan* (CARB 2017) and the subsequent update, *2022 Scoping Plan for Achieving Carbon Neutrality* (CARB 2022), provide frameworks for achieving the 2030 and 2045 reduction targets, respectively, by leveraging and enhancing many efforts and programs already adopted by the State.

Due to the nature of global climate change, it is not anticipated that any single development project would have a substantial effect on global climate change. In actuality, GHG emissions from the Proposed Project would combine with other emissions across California, the United States, and the world to cumulatively contribute to global climate change.

South Coast Air Quality Management District Thresholds

At this time, there is no absolute consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with recommendations designed to assist decision makers in the evaluation of GHG emissions given the current uncertainty about when emissions will reach the point of significance. Lead agencies may elect to rely on thresholds of significance recommended or adopted by State or regional agencies with expertise in the field of global climate change.

SCAQMD formed a GHG CEQA Significance Threshold Working Group (Working Group) to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. As of the last Working Group meeting (Meeting No. 15), held on September 10, 2010, SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the Lead Agency.

Using the tiered approach, the Proposed Project was compared with the requirements of each tier sequentially; the Proposed Project would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG-reduction plan that has a certified final CEQA document and complies with AB 32 GHG-reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For all nonindustrial projects, SCAQMD is proposing a screening threshold of 3,000 MTCO_2eq per year. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact. Tier 4 consists of three decision-tree options. Under the first option, the Proposed Project would be excluded if design features and/or mitigation measures resulted in emissions 30-percent lower than business-as-usual emissions. However, the Working Group did not provide

a recommendation for this approach but folded the Tier 4 second option into the third Option. Under the Tier 4 third option, the Proposed Project would be excluded if it were below an efficiency-based threshold of 4.8 $MTCO_2eq$ per service population (SP) per year or 3.0 $MTCO_2eq$ per SP for post-2020 projects.[2] Tier 5 would exclude projects that implement offsite mitigation (GHG-reduction projects) or purchase offsets to reduce GHG-emission impacts to less than the proposed screening level.

SCAQMD has also proposed efficiency-based thresholds relative to the 2035 target date to be consistent with the GHG reduction target date of SB 375. Target GHG reductions by 2035 are approximately 40 percent. Applying this 40-percent reduction to the 2020 targets results in an efficiency threshold for plans of 4.1 $MTCO_2eq$ per SP per year and an efficiency threshold at the project level of 3.0 $MTCO_2eq$/year. Tier 3 excludes projects with annual emissions lower than a screening threshold. For all nonindustrial projects, SCAQMD proposes a screening threshold of 3,000 $MTCO_2eq$/year. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact. However, for the purposes of the Proposed Project, the Tier 3 threshold is considered a general reference threshold. Analysis of the Proposed Project is based on qualitative thresholds of significance set forth below from CEQA Guidelines Appendix G, Section VII, and compliance with applicable compliance regulations.

Project-Related Sources of Greenhouse Gases

Generally, the Proposed Project is anticipated to result in beneficial impacts related to GHG emissions because it would reduce congestion associated vehicle idling at the intersection, thus reducing GHG emissions as compared to conditions without the Proposed Project. However, project-related GHG emissions also would include emissions from construction activities. Construction of the Proposed Project would result in direct emissions of CO_2, N_2O, and CH_4 from the operation of construction equipment. Construction emissions would be short term in duration and cease on project completion. Construction GHG emissions are typically summed and amortized over the lifetime of the Proposed Project (assumed to be 30 years), and then added to the operational emissions.[3] Table 4.8-1. *Estimated Greenhouse Gas Emissions*, presents the estimated CO_2, CH_4, and N_2O emissions that would result from the Proposed Project. CalEEMod outputs are presented in Appendix A. As shown in Table 4.7-1, the Proposed Project would result in 917.68 $MTCO_2eq$ (i.e., 30.59 $MTCO_2eq$ when amortized over 30 years), which is well below SCAQMD's Tier 3 threshold.

Table 4.8-1. Estimated Greenhouse Gas Emissions

Source	CO_2	CH_4		N_2O		Total Metric Tons of CO_2eq
	Metric TPY	Metric TPY	Metric Tons of CO_2eq [1]	Metric TPY	Metric Tons of CO_2eq [1]	
Construction Emissions						
Total Emissions (one time) [2]	904.9	0.22	5.44	0.03	8.11	917.68
Total Emissions (amortized over 30 years) [2]	30.16	0.01	0.18	0.00	0.27	30.59

Source: Appendix A.
[1] CO_2eq values were calculated using EPA's Greenhouse Gas Equivalencies Calculator (EPA 2019).
[2] Totals may be slightly off due to rounding.
CO_2 = carbon dioxide; CO_2eq = carbon dioxide equivalent; CH_4 = methane; N_2O = nitrous oxide; TPY = tons per year.

[2] The project-level efficiency-based threshold of 4.8 $MTCO_2eq$ per SP per year is relative to the 2020 target date.

[3] The project lifetime is based on SCAQMD's standard 30-year assumption (SCAQMD 2009).

In terms of operational GHG emissions, the Proposed Project involves roadway improvements and does not propose any trip-generating land uses. The Proposed Project would not include the provision of new permanent stationary or mobile sources of emissions; therefore, by its very nature, the Proposed Project would not generate quantifiable GHG emissions from project operations. The Proposed Project does not propose land use changes or construction of any buildings; therefore, it would not generate additional permanent-source or stationary-source emissions related to industrial land use, manufacturing or power plants. In addition, intersection improvements do not directly generate vehicle trips, a predominant source of GHG emissions. Rather, vehicle trips are generated by land use changes that may be indirectly influenced by transportation improvements. The Proposed Project would not result in increases in the rate of vehicle trips. The proposed intersection improvements would provide improved circulation through an area with existing and anticipated congestion. The Proposed Project is considered necessary to reduce future congestion anticipated as approved development builds out. At the same time, the Proposed Project would reduce the amount of time vehicles idle at the project intersection. The longer a vehicle idles in a single location, the more GHG emissions are generated over the course of its travel than would otherwise have been emitted with reduced idling. Therefore, neither construction nor operation of the Proposed Project would generate GHG emissions in excess of SCAQMD's Tier 3 general reference threshold. The Proposed Project would relieve congestion and improve roadway operations and would not directly generate new trips or GHG emissions. Impacts related to GHG emissions would be less than significant.

Mitigation Measures*:* No mitigation is required.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact**.** In November 2020, the City of Irvine adopted the *Strategic Energy Plan* (Energy Plan; City of Irvine 2020) to find the most effective solutions to the current energy situation. In 2021, Irvine started developing a CAAP to set GHG-reduction target goals for 2030, 2035, and 2045. However, the City of Irvine has not yet adopted or published the CAAP. The implemented Energy Plan consists of eight sections. Section 5, *Irvine Energy Plan Goals*, sets up goals and strategies for the City of Irvine to reduce energy consumption and GHG emissions. In accordance with California's Global Warming Solutions Act established through AB 32, the City of Irvine also set its goal to reduce GHG emissions citywide to 1990 levels by 2020. It should be noted that, because construction activity is not scheduled to start until 2025, some of the 2020 goals outlined in the Energy Plan may not be applicable to the Proposed Project. Although the Energy Plan provides goals to reduce GHG emissions, the goals outlined in the Energy Plan are also primarily municipal in nature, and not project-specific. Lake Forest 2040's *Recreation and Resources Element* (City of Lake Forest 2020d) sets local goals to meet requirements set by the State under AB 32 and SB 32 and to be consistent with CARB's 2017 Scoping Plan (CARB 2017). Lake Forest 2040's *Public Safety Element* (City of Lake Forest 2020e) outlines policies and goals pertaining to climate change, but the plan's GHG reduction strategies are also primarily municipal and not project-specific. Therefore, the implementation of the Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs.

The Proposed Project involves intersection improvements along Bake Parkway and Jeronimo Road. The intersection improvements would enhance traffic capacity within the Bake Parkway/Jeronimo Road intersection. As discussed above, the Proposed Project would not generate a significant amount of GHGs, nor would it exceed SCAQMD's Tier 3 general reference threshold. Thus, a less-than-significant impact would occur in this regard, and no mitigation would be required.

Recent studies show that the State's existing and proposed regulatory framework would put California on a pathway to reduce its GHG-emissions level to 40-percent below 1990 levels by 2030, and to 85-percent below 1990 levels by

2050, if additional appropriate reduction measures are adopted.[4] Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow statewide emissions levels to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the State to meet the EO S-3-05 2050 target: EO S-3-05 was issued in June 2005 and set GHG reduction targets to reduce GHG emissions to 80-percent below 1990 levels by 2050. Subsequent to the findings of these studies, SB 32 was passed on September 8, 2016, requiring CARB to ensure that statewide GHG emissions are reduced to 40-percent below the 1990 level by 2030. Additionally, more recently, on September 16, 2022, AB 1279 was passed, which mandates that statewide GHG emissions be reduced 85-percent below the 1990 level by 2045 and requires that the State achieve net-zero GHG emissions by no later than 2045. The State's plan to reach these targets are presented in periodic scoping plans. In November 2017, CARB adopted the *2017 Climate Change Scoping Plan* (CARB 2017) to meet the GHG reduction requirement set forth in SB 32. in November 2022, CARB finalized the *2022 Scoping Plan Update* (CARB 2022) to identify a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045, pursuant to AB 1279. Statewide GHG-emission reductions would be implemented through increased renewable-energy use, tighter limits on the carbon content of gasoline and diesel fuel, increased electric-vehicle use, improved energy efficiency, and curbed emissions from key industries.

As previously discussed, the Proposed Project involves roadway improvements and does not propose any trip-generating land uses. The Proposed Project would not include the provision of new permanent stationary or mobile sources of emissions; therefore, it would not generate quantifiable GHG emissions from project operations. Furthermore, the proposed intersection improvements would provide improved circulation through an area with existing and anticipated congestion. As a result, vehicle idling time and associated GHG emissions would decrease. Thus, the Proposed Project would not interfere with the State's GHG-emission reduction policies and programs anticipated to assist California in reaching post-2020 GHG reduction targets for 2030, 2045, and 2050, as set forth in EOs S-3-05 and B-30-15 and codified by SB 32 and AB 1279.

Mitigation Measures: No mitigation is required.

[4] CARB, the CEC, the California Public Utilities Commission, and the California Independent System Operator engaged E3 to evaluate the feasibility and cost of a range of potential 2030 targets along the way to the State's goal of reducing GHG emissions to 80-percent below 1990 levels by 2050. With input from the agencies, E3 developed scenarios that explore the potential pace at which emission reductions can be achieved, as well as the mix of technologies and practices deployed. E3 conducted the analysis using its California PATHWAYS model. Enhanced specifically for this study, the model encompasses the entire California economy with detailed representations of the buildings, industry, transportation, and electricity sectors (E3 2015; Greenblatt 2014).

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4.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		✓		
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				✓
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				✓
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive for people residing or working in the project area?				✓
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		✓		
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✓

A portion of the analysis in this section is supported by the *Initial Site Assessment Bake Parkway and Jeronimo Road Improvement Project CIP 314210 Irvine and Lake Forest, California* (ISA; Leighton 2022). The purpose of the ISA was to identify, recognized environmental conditions (RECs), historical RECs (HRECs), or controlled RECs (CRECs) in connection with the Proposed Project.

ASTM International E1527-13 defines RECs as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment, or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not RECs."

According to the ISA, no RECs, CRECs, or HRECs were identified within the Proposed Project footprint. There may have been limited agricultural use on site in the 1930s and possibly through the early 1950s; however, there appears to be a low potential for adverse impacts based on the limited use of pesticides prior to the 1950s, and it is likely that onsite farming practices would have consisted of dry farming. In addition, no RECs, CRECs, or HRECs were identified with any offsite locations.

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. Construction activities associated with the Proposed Project would involve the routine transport, use, or disposal of hazardous materials. However, these materials would be those used commonly in construction projects, such as fuel, paint products, lubricants, solvents, and cleaning products, and would not be used or stored in significant quantities. Although small amounts of hazardous materials would be transported, used, and disposed of during the construction phase, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. Also, the handling of hazardous materials must comply with applicable federal and State regulations, such as the Resource Conservation and Recovery Act, U.S. Department of Transportation hazardous materials regulations, and California Division of Occupational Safety and Health regulations. In addition to the applicable federal and State regulations related to the handling of hazardous materials mentioned, an SWPPP (via a Construction General Permit) must be prepared and implemented during construction in accordance with State Water Boards requirements. Any project involving grading of an area greater than 1 acre would be required to obtain NPDES coverage under the Construction General Permit (State Water Boards 2020). The SWPPP has two major objectives: (1) help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and (2) describe and ensure implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges. Implementation of an SWPPP would further reduce the potential for hazardous materials releases during construction. Therefore, construction impacts would be less than significant.

As a roadway-improvement project, long-term operation of the proposed roadway would not itself require the transport, use, or disposal of hazardous materials. However, it is reasonable to assume that vehicles transporting hazardous materials to other destinations would utilize the proposed roadway. Although the Proposed Project would include features where the potential for the transport of hazardous materials exists, impacts in this regard would be less than significant on adherence to existing federal and State standards. These standards include Code of Federal Regulations Title 49, Part 177, *Carriage by Public Highway*, which sets standards for acceptable types of hazardous materials that can be transported by vehicle, inspections, driver training, recordkeeping, and loading and unloading, as well as California Health and Safety Code Division 20, Chapter 6.5, which sets strict permitting requirements for hazardous waste haulers and establishes contingency measures in the event of upset. Lastly, operation of the Proposed Project would not increase the routine transport of hazardous materials as compared to existing conditions. Impacts would be less than significant.

Mitigation Measures*:* No mitigation is required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact with Mitigation Incorporated.

Aerially Deposited Lead

Until the mid-1980s, gasoline and other fuels contained lead, a toxic metal. As each car or truck traveled highways and roads, tiny particles of lead were released in the exhaust and settled on the soils next to the road. Most of the time, lead tends not to move very far or fast in the environment. Based on the ISA, the Proposed Project site consisted of vacant undeveloped land prior to 1967, and the southeastern leg of Jeronimo Road and the northeastern leg of Bake Parkway were under construction by 1972. Due to partial construction, it is likely that the roadways would have only been moderately traveled. By at least 1980, the northwestern and southeastern legs of Jeronimo Road and the northeastern leg of Bake Parkway were completed, and its present-day configuration was completed by the mid- to

late-1980s.Therefore, impacts pertaining to the potential for lead contamination to exist within exposed soils onsite due to aerially deposited lead is unlikely, and impacts in this regard are less than significant.

Potential Polychlorinated Biphenyls-Containing Materials

Given the Proposed Project's location, it is assumed that existing electrical utilities are present within the boundaries of the Proposed Project site. As such, pad-mounted transformers could exist along either Bake Parkway or Jeronimo Road within the boundaries of the Proposed Project footprint. However, any transformer relocated/removed during site-construction activities would have been conducted under the purview of the local purveyor to identify property-handling procedures regarding polychlorinated biphenyls (PCBs), if any (see Mitigation Measure HAZ -1).

Onsite Hazardous Materials Sites

As mentioned above, no RECs, CRECs, or HRECs were identified within the Proposed Project footprint, nor within any offsite locations. However, the environmental database information reviewed in the ISA is from 2022; thus, a supplemental search was conducted during the preparation of this document via the State Water Boards' GeoTracker (State Water Boards 2020) and the California Department of Toxic Substances Control's (DTSC) EnviroStor (DTSC 2004) online databases. No hazardous materials sites were identified within the Proposed Project footprint during the supplemental search.

Offsite Hazardous Materials Sites

According to GeoTracker and EnviroStor, several hazardous materials sites are within a 0.50-mile radius of the Proposed Project footprint. A 0.50-mile radius was analyzed because it contains sites with the highest likelihood of creating a deleterious condition within the Proposed Project footprint. Six sites were under the purview of the State Water Boards: three Leaking Underground Storage Tank (LUST) sites and three Cleanup Program Sites. There is also one DTSC Cleanup Site. All six State Water Boards sites have been granted closure because they were remediated to the satisfaction of the regulatory agency (i.e., State Water Boards). The remaining site, the DTSC Cleanup Site, is listed as Becwar Engineering, Inc., located at 7 Vanderbilt (approximately 0.25 mile from the northernmost portion of the Proposed Project footprint) with an *Inactive – Needs Evaluation* status. The site type is listed as a *Tiered Permit*, which are corrective action cleanup projects on a hazardous waste facility that either was eligible to treat or permitted to treat waste under the Tiered Permitting system. Potential contaminants, affected media, or whether any releases were associated with the site were not disclosed via EnviroStor. However, considering the distance of the site and its inactive status, it is unlikely to have affected the Proposed Project footprint.

Based on the information presented, it is unlikely that significant hazards related to existing hazardous materials would be encountered during construction. However, in the event that any unknown waste materials or suspect materials are discovered by the contractor during construction, implementation of Mitigation Measure HAZ-2 would be required. This measure would minimize impacts in this regard to a less-than-significant level.

Mitigation Measures:

HAZ-1 Prior to issuance of a grading permit, the Project Engineer will confirm whether any transformers are present on site and, if proposed for relocation/removal during site-disturbing activities, those activities will be conducted under the purview of the local purveyor to identify property-testing/handling procedures regarding PCBs during construction.

HAZ-2 If the contractor discovers unknown wastes or suspect materials during construction that they believe may involve hazardous waste/materials, the contractor will do the following.

- Immediately stop work in the vicinity of the suspected contaminant, removing workers and the public from the area.
- Notify the City of Irvine Director of Project Delivery and Sustainability.
- Secure the areas as directed by the City.
- Notify the implementing agency's Hazardous Waste/Materials Coordinator.
- Perform remedial activities as required under existing regulatory agency standards.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The Proposed Project is not within 0.25 mile of a school. The closest school to the Proposed Project is the new Horizon Irvine Upper School, approximately 0.37-mile away (at its closest point). No impact would occur.

Mitigation Measures*:* No mitigation is required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The provisions in Government Code section 65962.5 are commonly referred to as the *Cortese List*. The list—specifically, a site's presence on the list—has bearing on the local permitting process, as well as compliance with CEQA. The following resources contain sites that meet Cortese List requirements.

- Sites listed in the LUST sites database, part of the State Water Board's GeoTracker site
- Sites on the California DTSC list of hazardous waste and substance sites
- List of solid-waste disposal sites that the Santa Ana RWQCB identified that have waste constituents above hazardous waste levels
- List of active cease-and-desist orders and cleanup-and-abatement orders from the RWCQB
- List of DTSC-identified hazardous waste facilities that are subject to corrective action, pursuant to Health and Safety Code section 25187.5

No hazardous materials sites were identified within the Proposed Project footprint on any of the Cortese list data resource. No known corrective action, restoration, or remediation has been planned, is currently taking place, or has been completed on the Proposed Project site. Thus, no impacts would occur.

Mitigation Measures*:* No mitigation is required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. No airports are within 2 miles of the Proposed Project footprint. The nearest airport to the project site is John Wayne Airport, approximately 8.7 miles to the west, northwest of the Proposed Project footprint. No impact would occur.

Mitigation Measures: No mitigation is required.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact with Mitigation Incorporated. The *City of Irvine Emergency Management Plan* (City of Irvine 2004) and the City of Lake Forest Emergency Operations Plan details the City's specific responsibilities before, during, and after any emergency. The Proposed Project would not impair or physically interfere with an adopted emergency-response plan or emergency-evacuation plan. The Proposed Project would result in beneficial impacts related to emergency response/evacuation because it would improve circulation in the Proposed Project area.

The Proposed Project has the potential to result in potential traffic delays during the construction phase. Although roadways in the project area, including Bake Parkway and Jeronimo Road, would remain open to traffic, partial lane closures would be required to perform intersection improvements. During periods when partial lane closures are required, the City of Irvine would implement a temporary Traffic Management Plan (TMP) to help minimize congestion and safety impacts. Mitigation Measure TR-1 in Section 4.16, *Transportation/Traffic*, would require preparation of a TMP. The TMP would meet City of Irvine traffic-control guidelines and include measures to minimize potential impacts associated with traffic, such as construction signage, limitations on timing for lane closures, temporary-striping plans, and the need for a construction flagperson to direct traffic during heavy equipment use. The TMP would be designed to provide congestion relief during construction activities and ensure safe and efficient travel through the Proposed Project area. Thus, with implementation of Mitigation Measure TR-1, impacts associated with emergency response and evacuation would be less than significant.

Mitigation Measures: Refer to Mitigation Measure TR-1 in Section 4.16, *Transportation/Traffic*.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. The Proposed Project site is located within a developed portion of the city, with no wildlands nearby. According to the California Department of Forestry and Fire Protection's *Very High Fire Hazard Severity Zones in LRA Irvine* (CAL FIRE 2007), the Proposed Project area is not within a very high fire hazard severity zone. Thus, the Proposed Project would not expose people or structures, either directly or indirectly, to a significant wildland-fire risk. No impact would occur.

Mitigation Measures: No mitigation is required.

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4.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			✓	
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impeded sustainable groundwater management of the basin?			✓	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
1) Result in a substantial erosion or siltation on- or off-site?			✓	
2) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?			✓	
3) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				✓
4) Impede or redirect flood flows?				✓
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				✓
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✓

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less-than-Significant Impact. The Proposed Project may result in water-quality impacts during the temporary construction process. The grading/excavation required for Proposed Project implementation would result in exposed soils that may be subject to wind and water erosion. However, the Proposed Project would be required to comply with the requirements of a Construction General Permit under the NPDES program. A Construction General Permit requires the development and implementation of an SWPPP, which must contain a site map(s) that depicts the construction-site perimeter, existing and proposed roadways, stormwater collection and discharge points, general topography (both before and after construction), and drainage patterns across the Proposed Project site. The SWPPP also must list BMPs that the discharger would use to protect stormwater runoff and must include the placement of those BMPs. BMPs for construction activities may include measures to control pollutants at particular sources, such as fueling areas, trash storage areas, outdoor materials storage areas, and outdoor work areas. BMPs are also used during treatment of the pollutants at these particular source areas. In addition to the BMPs, the SWPPP must contain: (1) a visual-

monitoring program; (2) a chemical-monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and (3) a sediment-monitoring plan to be used if the site discharges directly to a waterbody listed on California's 303(d) list of impaired and threatened waters for sediment. San Diego Creek Reach 2, located less than 0.25-mile south of the Proposed Project site, is 303(d)-listed for sedimentation/siltation.

The Proposed Project's construction activities would be subject to the NPDES General Construction Permit, as discussed above, because it involves clearing, grading, and disturbances to the ground, such as stockpiling or excavation, and would involve a construction site with soil disturbance greater than 1.0 acre. The Proposed Project would be required to obtain applicable permits pertaining to waste discharge requirements from the State Water Boards. More specifically, as part of the Proposed Project's compliance with NPDES requirements, the Cities of Irvine and Lake Forest would be required to submit a Notice of Intent (NOI) to the State Water Boards, providing notification of intent to comply with the General Construction Permit.

Other potential water-quality impacts include chemical spills into storm drains or groundwater aquifers if proper measures are not implemented. However, required BMPs would be implemented to reduce pollutants in stormwater and other nonpoint-source runoff, as required by the SWPPP. Measures range from source control to treatment of polluted runoff. In order to minimize the discharge of pollutants at the construction site, the SWPPP is required to outline erosion, sediment, and non stormwater BMPs, which would include measures to contain runoff from vehicle washing at the construction site, prevent sediment from disturbed areas from entering the storm-drain system using structural controls (i.e., sandbags at inlets), and cover and contain stockpiled materials to prevent sediment and pollutant transport. Implementation of the BMPs would ensure that runoff and discharges during the Proposed Project's construction phase would not violate any water-quality standards. Compliance with NPDES requirements would reduce short-term construction-related impacts to water quality to a less-than-significant level.

The Municipal Storm Water Permitting Program regulates stormwater discharges from municipal separate storm sewer systems. The RWQCBs have adopted NPDES stormwater permits for medium and large municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. The Santa Ana RWQCB issued the permit governing the public storm-drain system discharges in the County from storm-drain systems that the County, OCFCD, and incorporated Cities of Orange County within the Santa Ana Region (collectively "the Co-permittees") own and operate. This permit regulates water quality in stormwater and urban-runoff discharges from development, construction and natural storm-drain systems in the Cities of Irvine and Lake Forest. Among other requirements, the NPDES permit specifies requirements for managing runoff water quality from new development and significant redevelopment projects, including specific sizing criteria for treatment BMPs. In addition, the Santa Ana RWQCB issued Order No. R8-2009-0030, NPDES Permit No. CAS618030, as Amended by Order No. R8-2010-0062, Waste Discharge Requirements for the County, OCFCD, and the incorporated Cities of Orange County within the Santa Ana Region.

This Proposed Project would occur on a street of 5,000 square feet or more of paved surface and would therefore be required to comply with the requirements set forth in the Construction General Permit. However, as an intersection-improvement project, the Proposed Project is not anticipated to result in a substantial permanent change in water-quality conditions on site. The Proposed Project does not include any structures or uses that would substantially increase water quality–pollutant concentrations or cause a violation of water-quality standards or waste-discharge requirements compared to existing conditions. Although the Proposed Project may result in an increase in impervious area, any such increase would be nominal. Furthermore, a PWQMP has been prepared for the Proposed Project and includes the implementation of a Filterra system, which is a stormwater treatment filtration system that removes pollutants and contained within a landscaped concrete container. The Filterra system is proposed at the northeast corner of the intersection. On compliance with existing NPDES requirements for long-term operations, water-quality impacts would be less than significant.

Mitigation Measures: No mitigation is required.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impeded sustainable groundwater management of the basin?

Less-than-Significant Impact. The Proposed Project would not directly result in any groundwater extraction or the depletion of groundwater supplies. Improvements at the Bake Parkway/Jeronimo Road intersection within the Proposed Project LOD would result in a minor increase in impervious area, in comparison to existing conditions, because adding turn/through lanes and bicycle lanes would result in additional paved surface. Although this would result in decreased groundwater percolation at the Proposed Project site, the Proposed Project area is currently urbanized and developed, and implementation of the proposed improvements would not result in a noticeable deficit in aquifer volume or a lowering of the groundwater table.

The Proposed Project may result in construction activities that encroach into groundwater (i.e., excavations associated with relocation of the existing SCE 66-kV transmission tower). Any potential construction dewatering activities would be required to comply with the Santa Ana RWQCB Dewatering Permit (General Waste Discharge Requirements for Discharges to Surface Waters, Order No. R8-2015-0004, NPDES No. CAG998001). The Waste Discharge Requirements would provide regulations related to effluent limits, discharge specifications, receiving-water limitations, and a wide range of standard provisions and monitoring/reporting activities that would minimize potential water-quality impacts. Therefore, groundwater impacts would be less than significant.

Mitigation Measures*:* No mitigation is required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

1. Result in a substantial erosion or siltation on- or off-site?

Less-than-Significant Impact. The Proposed Project would involve roadway improvements at the Bake Parkway/Jeronimo Road intersection by adding turn/through lanes and bicycle lanes, resulting in a temporary alteration to existing drainage patterns at the Proposed Project site during construction. Within the Proposed Project limits, there are 2 existing inlets, located at the northeast corner and southeast corner of the intersection. The street surface runoff and landscaping runoff is collected by the two street catch basins and conveyed into the existing storm drain system. The Proposed Project will relocate the existing catch basins to the proposed adjacent curb line, however, the existing drainage patterns will be maintained and remain unchanged with any additional runoff treated to the maximum extent practicable. As such, runoff from the Proposed Project would be adequately conveyed to existing and proposed storm-drain facilities, similar to existing drainage patterns.

As noted in section 4.10(a), short-term construction impacts related to erosion and siltation would be minimized through adherence to existing NPDES permit requirements, including implementation of an SWPPP and BMPs. Therefore, runoff from the site would not result in substantial erosion or siltation on or off site. Impacts would be less than significant.

Mitigation Measures*:* No mitigation is required.

2. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less-than-Significant Impact. Refer to section 4.9(c) 1., above. The Proposed Project site is generally flat, within an urbanized area, located in Federal Emergency Management Agency (FEMA) Zone X, an area of minimal flood hazard,

and outside of a special flood hazard area (FEMA 2009). The Proposed Project would implement intersection improvements and would not result in significant changes to surface runoff. The Proposed Project will require localized grading and retaining walls to conform with existing surrounding topography. The widening would require a retaining wall to prevent any impacts on the existing OCFCD channel. Additionally, the Proposed Project is not expected to result in substantial changes to drainage patterns or substantially increase surface runoff. Therefore, flood impacts would be less than significant.

***Mitigation Measures**:* No mitigation is required.

3. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

Less-than-Significant Impact. Refer to sections 4.9(a) and 4.9(c) 2., above. Adequate drainage capacity would be maintained based on existing and proposed improvements. The Proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater-drainage systems or provide substantial additional sources of polluted runoff. All drainage facilities would be designed to meet City and County standards. The Proposed Project would not result in a substantial increase in offsite runoff in comparison to existing conditions. Impacts would be less than significant.

***Mitigation Measures**:* No mitigation is required.

4. Impede or redirect flood flows?

No Impact. During construction, the drainage pattern of the site or area may be temporarily altered. Construction equipment would be located to minimize flood risks. The Proposed Project would implement intersection improvements and would not impede or redirect flood flows. There would be no impact.

***Mitigation Measures**:* No mitigation is required.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The Proposed Project site is within FEMA Zone X, outside of the 100-year flood hazard area (FEMA 2009). A *seiche* is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. No enclosed bodies of water exist in proximity to the Proposed Project site. Serrano Creek is adjacent to the Proposed Project site, but, as a semi-enclosed drainage facility, oscillation of Serrano Creek would not result in a substantial seiche event. Therefore, the Proposed Project site is not within a seiche zone.

A *tsunami* is a great sea wave (also referred to as a *tidal wave*) produced by a significant undersea disturbance, such as tectonic displacement of a sea floor, and is associated with large, shallow earthquakes. The Proposed Project site is approximately 8.5-miles inland from the Pacific Ocean. Given its distance from the coast and the intervening topography and features, there is no risk of inundation due to tsunami. Furthermore, the Proposed Project would not release pollutants because no pollutants would be stored on site. Therefore, there would be no impact.

***Mitigation Measures**:* No mitigation is required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The Proposed Project would comply with the appropriate water-quality objectives for the region. Commonly practiced BMPs would be implemented to control construction-site runoff and reduce discharge of pollutants from stormwater and other nonpoint-source runoff to storm-drain systems. As part of compliance with permit requirements

during ground-disturbing or construction activities, implementation of water-quality control measures and BMPs would ensure that water-quality standards would be achieved, including the water-quality objectives that protect designated beneficial uses of surface and groundwater, as defined in the relevant water-quality control plan. The Construction General Permit also requires stormwater discharges not to contain pollutants that cause or contribute to an exceedance of any applicable water-quality objectives or water-quality standards, including designated beneficial uses. In addition, implementation of the appropriate Irvine General Plan policies would require the protection of groundwater-recharge areas and groundwater resources, as required by a sustainable groundwater=management plan. There would be no impact.

***Mitigation Measures**:* No mitigation is required.

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4.11 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Physically divide an established community?				✓
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				✓

a) Physically divide an established community?

No Impact. The Proposed Project would not physically divide an established community. The Proposed Project is located along Bake Parkway and Jeronimo Road and would not affect existing habitable buildings or structures. Construction will be implemented according to the municipal code. The Proposed Project's objective is to improve intersection performance and reduce traffic congestion in the area and would not create a barrier between uses. No impact would occur.

Mitigation Measures: No mitigation is required.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. According to Figure B-1, *Master Plan of Arterial Highways*, in the Irvine General Plan's *Circulation Element* (City of Irvine 2015e), Bake Parkway is designated as a *Major Highway Six-Lanes* roadway, whereas Jeronimo Road is identified as a *Primary Highway*. Irvine General Plan Figure B-2, *Operational Characteristics*, identifies both Bake Parkway and Jeronimo Road as *Parkways*, and Irvine General Plan Figure B-3, *Public Transit*, identifies both roadways as *Inter-City Transit Corridors*. According to Figure M-I, *Mobility Network*, in Lake Forest 2040's *Mobility Element* (City of Lake Forest 2020b), Bake Parkway is identified as a *Major Arterial*, whereas Jeronimo Road is identified as a *Primary Arterial*. Furthermore, parcels surrounding the Proposed Project are zoned as *Research and Industrial* within the City of Irvine and *Low* and *Medium Residential* within the City of Lake Forest. Implementation of the Proposed Project would not result in a conflict with existing or planned uses as designated and zoned under either City's current General Plans because existing uses would remain on project completion. No impacts would occur.

As described in *Biological Resources* section 4.4(f), the BSA is within the plan area for the CC NCCP/HCP (CDFW 1996). It occurs within the boundaries of the Central Subregion: however, the BSA is not within any CC NCCP/HCP-designated reserve or conservation-easement lands. The nearest reserve lands are approximately 1.5 miles to the northeast and separated from the Proposed Project by development. As mentioned, implementation of the Proposed Project would not affect any Coastal Sage Scrub Plant community or other covered CC NCCP/HCP habitats and is not expected to affect any of the 39 Target and Identified Species covered under the CC NCCP/HCP. Therefore, implementation of the Proposed Project would be consistent with the rules and regulations of the CC NCCP/HCP. Furthermore, the Proposed Project does not occur within any other habitat conservation plans, natural community conservation plans, or other conservation lands. No impact would occur.

Mitigation Measures: No mitigation is required.

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4.12 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				✓

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The Proposed Project consists of intersection improvements along Bake Parkway and Jeronimo Road. The Proposed Project site is within roadway ROW, and no mineral-recovery activities are occurring in the Proposed Project area, nor do any known mineral resources underlie the Proposed Project site. No impacts would occur.

Mitigation Measures: No mitigation is required.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. As mentioned in section 4.12(a), above, the Proposed Project site is within roadway ROW, no mineral recovery activities are occurring in the Proposed Project area, and no known mineral resources underlie the Proposed Project site. No impacts would occur.

Mitigation Measures: No mitigation is required.

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4.13 NOISE

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		✓		
b. Generate excessive groundborne vibration or groundborne noise levels?			✓	
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			✓	

Noise

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. *Noise* is often defined as sound that is objectionable because it is unwanted, disturbing, or annoying. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and the obstructions or atmospheric factors, which affect the propagation path to the receptor, determine the sound level and the characteristics of the noise the receptor perceives. Because sound levels can vary markedly over a short period of time, various descriptors, or *noise metrics*, have been developed to quantify environmental and community noise. These metrics generally describe either the average character of the noise or the statistical behavior of the variations in the noise level. The most common of these metrics are described below.

- **Equivalent Sound Level (L_{eq})** is the most common metric used to describe average, short-term noise levels. Many noise sources produce levels that fluctuate over time; examples include mechanical equipment that cycles on and off or construction work, which can vary sporadically. L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustical energy over the duration of the exposure. For many noise sources, L_{eq} will vary, depending on the time of day. A prime example is traffic noise, which rises and falls, depending on the amount of traffic on a given street or freeway.

- **Maximum Sound Level (L_{max})** and **Minimum Sound Level (L_{min})** refer to the maximum and minimum sound levels, respectively, that occur during the noise-measurement period. More specifically, they describe the root-mean-square sound levels that correspond to the loudest and quietest 1-second intervals that occur during the measurement.

- **Percentile-Exceeded Sound Level (LXX)** describes the sound level exceeded for a given percentage of a specified period (i.e., L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time).

- **Community Noise Equivalent Level (CNEL)** is a measure of the cumulative 24-hour noise level that considers not only the variation of the A-weighted noise level but also the duration and the time of day of the disturbance. CNEL is derived from the 24 A-weighted 1-hour L_{eq}s that occur in a day, with penalties applied to the level when it occurs during the evening hours (i.e., 7 p.m. to 10 p.m.) and nighttime hours (i.e., 10 p.m. to 7 a.m.) to account for increased noise sensitivity of receptors during these hours. Specifically, CNEL is calculated by adding 5 A-weighted decibels (dBA) to the evening L_{eq}, adding 10 dBA to the nighttime L_{eq}, and then taking the average value for all 24 hours.

- **Day-Night Average Sound Level (L_{dn})** is a measure of cumulative 24-hour noise that is very similar to CNEL (described above); the only difference is that L_{dn} does not apply a penalty to evening noise levels. L_{dn} is derived from the 24 A-weighted 1-hour L_{eq}s that occur in a day. A 5-dBA penalty is added to levels that occur during the nighttime hours (i.e., 10 p.m. to 7 a.m.), and then the average is calculated for all 24 hours.

Vibration

Ground-borne vibration is an oscillatory motion of the soil with respect to the equilibrium position and can be quantified in terms of velocity or acceleration. *Velocity* describes the instantaneous speed of the motion, and *acceleration* is the instantaneous rate of change of the speed. Each of these measurements can be further described in terms of frequency and amplitude.

In contrast to airborne sound, groundborne vibration is not a phenomenon that most people experience every day. The background-vibration velocity level in residential areas is usually much lower than the threshold of human perception. Most perceptible indoor vibration is caused by sources within buildings, such as mechanical equipment while in operation, people moving, or doors slamming. Typical outdoor sources of perceptible groundborne vibration are heavy construction equipment (e.g., blasting, pile driving), railroad operations, and heavy trucks on rough roads. If a roadway is smooth, then groundborne vibration from traffic is rarely perceptible. Groundborne vibration can be a serious concern for neighbors of nearby sources, causing buildings to shake and rumbling sounds to be heard. If a person is engaged in any type of physical activity, vibration tolerance increases considerably. Vibration can result in effects that range from annoyance to structural damage. Variations in geology and distance result in different vibrational levels with different frequencies and amplitudes

State of California

The State Office of Planning and Research's (OPR) *Noise Element Guidelines* (OPR 2017) include recommended exterior and interior noise-level standards for local jurisdictions to use for identifying and preventing the creation of incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use–compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of CNEL.

City of Irvine

General Plan

The Irvine General Plan outlines the goals and policies for noise control within the City of Irvine. Unwanted noise is divided into two major categories of noise sources: *mobile* and *stationary*. Irvine General Plan Objective F-1, *Mobile Noise*, ensures that City of Irvine residents are not exposed to mobile-noise levels in excess of the CNEL Interior and Exterior Noise Standard and Single-Event Noise Standard. The following policies support Objective F-1.

- Require all plans submitted for development review to show the Noise Element existing noise contours, future noise contours, and aircraft noise contours.
- Ensure that all proposed development projects are compatible with the existing and projected noise level by using the Land Use Noise Compatibility Matrix [refer to Table 4.12-1 below].
- Require noise studies to use the future motor vehicle noise reduction of 1.9 dBA in identifying future noise levels of streets.
- Require noise studies to identify all the mitigation measures necessary to reduce noise levels to meet the CNEL standard and Single Event Noise Standard.
- Reduce noise impacts from mobile sources by encouraging use of alternative modes of transportation.

Table 4.13-1. *City of Irvine – Land Use Noise Compatibility* identifies the compatibility of proposed projects with future noise levels and is used for evaluating new development projects, including Irvine General Plan amendments, zone changes, tentative maps, conditional use permits, and master plans.

Table 4.13-1. City of Irvine – Land Use Noise Compatibility

Land Use Categories		Energy Average (CNEL)						
Categories	**Uses**	**≤**	**55**	**60**	**65**	**70**	**75**	**80>**
Residential	Single-family	A	A	B	B	C	D	D
Residential	Mobile Home	A	A	B	C	C	D	D
Commercial, Regional	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional Community	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
Commercial Community Industrial & Institutional	Office Building, Research and Development Professional Office, City Office Building	A	A	A	B	B	C	D
Commercial Recreation Institutional, General	Amphitheater, Concert Hall; Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial, Recreation	Children's Amusement Park, Miniature Golf, Go-cart Track, Health Club, Equestrian Center	A	A	A	B	B	D	D
Commercial Community Industrial General	Automobile Service Station, Auto Dealer, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, School Classrooms	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Courses, Nature Centers, Cemeteries, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agricultural	Agriculture	A	A	A	A	A	A	A
Interpretation								
Zone A, *Clearly Compatible*	Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise-insulation requirements.							

Land Use Categories		Energy Average (CNEL)						
Categories	**Uses**	**≤**	**55**	**60**	**65**	**70**	**75**	**80>**
Zone B, *Normally Compatible*	New construction or development should be undertaken only after detailed analysis of the noise-reduction requirements and determination of needed noise-insulation design features. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.							
Zone C, *Normally Incompatible*	New construction or development should normally be discouraged. If new construction or development does proceed, then detailed analysis and/or noise-reduction requirements must be made, and needed noise-insulation features must be included in the design.							
Zone D, *Clearly Incompatible*	New construction or development should generally not be undertaken.							

Source: City of Irvine 2015a.
CNEL = Community Noise Equivalent Level.

Municipal Code

The City of Irvine's Noise Ordinance (adopted in 1975, and revised in 1984) establishes the maximum permissible noise level that may intrude onto a neighbor's property. The Noise Ordinance establishes noise-level standards for various land-use categories that stationary noise sources affect, regulates the timing of construction activities, and includes special provisions for sensitive land uses. Table 4.13-2. *City of Irvine – Construction Noise Hours* illustrates the City of Irvine's construction noise hours.

Table 4.13-2. City of Irvine – Construction Noise Hours

Day	Time [1]
Monday–Friday	7:00 am to 7:00 pm
Saturday	9:00 am to 6:00 pm
Sunday	Not allowed
Holidays	Not allowed

Source: City of Irvine Municipal Code, Chapter 2, *Noise*, Section 6-8-205.
[1] No construction activities are permitted outside of these hours or on Sundays and federal holidays unless the Chief Building Official (or their authorized representative) grants a temporary waiver.

As shown in Table 4.13-2, the Proposed Project would be subject to the limitations imposed by the City of Irvine regarding construction noise hours. The following excerpt from the Municipal Code outlines the City of Irvine's construction and operational regulations within the Noise Ordinance.

Section 6-8-205 Special Provisions

A. Construction activities and agricultural operations may occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities will be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or their authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading, or transfer of materials, equipment service, maintenance of any devices or appurtenances for or within any construction project in the City will not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted will affect the community into consideration. No construction activity and agricultural will be permitted outside of these hours except in emergencies including maintenance work on the City rights of way that might be required.

B. Maintenance of real property operations may exceed the noise standards between 7:00 a.m. and 7:00 p.m. on any day except Sundays, or between 9:00 a.m. and 6:00 p.m. on Sundays or a federal holiday.

C. The use of leaf blowers shall be regulated as follows:

1. Definition of *leaf blower*. Leaf blowers are defined as portable power equipment that is powered by fuel or electricity and used in any landscape maintenance, construction, property repair, or property maintenance for the purpose of blowing, dispersing, or redistributing dust, dirt, leaves, grass clippings, cuttings and trimmings from trees and shrubs or other debris.

2. Limitations on use.

a. All leaf blowers shall be equipped with a permanently installed limiter that restricts the individual equipment motor performance to half throttle speed or less, and will produce not more than 70 decibels db(A) measured at the midpoint of a wall area 20 feet long and ten feet high and at a horizontal distance 50 feet away from the midpoint of the wall, or not more than 76 db(A) at a horizontal distance of 25 feet using a sound level meter set at level A.

b. Each individual leaf blower shall be tested and certified for use by the City of Irvine or its designated representative. Each individual leaf blower shall bear the label of required approval in a visible location on the equipment prior to use and at all times during use. A fee for the City to recover all costs connected with equipment approvals shall be charged in an amount set by City resolution.

c. The use of leaf blowers is prohibited except between the hours of 8:00 a.m. and 5:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturday.

d. Leaf blower operations shall not cause dirt, dust, debris, leaves, grass clippings, cuttings or trimmings from trees or shrubs to be blown or deposited on any adjacent or other parcel of land, lot, or public right-of-way/property other than the parcel, land, or lot upon which the leaf blower is being operated. Deposits of dirt, dust, leaves, grass clippings, debris, cuttings or trimmings from trees or shrubs shall be removed and disposed of in a sanitary manner which will prevent dispersement by wind, vandalism, or similar means within six hours of deposit by the user or property occupant.

e. Leaf blowers shall not be operated within a horizontal distance of ten feet of any operable window, door, or mechanical air intake opening or duct.

f. No person using leaf blowers shall exceed noise limitations set by section 6-8-204 of the City Code of Ordinances.

City of Lake Forest

General Plan

Lake Forest 2040 outlines the goals and policies for noise control within the City of Lake Forest.

- **Goal PS-6**, in the City's General Plan sets forth policies to reduce excessive noise pollution within the Community. The following policies support Goal PS-6:

  - **PS-6.1, Land Use Planning**. Require development and infrastructure projects to be consistent with the maximum allowable noise exposure standards identified in Table PS-1 to ensure acceptable noise levels for existing and future development.

  - **PS-6.3, Site Design**. Require site planning and project design techniques to minimize noise impacts adjacent to sensitive uses.

- **PS-6.5, Roadway Noise**. Encourage nonmotorized transportation alternatives for local trips and the implementation of noise sensitivity measures in the public realm, including traffic-calming road design, lateral separation, natural buffers, and setbacks to decrease excessive motor vehicle noise.

- **PS-6.6, Highway Noise**. Continue to coordinate with the California Department of Transportation (Caltrans) and the Transportation Corridor Agency (TCA) to achieve maximum noise abatement in the design of new highway projects or improvements along I-5.

- **PS-6.7, Vehicles and Trucks**. Monitor and enforce existing speed limits and motor vehicle codes requiring adequate mufflers on all types of vehicles traveling through the city.

- **PS-6.9, Interjurisdictional Coordination**. Coordinate with neighboring cities to minimize noise conflicts between land uses along the City's boundaries.

Table 4.13-3. *City of Lake Forest – Land Use* Compatibility for Community Noise Environment identifies the compatibility of proposed projects and future noise levels and is used when evaluating new development projects, including Irvine General Plan amendments, zone changes, tentative maps, conditional use permits, and master plans.

Table 4.13-3. City of Lake Forest – Land Use Compatibility for Community Noise Environment

Land Use [1]	Outdoor Activity Areas [2, 3]	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq}, dB [4]
Residential	60	45	–
Motels/Hotels	65	45	–
Mixed-Use	65	45	–
Hospitals, Nursing Homes	60	45	–
Theaters, Auditoriums	–	–	35
Churches	60	–	40
Office Buildings	65	–	45
Schools, Libraries, Museums	70	–	45
Playgrounds, Neighborhood Parks	70	–	–
Industrial	75	–	45
Golf Courses, Water Recreation	70	–	–

Source: City of Lake Forest 2020b.
[1] Where a proposed use is not specifically listed, the use will comply with the standards for the most similar use as determined by the City of Irvine.
[2] Outdoor activity areas for residential development are considered to be the backyard patios or decks of single-family units and the common areas where people generally congregate for multi-family developments. Where common outdoor activity areas for multi-family developments comply with the outdoor noise-level standard, the standard will not be applied at patios or decks of individual units, provided that noise-reducing measures are incorporated (e.g., orientation of patio/deck, screening of patio with masonry or other noise-attenuating material). Outdoor activity areas for nonresidential developments are the common areas where people generally congregate, including pedestrian plazas, seating areas, and outdoor dining facilities; not all residential developments include outdoor activity areas. In areas where it is not possible to reduce exterior noise levels to achieve the outdoor activity–area standard by using a practical application of the best noise-reduction technology, an increase of up to 5 L_{dn} over the standard will be allowed, provided that available exterior noise-reduction measures have been implemented, and interior noise levels are in compliance with this table.
[3] Determined for a typical worst-case hour during periods of use.
CNEL = Community Noise Equivalent Level; dB = decibel; L_{dn} = Day-Night Average Sound Level; L_{eq} = Equivalent Sound Level.

Municipal Code

The City of Lake Forest's Noise Ordinance (adopted in 1975, and revised in 1984) establishes the maximum noise levels for residential properties. City of Lake Forest's Municipal Code, Chapter 11.16.060, *Exemptions (D)*, excuses noise sources that are "associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a legal City of Lake Forest holiday."

Existing Noise Conditions and Sources

Existing noise sources within the Proposed Project area generally include vehicular traffic traveling along Bake Parkway and Jeronimo Road and general noise consistent with developed land uses (e.g., birdsong, landscaping, heating, ventilation, and air conditioning systems).

As part of this analysis, a total of five short-term noise measurements were taken throughout the Proposed Project alignment, focusing primarily along the residential land uses located in the northeastern and southeastern quadrants. Table 4.13-4. *Short-Term Noise Measurements* show the results land locations of the short-term measurements. Refer to Exhibit 4-1., *Noise Measurement and Modeling Locations* for the noise-measurement and modeling locations. Measurements along the Proposed Project alignment show that noise levels range from 51.0–71.3 dBA L_{eq}.

Table 4.13-4. Short-Term Noise Measurements

Measurement Location	Address	Time/Date	L_{eq} (dBA)	L_{max}	L_{min}
ST-1	9950 Jeronimo Road	10:12/May 5, 2022	71.3	82.7	52.5
ST-2	21901 Annette Avenue	10:38/May 5, 2022	55.3	77.1	42.1
ST-3	24101 Jeronimo Lane	11:06/May 5, 2022	58.3	70.1	46.8
ST-4	24131 Minnetonka Lane	11:29/May 5, 2022	60.2	73.7	45.5
ST-5	21871 Annette Avenue	11:55/May 5, 2022	51.0	63.1	39.6

L_{eq} = Equivalent Sound Level; L_{max} = Maximum Sound Level; L_{min} = Minimum Sound Level; ST = short-term.

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NOT TO SCALE

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
BAKE PARKWAY AND JERONIMO ROAD INTERSECTION IMPROVEMENT PROJECT

Noise Measurement and Modeling Locations

Exhibit 4-1

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To quantify the existing noise levels at noise-sensitive receptors along the Proposed Project alignment, existing CNEL values were calculated using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM). The TNM 2.5 computer model is based on two FHWA reports: FHWA-PD-96-009 (FHWA 1998a) and FHWA-PD-96-010 (FHWA 1998b). The key geometric inputs for the model were the locations of roadways, shielding features (e.g., topography, buildings), noise barriers, and receivers. Three-dimensional representations of these inputs were developed using computer-aided design (CAD) drawings, profiles, and topographic contours that the Project Design Team provided. MicroStation software was the primary tool used to digitize the geometric data, based on the available CAD files, for input into TNM 2.5. TNM calculates the worst noise hour based on the traffic input from the traffic analysis (Iteris 2022). For the purposes of this analysis, the PM peak hour was modeled because it generally had the highest traffic volumes. The PM peak hour predicted results were used to calculate the CNEL, based on a model that used a typical diurnal traffic-noise pattern. The relevant input included the predicted peak hour noise level (AM or PM) to calculate CNEL. Table 4.13-5. *Existing Traffic Noise Levels*, below, shows the predicted results for receivers modeled in the area (see Exhibit 4-1 for the modeling locations). Existing predicted CNEL ranged from 53 dBA CNEL (at M02.01) to 69 dBA CNEL (at M01.05).

Table 4.13-5. Existing Traffic Noise Levels

Receiver	Land Use Type	Existing Conditions	
		Predicted Existing Peak Hour Noise Level (dBA L_{eq}) [1]	Predicted Existing Noise Level (dBA CNEL)
M01.01	Residential	62	63
M01.02	Residential	63	64
M01.03	Residential	66	67
M01.05	Residential	68	69
M01.06	Residential	65	66
M01.07	Residential	64	65
M01.08	Residential	62	63
M01.09	Residential	64	65
M01.10	Residential	64	65
M01.11	Residential	59	60
M02.01	Residential	52	53
M02.02	Residential	62	62
M02.03	Residential	61	61
M02.04	Residential	61	61
M02.05	Residential	61	62
M02.06	Residential	61	61

[1] The predicted peak hour and CNEL values have been rounded to the nearest whole number. The Traffic Noise Model (FHWA 1998a) predicts noise levels to the nearest 0.1 dBA.
CNEL = community noise equivalent level; dBA = A-weighted decibels; L_{eq} = Equivalent Sound Level' TNM.
Geometric inputs for the model included location of roadways, shielding features such as topography, buildings, noise barriers and receivers.

The Proposed Project area is highly urbanized, consisting of a mix residential and commercial uses. The primary sources of stationary noise in the Proposed Project vicinity are urban-related activities (e.g., mechanical equipment, parking areas, pedestrians). Noise associated with these sources may represent a single-event noise occurrence or short-term or long-term continuous noise. However, for the purposes of this analysis, stationary noise was not considered because the Proposed Project would not result in new stationary-noise sources.

a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less-than-Significant Impact with Mitigation Incorporated.

Construction

Construction activities generally are temporary and have a short duration, resulting in periodic increases in the ambient-noise environment. Construction of the Proposed Project is anticipated to occur over a period of 12 months and involve 1 or 2 minutes of full-power operation followed by 3 to 4 minutes at lower power settings. Examples of typical noise levels that construction equipment generate are shown in Table 4.13-6. *Maximum Noise Levels Generated by Construction Equipment*. The acoustical use factor referenced below indicates the time at which equipment may be operating at full power, therefore accounting for time when equipment is not in use to calculate the representative equipment-noise level. Other primary sources of acoustical disturbance may occur from random incidents (e.g., dropping large pieces of equipment or the hydraulic movement of machinery lifts), which likely would last 1 minute or less, generally.

Table 4.13-6. Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	L_{max} at 50 Feet (dBA)	Acoustical Use Factor [1]	L_{eq} at 50 Feet (dBA)
Concrete Saw	90	20%	83
Concrete-mixer Truck	79	40%	75
Backhoe	78	40%	74
Dozer	82	40%	78
Excavator	81	40%	77
Forklift	78	40%	74 [2]
Paver	77	50%	74
Roller	80	20%	73
Tractor	84	40%	80
Water Truck	80	40%	76 [2]
Grader	85	40%	81

Source: FHA 2006.
[1] The Acoustical Use Factor (in %) estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.
[2] The Roadway Construction Noise Model program does not include this type of equipment in the program dropdown menu; therefore, the relevant L_{eq} was calculated by dividing the logarithm of the usage factor by an entire hour (i.e., 10*log[40/100]) to calculate the L_{eq}.
dBA = A-weighted decibels; L_{eq} = Equivalent Sound Level; L_{max} = Maximum Sound Level.

Assuming that the two loudest pieces of equipment (i.e., concrete saw [83-dBA L_{eq}] and grader [81-dBA L_{eq}]) operate at the same time and in the same general area (i.e., 50 feet from noise-sensitive receivers), and assuming that no intervening structures or barriers are present, the worst-case noise level from construction would be approximately 85-dBA L_{eq}. It should be noted that all the residential land uses along the Proposed Project alignment have a 6-foot property-line barrier that would provide at least 5 decibels (dB) of insertion loss to first floor receptors.[5] The analysis

[5] Construction analysis is considered conservative as localized topography may provide additional attenuation for surrounding receptors.

also took into consideration setbacks and the local topography which provide further attenuation at sensitive receptors. Therefore, for the purposes of this analysis, the loudest predicted noise level associated with construction would be 80-dBA L_{eq}.

Based on the existing calculated peak hour noise levels in Table 4.13-6, above, construction noise would be clearly audible. The Cities of Irvine and Lake Forest allow construction activities, provided that they occur between the hours of 7:00 a.m. and 7:00 p.m. Mondays through Fridays, 9:00 a.m. and 6:00 p.m. on Saturdays (City of Irvine), and between the hours of 7:00 a.m. and 8:00 p.m. on weekdays, including Saturday, and at no time on Sunday or a legal holiday (City of Lake Forest). Construction activities associated with the Proposed Project would be conducted during allowable daytime hours, per the Cities' Municipal Codes. To ensure that construction noise levels comply with Irvine General Plan and Lake Forest 2040 policies and the Cities' Municipal Codes, implementation of Mitigation Measure NOI-1 would ensure the use of BMPs to reduce construction-related noise. Therefore, because the Proposed Project construction is not expected to occur at night, and with inclusion of Mitigation Measure NOI-1, impacts from construction noise would be less than significant.

Operations

Noise-sensitive receptors along the Proposed Project alignment include homes in the northeastern and southeastern quadrants of the Bake Parkway/Jeronimo Road intersection. The homes are within the City of Lake Forest and are therefore subject to the City of Lake Forest's jurisdiction. A traffic noise impact occurs when there is a discernible increase in traffic noise and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dBA are often identified as *substantial*, whereas changes less than 1 dBA would not be discernible to local residents. In the range of 1–3 dB, residents who are very sensitive to noise may perceive a slight change. In laboratory testing situations, humans were able to detect noise level changes of slightly less than 1 dBA. This is based on a direct, immediate comparison of two sound levels. In a community noise situation, however, noise exposures occur over a longer period of time and changes in noise levels can occur over years (rather than the immediate comparison made in a laboratory situation). Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA; 3 dBA is the most commonly accepted discernible difference, and a 5-dBA change is generally recognized as a clearly discernible difference. As traffic noise levels at sensitive uses likely approach or exceed the 65 CNEL standard, a 3.0-dBA increase was used as the increase threshold for the Proposed Project. Thus, the Proposed Project would result in a significant noise impact when a permanent increase in ambient noise levels of 3.0 dBA occur with Proposed Project implementation, and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

Offsite Mobile Noise Impacts

The Proposed Project would not result in additional traffic at the Proposed Project intersection, nor would the Proposed Project result in additional through lanes at the intersection. Therefore, the existing traffic volumes would be the same with and without the Proposed Project. Table 4.13-7. *Existing Traffic Noise Levels* compares the *Existing Year without Project* condition to the *Existing Year with Project* condition. Therefore, traffic volumes were modeled to measure the noise that would occur with the redistribution of traffic after implementation of the Proposed Project.

As previously discussed, a significant noise impact would result if a permanent increase in ambient noise levels of 3 dBA were to occur, and the resulting noise level exceeds the applicable exterior land use compatibility standard. As shown in Table 4.13-7. *Existing Traffic Noise Levels*, relative changes in traffic noise levels along noise-sensitive receivers would be negligible (i.e., ranging from a 1-dB decrease at receiver M01.05 to a 1-dB increase at M02.06)[6].

[6]It should be noted that actual relative changes at receivers M01.05 and M02.06 reflect a decrease of 0.1 dB and an increase of 0.1 dB. However, because results are rounded to the nearest whole number, they show a -1-dB and 1-dB change, respectively.

As such, any increase associated with the Proposed Project would not result in a 3-dB increase at any noise sensitive receiver along the alignment.

Table 4.13-7. Existing Traffic Noise Levels

Receiver	Land Use Type	Existing Conditions						
		Predicted Without-Project Existing Noise Level (dBA CNEL) [1]	Predicted With-Project Existing Noise Level (dBA CNEL)	Project-Related Change (dB	Do Project-Related Noise Levels Exceed Applicable Exterior Standards (65 CNEL [Zone B of the City of Irvine Land Use Compatibility Matrix])?	Do Project-Related Noise Levels Exceed Applicable Exterior Standards (60 CNEL [Residential of the City of Lake Forest Land Use Compatibility Matrix])?	Does the Proposed Project Result in a 3-dB Increase in Traffic Noise over the Without-Project Condition?	Impact?
M01.01	Residential	63	63	0	No	Yes	No	No
M01.02	Residential	64	64	0	No	Yes	No	No
M01.03	Residential	67	67	0	Yes	Yes	No	No
M01.04	Residential	67	67	0	Yes	Yes	No	No
M01.05	Residential	69	68	-1	Yes	Yes	No	No
M01.06	Residential	66	66	0	Yes	Yes	No	No
M01.07	Residential	65	65	0	Yes	Yes	No	No
M01.08	Residential	63	63	0	No	Yes	No	No
M01.09	Residential	65	65	0	Yes	Yes	No	No
M01.10	Residential	65	65	0	Yes	Yes	No	No
M01.11	Residential	60	60	0	No	No	No	No
M02.01	Residential	53	53	0	No	No	No	No
M02.02	Residential	62	62	0	No	Yes	No	No
M02.03	Residential	61	61	0	No	Yes	No	No
M02.04	Residential	61	61	0	No	Yes	No	No
M02.05	Residential	62	62	0	No	Yes	No	No
M02.06	Residential	61	62	1	No	Yes	No	No

[1] Predicted peak and CNEL values have been rounded to the nearest whole number. The Traffic Noise Model (FHWA 1998a) predicts noise levels to the nearest 0.1 dBA.
CNEL = community noise equivalent level; dB = decibels; dBA = A-weighted decibels; L_{eq} = Equivalent Sound Level.

Table 4.13-8. *Buildout Traffic Noise Levels* shows calculated receivers located throughout the Proposed Project alignment, similar to Table 4.13-7, above. A comparison of the buildout conditions with and without the Proposed Project predicts that traffic noise levels would not appreciably change relative to the Without-Project condition. Noise levels under the Buildout-with-Proposed-Project condition would change by no more than 1 dB (i.e., a 1-dB decrease at receiver M02.01) relative to the Buildout-without-Proposed-Project condition[7]. Therefore, with consideration of the changes associated with the Proposed Project under the existing and buildout conditions, changes in noise levels would not result in a significant impact and would be considered less than significant.

Table 4.13-8. Buildout Traffic Noise Levels

Receiver	Land Use Type	Future Conditions						
		Predicted Without-Project-Buildout Noise Level (dBA CNEL) [1]	Predicted With-Project-Buildout Noise Level (dBA CNEL) [1]	Project-Related Change (dB)	Do Project-Related Noise Levels Exceed Applicable Exterior Standards (65 CNEL [Zone B of the City of Irvine Land Use Compatibility Matrix])?	Do Project-Related Noise Levels Exceed Applicable Exterior Standards (60 CNEL [Residential of the City of Lake Forest Land Use Compatibility Matrix])?	Does the Proposed Project Result in a 3-dB Increase in Traffic Noise over the Without-Project Condition?	Impact?
M01.01	Residential	64	64	0	No	Yes	No	No
M01.02	Residential	64	64	0	No	Yes	No	No
M01.03	Residential	67	67	0	Yes	Yes	No	No
M01.04	Residential	68	68	0	Yes	Yes	No	No
M01.05	Residential	69	69	0	Yes	Yes	No	No
M01.06	Residential	66	66	0	Yes	Yes	No	No
M01.07	Residential	65	65	0	Yes	Yes	No	No
M01.08	Residential	63	63	0	No	Yes	No	No
M01.09	Residential	65	65	0	Yes	Yes	No	No
M01.10	Residential	65	65	0	Yes	Yes	No	No

[7] Predicted peak and CNEL values have been rounded to the nearest whole number. The Traffic Noise Model (FHWA 1998a) predicts noise levels to the nearest 0.1 dBA. This means that a difference of 0.1 dB (such as 64.5 – 64.4 = 0.1) would result in a 1.0 dB difference.

Receiver	Land Use Type	Future Conditions						
		Predicted Without-Project-Buildout Noise Level (dBA CNEL) [1]	Predicted With-Project-Buildout Noise Level (dBA CNEL) [1]	Project-Related Change (dB)	Do Project-Related Noise Levels Exceed Applicable Exterior Standards (65 CNEL [Zone B of the City of Irvine Land Use Compatibility Matrix])?	Do Project-Related Noise Levels Exceed Applicable Exterior Standards (60 CNEL [Residential of the City of Lake Forest Land Use Compatibility Matrix])?	Does the Proposed Project Result in a 3-dB Increase in Traffic Noise over the Without-Project Condition?	Impact?
M01.11	Residential	61	61	0	No	Yes	No	No
M02.01	Residential	54	53	-1	No	No	No	No
M02.02	Residential	63	63	0	No	Yes	No	No
M02.03	Residential	62	62	0	No	Yes	No	No
M02.04	Residential	62	62	0	No	Yes	No	No
M02.05	Residential	62	62	0	No	Yes	No	No
M02.06	Residential	62	62	0	No	Yes	No	No

[1] Predicted peak and CNEL values have been rounded to the nearest whole number. The Traffic Noise Model (FHWA 1998a) predicts noise levels to the nearest 0.1 dBA.
CNEL = community noise equivalent level; dB = decibels; dBA = A-weighted decibels; L_{eq} = Equivalent Sound Level..

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Upon completion, noise from stationary sources in the Proposed Project area would not change relative to the Without-Project condition. The Proposed Project would include additional turn lanes, new bicycle lanes, curb ramps, traffic signal systems, sidewalks, and other improvements, but would not include any new stationary-noise sources. Therefore, no impacts would occur in this regard.

Refer to section 4.13(c) for a discussion of the Proposed Project's long-term operational noise impacts.

Mitigation Measures:

NOI-1 Prior to initiation of construction, the City of Irvine will ensure that the following measures are incorporated into construction contract documents.

- All construction equipment, fixed or mobile, will be equipped with properly operating and maintained mufflers and other State-required noise-attenuation devices.
- A construction notice will be mailed to residents within a 150-foot radius of the Proposed Project that will indicate the dates and duration of construction activities and provide a City of Irvine staff contact name and a telephone number, where residents can inquire about the construction process and register complaints.
- Construction haul routes will be designed to avoid noise-sensitive land uses (e.g., residences, convalescent homes).
- During construction, stationary construction equipment will be placed such that emitted noise is directed away from sensitive noise receivers.
- Construction-equipment staging areas will be located away from adjacent sensitive receptors.

b) Generate excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. Construction of the Proposed Project can generate groundborne vibration, depending on the type of construction equipment used (e.g., vibratory roller) or activity (e.g., impact or vibratory pile driving). Construction equipment generates vibrations that spread throughout a medium; in this case, the vibrations diminish with distance from the source. The rate of vibration dissipation, based on the Federal Transit Administration (FTA) guidance (FTA 2006) would be equal to PPV_{ref} x (25/D)^1.5, where PPV_{ref} is the peak particle velocity (PPV) of the equipment at a reference distance of 25 feet, and D is the distance to the receiver in feet. Vibratory effects on structures depend on soil type, ground strata, and other factors; therefore, a general exponential of 1.5 was included in the calculation for construction characteristics of the receiver building(s).

The FTA has also published standard vibration velocities for construction-equipment operations (FTA 2006). In general, the FTA architectural-damage criterion for continuous vibrations (i.e., 0.20 inch/second) appears to be conservative. The types of construction-vibration impacts include human annoyance and building damage: human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time, and building damage can be cosmetic or structural. Typical vibration produced by construction equipment is illustrated in Table 4.13-9. *Typical Vibration Levels for Construction Equipment*.

Table 4.13-9. Typical Vibration Levels for Construction Equipment

Equipment	Approximate Peak Particle Velocity at 25 Feet (inches/second) [1]
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003
Jackhammer	0.035
Vibratory Compactor/Roller	0.210

Source: FTA 2006, Table 12-2.
[1] Calculated using the following formula:
PPV $_{equip}$ = PPV$_{ref}$ x (25/D)$^{1.5}$
where: PPV (equip) = the peak particle velocity in inches/second of the equipment adjusted for the distance
PPV (ref) = the reference vibration level in in/sec from FTA 2006, Table 12-2.
D = the distance from the equipment to the receiver.

Groundborne vibration decreases rapidly with distance. The Proposed Project would not require pile driving. As indicated in Table 4.13-9, based on the FTA data (2006), vibration velocities from typical heavy-construction equipment operations that would be used during the Proposed Project construction range from 0.003–0.210 inch-per-second PPV at 25 feet from the source of activity. Construction activities would occur approximately 25 feet or more from the nearest adjacent building. Therefore, vibration from construction activities experienced at the nearest adjacent building would be expected to be below the 0.20 inch-per-second PPV significance threshold, and a less-than-significant impact would occur in this regard.

Mitigation Measures: No mitigation is required.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less-than-Significant Impact. John Wayne Airport, approximately 8.7-miles northwest of the Proposed Project, is the closest airport. The Proposed Project site is outside of the John Wayne Airport Aircraft Noise Contours (City of Irvine 2015f). Moreover, based on Figure 1, *Airport Land Use Commission for Orange County Airport Planning Area*, of the *Land Use Plan for John Wayne Airport* (ALUC 2007), the Proposed Project site is outside of the area designated as Airport Environs Land Use Plan and Airport Planning Areas. Additionally, the Proposed Project would not introduce any new residence to the area. Therefore, impacts would be less than significant in this regard.

4.14 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✓
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✓

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The Proposed Project consists of intersection improvements along Bake Parkway and Jeronimo Road and would not involve the construction of any structures (i.e., residences or commercial establishments) that would result in direct population growth. The Proposed Project would improve the current intersection performance to an acceptable LOS and reduce traffic congestion in the area, but would not induce substantial population growth because the area surrounding the proposed improvements is fully developed. No impacts would occur in this regard.

Mitigation Measures: No mitigation is required.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. No housing would be affected, and no people would be displaced by the proposed roadway improvements; therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation is required.

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4.15 PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1) Fire protection?		✓		
2) Police protection?		✓		
3) Schools?		✓		
4) Parks?				✓
5) Other public facilities?				✓

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

1. Fire protection?

Less-than-Significant Impact with Mitigation Incorporated. The Orange County Fire Authority provides fire protection in the Proposed Project area. The nearest station to the Proposed Project site is Station #38, at 26 Parker in Irvine, approximately 0.7 mile to the north, northeast of the northernmost boundary of the Proposed Project site. Based on the nature of the Proposed Project (i.e., it does not feature habitable structures or include uses that would require fire-suppression services), it would not substantially increase the need for fire-protection services in the area. During the construction phase, construction traffic would occur over a period of approximately 12 months. Although Bake Parkway and Jeronimo Road would remain open to traffic at all times, partial vehicle lane closures may be required in order to construct the Proposed Project. During periods when partial lane closures are required, the City of Irvine would be required to implement a temporary TMP, as indicated by Measure TR-1, to minimize congestion and safety impacts during the construction phase. The TMP would provide congestion relief during the construction phase and ensure safe travel for all modes of transportation, including fire protection vehicles. As such, less than significant impacts are anticipated to occur with implementation of TR-1.

Mitigation Measures: Refer to measure TR-1.

2. Police protection?

Less-than-Significant Impact with Mitigation Incorporated. The Irvine Police Department, at 1 Civic Center Plaza, Irvine, provides police protection to the City of Irvine, and the Orange County Sheriff's Department, at 100 Civic Center

Drive, Lake Forest, provides police services for the City of Lake Forest. Similar to what was described under fire protection, above, due to the nature of the Proposed Project, it would not substantially increase the need for police-protection services in the area. During the construction phase, construction traffic would occur over a period of approximately 12 months. Although Bake Parkway and Jeronimo Road would remain open to traffic at all times, partial vehicle lane closures may be required in order to construct the Proposed Project. During periods when partial lane closures are required, the City of Irvine would be required to implement a temporary TMP, as indicated by Measure TR-1, to minimize congestion and safety impacts during the construction phase. The TMP would provide congestion relief during the construction phase and ensure safe travel for all modes of transportation, including police vehicles. As such, less than significant impacts are anticipated to occur with implementation of TR-1.

Mitigation Measures: Refer to measure TR-1.

3. Schools?

Less-than-Significant Impact with Mitigation Incorporated. The Proposed Project consists of intersection improvements and does not include features that would increase population in the area; thus, the Proposed Project would not result in the need for the additional schools. During the construction phase, construction activities and construction-related traffic would occur over a period of approximately 12 months. It is not anticipated that adverse impacts on the local roadway network would occur as a direct result of construction activities and access to adjacent businesses would remain open. Bake Parkway and Jeronimo Road would remain open to traffic at all times, however, partial vehicle lane closures may be required in order to construction the Proposed Project. During period when partial lane closures are required, the City of Irvine would be required to implement a temporary TMP to minimize congestion and safety impacts during construction. The TMP would include measures such as construction signage, limitations on timing for lane closures to avoid peak hours, temporary striping plans, and construction flagperson to direct traffic during heavy equipment use. The TMP would provide congestion relief during the construction phase and ensure safe travel for all modes of transportation. As such, with implementation of TR-1, impacts are anticipated to be less than significant.

Mitigation Measures: Refer to measure TR-1.

4. Parks?

No Impact. The Proposed Project consists of intersection improvements and does not include features that would increase population in the area; thus, the Proposed Project would not require new or physically altered park facilities. No impacts would occur.

Mitigation Measures: No mitigation is required.

5. Other public facilities?

No Impact. As described above in section 4.15(a)(1–4), the Proposed Project would not result in significant impacts on public services or facilities. No other public facilities are anticipated to be affected by the Proposed Project. No impacts would occur.

Mitigation Measures: No mitigation is required.

4.16 RECREATION

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✓
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				✓

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The Proposed Project consists of roadway improvements intended to improve the performance of the Bake Parkway/Jeronimo Road intersection and reduce traffic congestion in the area. The Proposed Project does not include the addition of residential structures or other land uses that would induce population growth that triggers the need for new parks or other recreational facilities or accelerates the deterioration of existing parks or other recreational facilities. No impacts would occur.

Mitigation Measures*:* No mitigation is required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Proposed Project would not result in increased demand on neighborhood or regional parks or other recreational facilities and would not result in an adverse physical effect on the environment. No recreational facilities would be constructed as part of the Proposed Project. No impacts would occur.

Mitigation Measures*:* No mitigation is required.

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4.17 TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?		✓		
b. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			✓	
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		✓		
d. Result in inadequate emergency access?		✓		

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less-than-Significant Impact with Mitigation Incorporated. This section is based on the *Bake Parkway/Jeronimo Road Improvements PA/ED Traffic Analysis* (Traffic Analysis; Iteris 2022), prepared for the Proposed Project and presented as Appendix D. The purpose of the Traffic Analysis was to study the traffic effects that could result from providing capacity enhancements and operational improvements at the Bake Parkway/Jeronimo Road intersection. The following traffic operations for the intersection were evaluated for each of the following scenarios during the weekday AM peak hour and PM peak hour at the intersection.

- Existing Without-Project
- Existing With-Project
- Short-Term Without-Project
- Short-Term With-Project
- Long-Range Without-Project
- Long-Range With-Project
- Buildout Without-Project
- Buildout With-Project

The Traffic Analysis noted that project improvements are turn-lane improvements only, with no arterial-roadway widening, so the daily traffic volumes on the roadway segments are not expected to change between Without-Project and With-Project conditions.

According to the Irvine General Plan, LOS standards are defined for intersections and roadway links per Table 4.17-1, *Level of Service Standards*. According to the Traffic Analysis, the Cities of Irvine and Lake Forest consider LOS E or worse as deficient at this location.

Table 4.17-1. Level of Service Standards

Level of Service	Standard
A	The volume/capacity ratio ranges from 0 to 0.60. At this LOS, traffic volumes are low, and speed is not restricted by other vehicles. All signal cycles clear with no vehicles waiting through more than one original cycle. For roadway links, this LOS indicates no physical restriction on operating speeds.
B	The volume/capacity ratio ranges from 0.61 to 0.70. At this LOS, traffic volumes begin to be affected by other traffic. Between 1–10% of the signal cycles have one or more vehicles that wait through more than one signal/cycle during peak traffic periods. For roadway links, this LOS indicates flow with few restrictions on operating speeds.
C	The volume/capacity ratio ranges from 0.71 to 0.80. At this LOS, operating speeds and maneuverability are closely controlled by other traffic. Between 11–30% of the signal cycles have one or more vehicles that wait through more than one signal cycle during peak traffic periods. For roadway links, this LOS indicates stable flow, higher volume, and more restrictions on speed and lane changing.
D	The volume/capacity ratio ranges from 0.81 to 90. At this LOS, traffic will operate at tolerable operating speeds, although with restricted maneuverability. More than 30% of the signal cycles have one or more vehicles that wait through more than one signal cycle during peak traffic hours. For roadway links, this LOS indicates tolerable conditions, approaching unstable flow, and little freedom to maneuver.
E	The volume/capacity ratio ranges from 0.91 to 1.0. Traffic will experience restricted speeds, vehicles will frequently have to wait through two or more cycles at signalized intersections, and any additional traffic will result in breakdown of the traffic carrying ability of the system. For roadway links, this LOS indicates unstable flow, lower operating speeds than LOS D, and some momentary stoppages.
F	At this LOS, vehicles experience long queues of traffic, unstable flow, and stoppages of long duration, where traffic volumes and speeds can drop to zero. Traffic volumes are less than the volume that occurs at LOS E. For roadway links, this LOS indicates forced-flow operation at low speeds, where the roadway acts as a storage area, and many stoppages occur.

Source: City of Irvine 2015e, Page B-12, *Level of Service Standards*.
LOS = level of service.

An operations analysis was conducted at the intersection of Bake Parkway and Jeronimo Road to evaluate the intersection operations (i.e., LOS) for the weekday AM and PM peak hours. The analysis was conducted based on the Intersection Capacity Utilization (ICU) analysis methodology using Traffix analysis software. The ICU methodology estimates the volume-to-capacity (V/C) ratio for an intersection based on the individual V/C ratios for the conflicting traffic movements. The ICU value represents the percentage of time that the signal is green or the capacity of the intersection movements. It should be noted that the ICU method assumes uniform traffic distribution per intersection-approach lane and optimal signal timing. Parameters set by the City for ICU calculations, including lane capacity, right-turn treatment, and clearance interval, were included in the traffic operations analysis.

Table 4.17-2. *Existing and Forecast (Without Project) Intersection Level of Service Summary*, summarizes the intersection LOS results for Bake Parkway and Jeronimo Road for the Existing, Short-Term, Long-Range, and Build-Out conditions for Without-Project scenarios. As shown in Table 4.17-2, the intersection of Bake Parkway and Jeronimo Road is forecast to perform at a deficient LOS for all conditions associated with Without-Project scenarios.

Table 4.17-2. Existing and Forecast (Without Project) Intersection Level of Service Summary

Bake Parkway and Jeronimo Road	Existing				Short-Term				Long-Range				Build Out			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Without-Project	0.94	**E**	0.82	D	1.00	**E**	0.85	D	1.02	**F**	0.88	D	1.01	**F**	0.88	D

Source: Iteris 2022.
Note: **Bold** denotes deficient level of service.
AM = morning; LOS = level of service; PM = evening; V/C = volume to capacity ration.

The Proposed Project would: (1) add a second NB left-turn lane on Bake Parkway; (2) add a second WB left-turn lane on Jeronimo Road; and (3) convert the WB through-right lane on Jeronimo Road to a through lane with a de-facto right-turn lane; refer to Exhibit 2-3. *Site Plan* for a depiction of the proposed intersection configuration. Table 4.17-3. *Forecast (With Project) Intersection Level of Service* Summary summarizes the intersection LOS results for Bake Parkway and Jeronimo Road for the Existing, Short-Term, Long-Range, and Build-Out conditions with construction of the Proposed Project.

Table 4.17-3. Forecast (With Project) Intersection Level of Service Summary

Bake Parkway and Jeronimo Road	Existing				Short-Term				Long-Range				Build Out			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
With-Project	0.70	B	0.77	C	0.77	C	0.80	C	0.78	C	0.82	D	0.77	C	0.81	D

Source: Iteris 2022.
AM = morning; LOS = level of service; PM = evening; V/C = volume to capacity ration.

As shown in Table 4.17-3, all proposed improvement scenarios are forecast to operate at LOS D or better (with the majority of scenarios operating at a LOS C) with implementation of the Proposed Project.

Construction of the proposed intersection improvements would alleviate existing and forecast conditions at the intersection of Bake Parkway and Jeronimo Road. Therefore, the Proposed Project would result in less-than-significant impacts during project operations, based on the Cities' established policies pertaining to the effectiveness of the project intersection.

During the short-term construction phase, construction traffic would occur over a period of approximately 12 months and include the transfer of construction equipment, construction-worker trips, and hauling trips for soil and construction material. Although construction employees and deliveries would occur, it is not anticipated that adverse impacts on the local roadway network would occur as a direct result of construction trips. Although Bake Parkway and Jeronimo Road would remain open to traffic at all times, partial vehicle lane and bicycle closures may be required in order to construct the proposed intersection improvements. During periods when partial lane closures are required, and sidewalks and bicycle lanes are affected, the City of Irvine would be required to implement a temporary TMP to minimize congestion and safety impacts during the construction process. The TMP would meet City of Irvine traffic-control guidelines and include potential measures, such as construction signage, limitations on timing for lane closures to avoid peak hours,

temporary striping plans, and the need for a construction flagperson to direct traffic during heavy-equipment use, among others. The TMP would also address signage and detour routes for pedestrians and bicyclists to use when such facilities are affected. The TMP would provide congestion relief during short-term construction activities and ensure safe travel for all modes of transportation. Thus, with implementation of Mitigation Measure TR-1, impacts would be reduced to less-than-significant levels.

Mitigation Measures:

TR-1 Prior to the initiation of construction, the City of Irvine will prepare a TMP, which will include measures to minimize potential safety impacts during the short-term construction phase, when partial lane closures would be required. It will include measures such as construction signage, limitations on timing for lane closures to avoid peak hours, temporary striping plans, and the need for a construction flagperson to direct traffic during heavy equipment use. The TMP will also address the need for notification, signage, and safe detour routes for pedestrians and bicyclists to use when sidewalks and/or bicycle lanes are affected. The TMP will be incorporated into project specifications for verification prior to final plan approval.

b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Less-than-Significant Impact. CEQA Guidelines stipulate that, beginning in July 2020, lead agencies (such as the City of Irvine), must conduct a CEQA transportation analysis in conformance with SB 743 and directs that measures of vehicle congestion and delay are no longer accepted as environmental impacts. In June 2020, the City of Irvine updated its *Traffic Study Guidelines* (City of Irvine 2020a) and adopted VMT as the metric for analyzing impacts under CEQA, in accordance with SB 743. The City of Lake Forest similarly updated their *CEQA Significance Threshold Guide* (City of Lake Forest 2020) in July 2020. VMT represents the total travel on the roadway system and is typically calculated using a traffic model. The City of Irvine's traffic-study guidelines indicate that the Irvine Transportation Analysis Model is the preferred methodology to calculate VMT.

The methodology for evaluating transportation projects, such as an intersection improvement, looks at the total VMT in the Built-Out Without-Project and With-Project scenarios, based on the City of Irvine's current version of the traffic model at the time of analysis of the Proposed Project. The difference between With- and Without-Project VMT is the VMT attributable to the Proposed Project. A project that results in no net-percentage increase in the total regional VMT also results in having no significant impact, and therefore does not require mitigation.

For transportation projects that significantly increase roadway capacity, induced travel also needs to be assessed. However, the analysis would only be performed for a subset of capacity increasing projects. According to the *SB 734 Technical Advisory* (OPR 2020), and subsequently incorporated in the *Traffic Study Guidelines* (City of Irvine 2020a, p. 99), "projects that would not likely lead to a substantial or measurable increase in vehicle travel, that generally should not require an induced travel analysis, include:

- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left-turn lanes, or emergency breakdown lanes that are not utilized as through lanes."

Because the Bake Parkway/Jeronimo Road intersection improvements would consist only of turn-lane improvements, there would be no change in traffic volumes or VMT between the With- and Without-Project conditions. Therefore, impacts would be considered less than significant in this regard.

Mitigation Measures*:* No mitigation is required.

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

Less-than-Significant Impact with Mitigation Incorporated. Based on the nature of the proposed improvements, the Proposed Project is not anticipated to result in long-term impacts pertaining to design features. However, the Proposed Project has the potential to result in safety hazards during the short-term construction process. As discussed in section 4.17(a), although Bake Parkway and Jeronimo Road would remain open to traffic at all times, partial lane closures may be required in order to construct the proposed improvements. During periods when partial lane closures are required, the City of Irvine would be required to implement a TMP to minimize congestion and safety impacts during the construction process. Mitigation Measure TR-1 would require that the TMP meet City of Irvine traffic-control guidelines and would include potential measures, such as construction signage, limitations on timing for lane closures to avoid peak hours, temporary striping plans, and the need for a construction flagperson to direct traffic during heavy-equipment use, among others. The TMP would provide congestion relief during short-term construction activities and ensure safe travel for all modes of transportation. Thus, with implementation of Mitigation Measure TR-1, impacts pertaining to design-feature hazards would be reduced to less-than-significant levels.

Mitigation Measures*:* Refer to Mitigation Measure TR-1.

d) Result in inadequate emergency access?

Less-than-Significant Impact with Mitigation Incorporated. During short-term construction, Bake Parkway and Jeronimo Road would remain open to traffic; although a partial lane closure may be required, any impact would be temporary in nature, and emergency access would be maintained. Additionally, implementation of Mitigation Measure TR-1 would ensure that impacts in this regard would be further reduced. Thus, less than significant short-term and operational impacts would result with implementation of Mitigation Measure TR-1.

Mitigation Measures*:* Refer to Mitigation Measure TR-1.

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4.18 TRIBAL CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
1) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				✓
2) A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code section 5024.1, the Lead Agency will consider the significance of the resource to a California Native American tribe.		✓		

As of July 1, 2015, California AB 52 was enacted, expanding CEQA by establishing a formal consultation process for California tribes within the CEQA process. AB 52 specifies that any project that may affect or cause a substantial adverse change in the significance of a Tribal Cultural Resource (TCR) would require a Lead Agency to "begin consultation with a California Native American tribe that is traditional and culturally affiliated with the geographic area of the Proposed Project." AB 52 section 21074 also defines TCRS as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are either listed on or eligible for the CRHR or a local historic register, or if the Lead Agency chooses to treat the resource as a TCR.

On February 19, 2016, the California Natural Resources Agency proposed to adopt and amend regulations as part of AB 52 implementing CCR Title 14, Division 6, Chapter 3, *CEQA Guidelines*, to include consideration of impacts on TCRs pursuant to Government Code Section 11346.6. On September 27, 2016, the California Office of Administrative Law approved the amendments to CEQA Guidelines Appendix G, and these amendments were addressed within this Initial Study.

On March 30, 2022, the NAHC was contacted to request a search of its Sacred Lands File (SLF). The NAHC responded on May 12, 2022, stating that the SLF search was negative and providing a list of Native American tribes who may have knowledge of cultural resources in the Proposed Project area. On May 18, 2022, in compliance with AB 52, the City of Irvine distributed letters to representatives of the 13 NAHC-identified Native American tribes, inviting them to participate in AB 52 consultation for the Proposed Project. The Native American tribes had 30 days to respond to the City's request for consultation. During this time, the San Gabriel Band of Mission Indians – Kizh Nation (Kizh Nation) responded to the letter and requested consultation under AB 52. No other Native American tribes responded.

a) Would the Proposed Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

No Impact. The SCCIC's CHRIS records search conducted for the Proposed Project consisted of a search of archaeological and historical records and covered the Proposed Project site and a 0.5-mile radius from the Proposed Project boundaries. The record search provided no evidence of any prehistoric or any significant historical archaeological resources within or adjacent to the Proposed Project boundaries. The record search indicated that a total of 25 cultural-resources investigations have been completed previously within a 0.5-mile radius of the Proposed Project site. Of these 25 studies, seven included portions of the Proposed Project site. Other sources consulted include the NRHP, CRHR, CHRIS, CHL, and CPHI, which were negative for historical resources within the Proposed Project area. On April 15, 2022, ICF conducted an intensive-level pedestrian survey, which was also negative for cultural resources. On May 12, 2022, the NAHC conducted an SLF search, which did not identify any reported sacred lands in the Proposed Project area or vicinity.

Based on the results of the background research, SLF search, and archaeological survey, no known historical resources are listed, or eligible for listing, in the CRHR, or in a local register of historical resources, as defined in PRC section 5020.1(k). No impacts would result in this regard.

Mitigation Measures*:* No mitigation is required.

2. A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code section 5024.1, the Lead Agency will consider the significance of the resource to a California Native American tribe.

Less-than-Significant Impact with Mitigation Incorporated. The City of Irvine has been conducting AB 52 consultation with the Kizh Nation. On September 30, 2022, the Kizh Nation sent the City an email that provided information about the Tribe's history, their traditional territory, maps, and excerpts from written sources describing their history and general geographic information about their settlements (Amir Ainechi pers. comm.). The Kizh Nation also submitted proposed mitigation measures to be used in the implementation of the Proposed Project. To date, the City's tribal consultation efforts have not identified significant TCRs that meet the criteria set forth in PRC section 5024.1(c). Consultation between the City and the Kizh Nation will be concluded prior to the City of Irvine adopting the Final Mitigated Negative Declaration for the Proposed Project. The Proposed Project would not have a significant impact on a resource that the City of Irvine determines to be a TCR, as defined in PRC section 21074.

In some cases, unanticipated discoveries of prehistoric resources may result in the identification of a TCR, which can include sites, features, and objects eligible for listing in the CRHR; such resources could be determined by the Lead Agency to be significant per criteria set forth in PRC section 5024.1(c). As in the case with the potential disturbance or destruction of unknown archaeological resources, the Proposed Project could result in disturbance or destruction of currently unknown TCRs, which would be a potentially significant impact. As discussed in section 4.5(b), the potential for encountering known TCRs is low. However, in the event that TCRs are encountered during earth-disturbing activities, all work would be halted in the vicinity of the find (i.e., a minimum of a 50-foot radius) until the a qualified archaeologist can properly evaluate the find (see Mitigation Measure CUL-1). The archaeologist would be required to prepare and complete a standard mitigation program for the recovery and treatment of identified resources. In the event

that Native American resources are discovered, the City of Irvine would consult with a Native American monitor and any affected tribe(s). If the affected tribe(s) request it, the City of Irvine would consult on the discovery and its disposition (e.g., avoidance, preservation, return of artifacts to the appropriate tribe). On implementation of this mitigation measure, potential impacts on unknown TCRs that may underlie the Proposed Project site would be reduced to less-than-significant levels.

***Mitigation Measures**:* Refer to Mitigation Measure CUL-1 in section 4.5, *Cultural Resources*.

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4.19 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			✓	
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			✓	
c. Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				✓
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			✓	
e. Comply with federal, state, and local statutes and regulations related to solid waste?				✓

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less-than-Significant Impact. The Proposed Project consists of roadway improvements at the Bake Parkway/Jeronimo Road intersection, The Proposed Project would not include the construction or expansion of wastewater facilities, though drainage improvements (e.g., stormwater catch basins) would be constructed. The Proposed Project would also include the relocation of five SCE overhead-powerline poles; these relocations would be implemented in accordance with pertinent local and State requirements. Therefore, impacts would be less than significant in this regard.

Mitigation Measures: No mitigation measures are required.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less-than-Significant Impact. The Proposed Project consists of roadway improvements and would not result in significant water use. No habitable structures or other land uses that require the significant use of water are proposed as part of the Proposed Project. The Proposed Project would require irrigation for landscaping; however, it is expected that water consumption would be similar to existing conditions. Impacts would be less than significant.

***Mitigation Measures**:* No mitigation is required.

c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The Proposed Project consists of roadway improvements and would not include the construction of any facilities that generate wastewater. No impacts would occur in this regard.

***Mitigation Measures**:* No mitigation is required.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

***Less-than-Significant Impact*.** The Proposed Project consists of roadway improvements and does not feature any habitable structures that could generate solid waste in the long term or during operations of the Proposed Project. Although the Proposed Project may require the disposal of construction debris during grading and excavation, the generation of solid waste would be minimal (due to the nature of the Proposed Project) and would not have the ability to significantly affect the capacity of local infrastructure. Impacts would be less than significant.

***Mitigation Measures**:* No mitigation is required.

e) Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The Proposed Project would comply with all federal, State, and local statutes and regulations related to solid waste, including the California Integrated Waste Management Act, and all City of Irvine requirements for solid waste generated during construction. No impacts would occur.

***Mitigation Measures**:* No mitigation is required.

4.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?		✓		
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				✓
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			✓	
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				✓

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact with Mitigation Incorporated. Construction activities have the potential to result in temporary, localized disruptions that could lead to an increase in delay times for emergency-response vehicles and disruption of traffic during construction. However, the Proposed Project would include preparation and implementation of a TMP as part of Mitigation Measure TR-1. All routes for emergency-services providers would be maintained during construction, or alternative routes would be provided. All emergency-service providers would be alerted in advance of any temporary road closures, giving them adequate time to make appropriate accommodations and provide prompt emergency-response times that meet the defined service objectives. Therefore, impacts would be less than significant during the construction period with implementation of Mitigation Measure TR-1.

Mitigation Measures*:* Refer to Mitigation Measure TR-1.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. According to the Fire Hazard Severity Zone maps from CAL FIRE (2011), the Proposed Project area is not categorized as a Very High Fire Hazard Severity Zone. The Proposed Project is located in a relatively flat area and would not construct habitable structures. Therefore, no impacts would occur in this regard.

Mitigation Measures*:* No mitigation is required.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less-than-Significant Impact. The Proposed Project includes improvements to existing roadways and does not include the installation or maintenance of new utilities that could exacerbate existing wildfire risks. Existing overhead powerlines would be relocated as part of the Proposed Project; however, relocation of these utilities would be conducted in accordance with pertinent regulatory standards related to utility relocations. Therefore, impacts would be less than significant in this regard.

Mitigation Measures*:* No mitigation is required.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The Proposed Project consists of roadway improvements and would include reconstructing existing drainage facilities (e.g., catch basins) to manage stormwater runoff. Embankments, including fill slopes and side slopes, would be constructed per local standards and requirements. No impacts would occur in this regard.

Mitigation Measures*:* No mitigation is required.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		✓		
b. Does the project have impacts that are individually limited, but cumulatively considerable (*cumulatively considerable* means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		✓		
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		✓		

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated. As shown in section 4.4, *Biological Resources*, the Proposed Project site is surrounded by existing development that has removed natural-plant communities from most of the immediate surrounding area. The proposed improvements would be entirely confined to previously disturbed and/or developed areas. No sensitive plant species were observed on site during the habitat assessment. Because the Proposed Project site no longer supports any native-plant communities and primarily comprises developed, agricultural, and disturbed areas, the Proposed Project site does not provide suitable habitat for any of the identified sensitive plant species, and all are presumed absent. The Proposed Project would not disrupt or have any adverse effects to wildlife movement, nor on any migratory corridors or linkages that may occur in the general vicinity of the Proposed Project site. In addition, on implementation of recommended Mitigation Measures BIO-1 and BIO-2, impacts on biological resources would be less than significant.

Furthermore, as described in section 4.5, *Cultural Resources*, although the potential for encountering archaeological resources is considered low, in the event that archaeological resources are encountered during earth-disturbing activities, all work would be halted immediately in the vicinity of the find (i.e., a minimum of 50-foot radius) until a qualified archaeologist can properly evaluate the resources. Additionally, proposed grading and excavation for the majority of the Proposed Project site is not anticipated to exceed a depth of four 4-feet below ground surface, with deeper excavations required for traffic signals (i.e., approximately 15 feet) and for relocation of existing SCE overhead

powerline poles. Recovery of fossils at the shallow depth of 4 feet is unlikely. It is anticipated that the foundations for the traffic signals and the relocated SCE tower would be drilled/augured. Although fossil fragments may rotate up on the mechanical drill/auger, the specimens would lack context, including depth/elevation, formation identification, and other elements that are critical to scientific significance. As a result, impacts on paleontological resources would be less than significant. To minimize potential impacts in the event of an unanticipated archaeological or cultural resources find, Mitigation Measures CUL-1 and CUL-2 would be incorporated.

With implementation of recommended mitigation, the Proposed Project is not anticipated to eliminate important examples of the major periods of California history or prehistory. Thus, impacts in this regard would be less than significant.

b) ***Does the project have impacts that are individually limited, but cumulatively considerable (*cumulatively considerable *means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?***

Less-than-Significant Impact with Mitigation Incorporated. The Proposed Project consists of components that would improve LOS performance at the Bake Parkway/Jeronimo Road intersection and reduce traffic congestion by adding two turn lanes, providing Class II bicycle lanes, traffic signal modifications, ADA-compliant curb ramps and bus stops, grading, sidewalks, adjustment and/or relocation of existing utilities, landscaping, and the addition of retaining walls. The Proposed Project would not result in substantial population growth within the area, either directly or indirectly. Although the Proposed Project may incrementally affect other resources that were determined to be less than significant, the Proposed Project's contribution to these effects would not be considered cumulatively considerable, in consideration of the relatively nominal impacts of the Proposed Project and mitigation measures provided.

c) ***Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?***

Less-than-Significant Impact with Mitigation Incorporated. The Initial Study reviewed the Proposed Project's potential impacts related to a variety of resource areas, including Air Quality, Geology and Soils, GHGs, Hydrology/Water Quality, Noise, Hazards and Hazardous Materials, Traffic, and Wildfire. As analyzed above, the Proposed Project would result in no impacts, less-than-significant environmental impacts, and less-than-significant environmental impacts with implementation of the recommended mitigation measures. As such, the Proposed Project would not result in direct or indirect environmental impacts that could cause substantial adverse effects on human beings.

4.22 REFERENCES

The following references were utilized during preparation of this Initial Study/Environmental Checklist.

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5.0 INVENTORY OF MITIGATION MEASURES

BIO-1 Nesting Bird Surveys. If vegetation clearing or ground disturbance in areas suitable to support nesting birds (e.g., trees, shrubs, grasses) is to occur during the breeding season for passerine birds (i.e., February 1–September 1) or raptors (i.e., January 1–September 1), the designated biologist will conduct a preconstruction survey of construction areas and an appropriate buffer no more than 72 hours prior to vegetation clearing or ground-disturbance activities to identify the locations of avian nests. Should nests be found, an appropriate buffer will be established by a qualified biologist around each nest site. To the extent feasible, no construction activities will take place within this buffer until the nest is no longer active. In the event that construction must occur within the buffer areas, the designated biologist will ensure construction activities do not disturb or disrupt nesting activities. If the designated biologist determines that construction activities are disturbing or disrupting nesting activities, then they will notify the City. Nesting bird habitat within the BSA will be resurveyed during the breeding bird season if there is a lapse in construction activities longer than 7 days.

BIO-2 If tree trimming or removals are required, then the City of Irvine's Urban Forest Ordinance (§ 5-7-401) and Tree Removal Ordinance (§ 5-7-410) will be adhered to accordingly for any trees requiring removal within the City of Irvine's jurisdiction. Per the ordinance, tree removals require a permit following the City Arborist's criteria, and trees removed will be replaced on a one-for-one ratio either on site in a similar location, on site in a different location, or off site as prescribed in the Urban Forestry Guideline Manual based on the determination of the City Arborist. If Eucalyptus Trees are to be removed within the City of Lake Forest jurisdiction, then the Eucalyptus Tree Conservation Ordinance (Ordinance 171 § 1, 2007) and Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees (Chapter 6-20 and 6-20-035 of the municipal code) will be adhered to accordingly. This ordinance stipulates that if trimming, removals, or transportation of Eucalyptus Trees occurs between April 1st and October 31st, then an application for a permit will be obtained and will include the number and location of the Eucalyptus Tree(s) to be cut, pruned, moved, or removed.

CUL-1 In the event archaeological resources are encountered during earth disturbing activities, the construction contractor will immediately notify the City of Irvine Director of Project Delivery and Sustainability. The City of Irvine will retain a qualified archaeologist to evaluate the find. Work in the vicinity of the find (a minimum of 50-foot radius) will be immediately halted until it can be evaluated by the archaeologist. The archaeologist will prepare and complete a standard mitigation program for the recovery and treatment of identified resources.

In the event Native American resources are discovered, the City of Irvine will consult with a Native American monitor and affected tribe(s). If requested by the affected tribe(s), the City of Irvine will consult on the discovery and its disposition (e.g., avoidance, preservation, return of artifacts to the appropriate tribe, etc.).

CUL-2 In the event that unknown human remains are found, proper treatment in accordance with applicable laws is required. State of California Public Resources Health and Safety Code Section 7050.5-7055 describe the general provisions for human remains. Specifically, Health and Safety Code Section 7050.5 describes the requirements if any human remains are accidentally discovered during excavation of a site. As required by State law, the requirements and procedures set forth in Section 5097.98 of the California PRC would be implemented, including notification of the County Coroner, notification of the NAHC, and consultation with the individual identified by the NAHC to be the "most likely descendant." If human remains are found during excavation, excavation must stop in the vicinity of the find and any area that is reasonably suspected to overlay adjacent remains until the County coroner has been called

out, and the remains have been investigated and appropriate recommendations have been made for the treatment and disposition of the remains. Following compliance with existing State regulations, which detail the appropriate actions necessary in the event human remains are encountered, impacts in this regard would be considered less than significant.

GEO-1 In the event paleontological resources are discovered during earthwork/grading activities, the construction contractor will immediately notify the City of Irvine Director of Project Delivery and Sustainability. The City of Irvine will retain a qualified paleontologist to evaluate the find. Work in the vicinity of the find (a minimum of 50-foot radius) will be halted until it can be evaluated by the paleontologist. The paleontologist will prepare and complete a standard paleontological mitigation plan for the salvage and curation of identified resources.

HAZ-1 Prior to issuance of a grading permit, the Project Engineer will confirm whether any transformers are present onsite and, if proposed for relocation/removal during site disturbance activities, those activities will be conducted under the purview of the local purveyor to identify property-testing/handling procedures regarding PCBs during construction.

HAZ-2 If unknown wastes or suspect materials are discovered during construction by the contractor which they believes may involve hazardous waste/materials, the contractor shall:

- Immediately stop work in the vicinity of the suspected contaminant, removing workers and the public from the area;
- Notify the City of Irvine Director of Project Delivery and Sustainability;
- Secure the areas as directed by the City;
- Notify the implementing agency's Hazardous Waste/Materials Coordinator; and
- Perform remedial activities as required under existing regulatory agency standards.

NOI-1 Prior to initiation of construction, the City of Irvine will ensure that the following measures are incorporated into construction contract documents:

- All construction equipment, fixed or mobile, will be equipped with properly operating and maintained mufflers and other state-required noise-attenuation devices.
- A construction notice will be mailed to residents within a 150-foot radius of the Proposed Project and will indicate the dates and duration of construction activities, as well as provide a City of Irvine staff contact name and a telephone number where residents can inquire about the construction process and register complaints.
- Construction haul routes will be designed to avoid noise sensitive uses (e.g., residences, convalescent homes, etc.).
- During construction, stationary construction equipment will be placed such that emitted noise is directed away from sensitive noise receivers.
- Construction equipment staging areas will be located away from adjacent sensitive receptors.

TR-1 Prior to the initiation of construction, the City of Irvine will prepare a Traffic Management Plan (TMP). The TMP will include measures to minimize potential safety impacts during the short-term construction process, when partial lane closures would be required. It will include measures such as construction signage, limitations on timing for lane closures to avoid peak hours, temporary striping plans, and the need for a construction flagperson to direct traffic during heavy equipment use. The TMP will also address the need for notification, signage, and safe detour routes for pedestrians and bicyclists when sidewalks and/or bicycle lanes are affected. The TMP will be incorporated into project specifications for verification prior to final plan approval.

6.0 CONSULTANT RECOMMENDATION

Based on the information and environmental analysis contained in the Initial Study/Environmental Checklist, we recommend that the City of Irvine prepare a Mitigated Negative Declaration for the Bake Parkway/Jeronimo Road Intersection Improvements Project. We find that the Proposed Project could have a significant effect on a number of environmental issues, but that mitigation measures have been identified to reduce such impacts to a less-than-significant level. We recommend that the second category be selected for the City's determination (see section 7.0, *Lead Agency Determination*).

11/30/2023
Date

COURT MORGAN
Environmental Project Manager
ICF Jones & Stokes, Inc.

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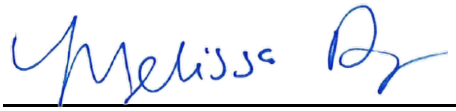
7.0 LEAD AGENCY DETERMINATION

On the basis of this initial evaluation:

The City of Irvine finds that the proposed use COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
The City of Irvine finds that, although the proposal could have a significant effect on the environment, there would not be a significant effect in this case because the mitigation measures described in section 5.0, *Inventory of Mitigation Measures*, have been added. A MITIGATED NEGATIVE DECLARATION will be prepared.	✓
The City of Irvine finds that the proposal MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	
The City of Irvine finds that the proposal MAY have a significant effect(s) on the environment, but at least one effect: (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	

Signature:	
Title:	Project Development Administrator
Printed Name:	Melissa Dugan, AICP
Agency:	City of Irvine
Date:	11/30/2023

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8.0 MITIGATION MONITORING AND REPORTING PROGRAM

CEQA requires that, when a public agency completes an environmental document that includes measures to mitigate or avoid significant environmental effects, the public agency must adopt a reporting or monitoring plan. This requirement ensures that environmental impacts found to be significant would be mitigated. The reporting or monitoring plan must be designed to ensure compliance during project implementation (PRC § 21081.6).

In compliance with PRC section 21081.6, this Mitigation Monitoring and Reporting Program has been prepared for the Proposed Project. This Mitigation Monitoring and Reporting Program is intended to provide verification that all mitigation measures identified in the Initial Study prepared for the Proposed Project are monitored and reported. Monitoring would include: (1) verification that each mitigation measure has been implemented; (2) recordation of the actions taken to implement each mitigation; and (3) retention of records in the project file.

This Mitigation Monitoring and Reporting Program delineates responsibilities for monitoring the Proposed Project, but also allows the City of Irvine flexibility and discretion in determining how best to monitor implementation. Monitoring procedures would vary according to the type of mitigation measure. Adequate monitoring would consist of demonstrating that monitoring procedures took place and that mitigation measures were implemented.

Reporting consists of establishing a record that a mitigation measure is being implemented and generally involves the following steps.

- The City distributes reporting forms to the appropriate entities for verification of compliance.
- Departments/agencies with reporting responsibilities review the Initial Study, which provides general background information about the reasons for including specified mitigation measures.
- Problems or exceptions to compliance will be addressed to the City, as appropriate.
- Periodic meetings may be held during project implementation to report on compliance with mitigation measures.
- Responsible parties will provide the City with verification that monitoring has been conducted and ensure, as applicable, that mitigation measures have been implemented. Monitoring compliance may be documented through existing review and approval programs, such as field-inspection reports and plan reviews.
- The City will prepare a reporting form periodically during the construction phase and an annual report summarizing all project mitigation-monitoring efforts.
- Appropriate mitigation measures will be included in construction documents and/or conditions of permits/approvals.

Minor changes to this Mitigation Monitoring and Reporting Program, if required, would be made in accordance with CEQA and permitted after further review and City approval. Such changes could include reassignment of monitoring and reporting responsibilities, plan redesign to make any appropriate improvements, and/or modification, substitution, or deletion of mitigation measures subject to conditions described in CEQA Guidelines section 15162. No change would be permitted as long as the Mitigation Monitoring and Reporting Program continues to satisfy the requirements of PRC section 21081.6.

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Table 8-1-1. Mitigation Monitoring and Reporting Program

Mitigation Number	Mitigation Measure	Monitoring and Reporting Process	Monitoring Milestones	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE		
					Initials	Date	Remarks
BIOLOGICAL RESOURCES							
BIO-1	Nesting Bird Surveys. If vegetation clearing or ground disturbance in areas suitable to support nesting birds (e.g., trees, shrubs, grasses) is to occur during the breeding season for passerine birds (i.e., February 1–September 1) or raptors (i.e., January 1–September 1), the designated biologist will conduct a preconstruction survey of construction areas and an appropriate buffer no more than 72 hours prior to vegetation clearing or ground-disturbance activities to identify the locations of avian nests. Should nests be found, an appropriate buffer will be established by a qualified biologist around each nest site. To the extent feasible, no construction activities will take place within this buffer until the nest is no longer active. In the event that construction must occur within the buffer areas, the designated biologist will ensure construction activities do not disturb or disrupt nesting activities. If the designated biologist determines that construction activities are disturbing or disrupting nesting activities, then they will notify the City. Nesting bird habitat within the BSA will be resurveyed during the breeding bird season if there is a lapse in construction activities longer than 7 days.	Completion of Pre-Construction Clearance Survey for Nesting Birds	Within 3 Days Prior to Initiation of Ground Disturbing Activities	City of Irvine City Engineer; Project Biologist			
BIO-2	If tree trimming or removals are required, then the City of Irvine's Urban Forest Ordinance (§ 5-7-401) and Tree Removal Ordinance (§ 5-7-410) will be adhered to accordingly for any trees requiring removal within the City of Irvine's jurisdiction. Per the ordinance, tree removals require a permit following the City Arborist's criteria, and trees removed will be replaced on a one-for-one ratio either on site in a similar location, on site in a different location, or off site as prescribed in the Urban Forestry Guideline Manual based on the determination of the City Arborist. If Eucalyptus Trees are to be removed within the City of Lake Forest jurisdiction, then the Eucalyptus Tree Conservation Ordinance (Ordinance 171 § 1, 2007) and Regulations Pertaining to Conversion, Maintenance, and Removal of Eucalyptus Trees (Chapter 6-20 and 6-20-035 of the municipal code) will be adhered to accordingly. This ordinance stipulates that if trimming, removals, or transportation of Eucalyptus Trees occurs between April 1st and October 31st, then an application for a permit will be obtained and will include the number and location of the Eucalyptus Tree(s) to be cut, pruned, moved, or removed.	Review of Contract Documents	Prior to Issuance of Grading Permit	City of Irvine City Engineer; Project Biologist			
CULTURAL RESOURCES							
CUL-1	In the event archaeological resources are encountered during earth disturbing activities, the construction contractor will immediately notify the City of Irvine Director of Project Delivery and Sustainability. The City of Irvine will retain a qualified archaeologist to evaluate the find. Work in the vicinity of the find (a minimum of 50-foot radius) will be immediately halted until it can be evaluated by the archaeologist. The archaeologist will prepare and complete a standard mitigation program for the salvage and curation of identified resources. In the event Native American resources are discovered, the City of Irvine will consult with a Native American monitor and affected tribe(s). If requested by the affected tribe(s), the City of Irvine will consult on the discovery and its disposition (e.g., avoidance, preservation, return of artifacts to the appropriate tribe).	Review of Archaeological Plan of Mitigation; During Construction	Prior to Approval of Project Plans and Specifications	City of Irvine Director of Project Delivery and Sustainability; Native American monitor; Construction Contractor			

Mitigation Number	Mitigation Measure	Monitoring and Reporting Process	Monitoring Milestones	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE		
					Initials	Date	Remarks
CUL-2	In the event that unknown human remains are found, proper treatment in accordance with applicable laws is required. State of California Public Resources Health and Safety Code Section 7050.5-7055 describe the general provisions for human remains. Specifically, Health and Safety Code Section 7050.5 describes the requirements if any human remains are accidentally discovered during excavation of a site. As required by State law, the requirements and procedures set forth in Section 5097.98 of the California PRC would be implemented, including notification of the County Coroner, notification of the NAHC, and consultation with the individual identified by the NAHC to be the "most likely descendant." If human remains are found during excavation, excavation must stop in the vicinity of the find and any area that is reasonably suspected to overlay adjacent remains until the County coroner has been called out, and the remains have been investigated and appropriate recommendations have been made for the treatment and disposition of the remains. Following compliance with existing State regulations, which detail the appropriate actions necessary in the event human remains are encountered, impacts in this regard would be considered less than significant	During Construction	During Construction, Excavation and Other Construction Activity	City of Irvine Director of Project Delivery and Sustainability; NAHC; Construction Contractor			
GEOLOGY AND SOILS							
GEO-1	In the event paleontological resources are discovered during earthwork/grading activities, the construction contractor will immediately notify the City of Irvine Director of Project Delivery and Sustainability. The City of Irvine will retain a qualified paleontologist to evaluate the find. Work in the vicinity of the find (a minimum of 50-foot radius) will be halted until it can be evaluated by the paleontologist. The paleontologist will prepare and complete a standard paleontological mitigation plan for the salvage and curation of identified resources.	During Construction	During Construction, Excavation and Other Construction Activity	City of Irvine Director of Project Delivery and Sustainability; Construction Contractor			
HAZARDS AND HAZARDOUS MATERIALS							
HAZ-1	Prior to issuance of a grading permit, the Project Engineer will confirm whether any transformers are present onsite and, if proposed for relocation/removal during site disturbance activities, those activities will be conducted under the purview of the local purveyor to identify property-testing/handling procedures regarding PCBs during construction.	Site Characterization Investigation	Prior to Issuance of a Grading Permit	City of Irvine City Engineer; Construction Contractor			
HAZ-2	If unknown wastes or suspect materials are discovered during construction by the contractor which they believes may involve hazardous waste/materials, the contractor shall: • Immediately stop work in the vicinity of the suspected contaminant, removing workers and the public from the area; • Notify the City of Irvine Director of Project Delivery and Sustainability; • Secure the areas as directed by the City; • Notify the implementing agency's Hazardous Waste/Materials Coordinator; and • Perform remedial activities as required under existing regulatory agency standards.	During Construction	If Unknown Wastes or Suspect Materials are Discovered	City of Irvine Director of Project Delivery and Sustainability; Construction Contractor			

Mitigation Number	Mitigation Measure	Monitoring and Reporting Process	Monitoring Milestones	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE		
					Initials	Date	Remarks
NOISE							
NOI-1	Prior to initiation of construction, the City of Irvine will ensure that the following measures are incorporated into construction contract documents: • All construction equipment, fixed or mobile, will be equipped with properly operating and maintained mufflers and other state-required noise-attenuation devices. • A construction notice will be mailed to residents within a 150-foot radius of the Proposed Project and will indicate the dates and duration of construction activities, as well as provide a City of Irvine staff contact name and a telephone number where residents can inquire about the construction process and register complaints. • Construction haul routes will be designed to avoid noise sensitive uses (e.g., residences, convalescent homes, etc.). • During construction, stationary construction equipment will be placed such that emitted noise is directed away from sensitive noise receivers. • Construction equipment staging areas will be located away from adjacent sensitive receptors.	Review of Construction Contract Documents; Construction Inspections	Prior to Construction; During Construction	City of Irvine City Engineer			
TRANSPORTATION/TRAFFIC							
TR-1	Prior to the initiation of construction, the City of Irvine will prepare a Traffic Management Plan (TMP). The TMP will include measures to minimize potential safety impacts during the short-term construction process, when partial lane closures would be required. It will include measures such as construction signage, limitations on timing for lane closures to avoid peak hours, temporary striping plans, and the need for a construction flagperson to direct traffic during heavy equipment use. The TMP will also address the need for notification, signage, and safe detour routes for pedestrians and bicyclists when sidewalks and/or bicycle lanes are affected. The TMP will be incorporated into project specifications for verification prior to final plan approval.	Review and Approval of Traffic Management Plan	Prior to Construction; During Construction	City of Irvine City Engineer			