Final Environmental Impact Report
VOLUME I

BARTON PLACE

City of Cypress, California

SCH No. 2015031004

Prepared by

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October 2015

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DRAFT

ENVIRONMENTAL IMPACT REPORT

BARTON PLACE PROJECT

CITY OF CYPRESS

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
µm	microns
AAQS	ambient air quality standards
AB	Assembly Bill
ADA	Americans with Disabilities Act
afy	acre-feet per year
Amended Specific Plan	*Amended and Restated Cypress Business & Professional Center Specific Plan*
AMI	area median income
amsl	above mean sea level
APA	American Planning Association
AQMP	Air Quality Management Plan
ATCM	Airborne Toxic Control Measure
Basin Plan	Santa Ana RWQCB's Water Quality Control Plan
BAU	Business-As-Usual
bgs	below ground surface
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CalARP	California Accidental Release Program
CalEEMod	California Emission Estimator Model
Cal/EPA	California Environmental Protection Agency

Cal/OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
City	City of Cypress
CIWMP	Countywide Integrated Waste Management Plan
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon monoxide
Commission	California Fish and Game Commission
County	County of Orange
CPT	cone penetrometer test
CSULB	California State University, Long Beach
CTR	California Toxics Rule
CWA	Clean Water Act

DAMP	Drainage Area Management Plan
DDT	dichlorodiphenyltrichloroethane
DPM	diesel particulate matter
DU	dwelling unit(s)
EIR	Environmental Impact Report
EMFAC	EMission FACtor model
ºF	degrees Fahrenheit
FAR	floor area ratio
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FICON	Federal Interagency Committee on Noise
FIRM	Federal Insurance Rate Map
FTE	full-time equivalent
g	acceleration due to gravity
GHG	greenhouse gas
gpm	gallons per minute
GSWC	Golden State Water Company
gWh	gigawatt-hours
H_2S	hydrogen sulfide
HA	Hydrologic Area
HCD	Department of Housing and Community Development
HCP	Habitat Conservation Plan
HOA	homeowners' association
HSA	Hydrologic Subareas

HU	hydrologic unit
I-405	Interstate 405
I-605	Interstate 605
ICU	Intersection Capacity Utilization
JFTB	Joint Forces Training Base
JTU	Jackson turbidity units
kBTU	Kilo British Thermal Units
lbs/day	pounds per day
LID	Low Impact Development
LIP	Local Implementation Plan
LOS	level of service
LST	Localized Significance Threshold
MATES-III	Multiple Air Toxics Exposure Study
MBAS	methylene-blue activated substances
MBTA	Migratory Bird Treaty Act
MBTE	methyl tertiary butyl ether
MEP	maximum extent practicable
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
mgd	million gallons per day
mL	milliliters
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MT	metric tons

MWDOC	Municipal Water District of Southern California
N	nitrogen
NAAQS	national ambient air quality standards
NCCP	Natural Community Conservation Plan
ng/L	nanograms per liter
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_3	nitrate
NOI	Notice of Intent
NOP	Notice of Preparation
NOP/IS	Notice of Preparation/Initial Study
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity units
O_3	ozone
OCFA	Orange County Fire Authority
OCPL	Orange County Public Libraries
OCFCD	Orange County Flood Control District
OCSD	Orange County Sanitation District
OCTA	Orange County Transit Authority
OCWD	Orange County Water District
OCWR	Orange County Waste and Recycling
OFFROAD	Off-road Emissions Inventory Program model
OSHA	Occupational Safety and Health Administration

P.A.C.E.	Positive Actions thru Character Education
PCB	polychlorinated biphenyls
pc/mi/ln	passenger cars per lane per mile
pCi/L	picocuries per liter
PGA	peak ground acceleration
pH	percentage of hydrogen
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1970
ppb	parts per billion
ppm	parts per million
PRC	California Public Resources Code
project	Barton Place Project
PVC	polyvinyl chloride
PWQMP	*Preliminary Water Quality Management Plan*
ROG	reactive organic gas
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCCIC	South Central Coastal Information Center

SCH	State Clearinghouse
SCS	Sustainable Communities Strategy
sf	square foot/feet
SHMA	Seismic Hazard Mapping Act
SIP	State Implementation Plan
SMP	Senior Mobility Program
SO_2	sulfur dioxide
SO_X	sulfur oxides
SoCalGas	Southern California Gas Company
SR-22	State Route 22
SR-39	State Route 39
SR-55	State Route 55
SRRE	source reduction and recycling element
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TDS	total dissolved solids
TGD	Technical Guidance Document
TMDL	Total Maximum Daily Load
tpd	tons per day
TSS	total suspended solids
U.S. Census Bureau	United States Bureau of the Census
USACE	United States Army Corps of Engineers
USC	United States Code

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VC	vinyl chloride
VMT	vehicle miles traveled
VOC	volatile organic compounds
WestComm	West Cities Police Communications Center
WQMP	Water Quality Management Plan
WSA	Water Supply Assessment
YTD	year-to-date

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that local government agencies, before taking action on a project over which they have discretionary approval authority, consider the environmental consequences of that project. An environmental impact report (EIR) is a public document designed to provide both the public and local and State governmental agency decision-makers with an analysis of potential environmental consequences to support informed decision-making.

This Draft EIR has been prepared by the City of Cypress (City) to analyze the potential environmental impacts of the proposed Barton Place Project (Project), discuss alternatives to the proposed Project, and propose feasible mitigation measures for identified potentially significant impacts that would reduce or avoid those environmental impacts. Data for this Draft EIR was obtained from the project applications, onsite field observations, discussion with affected agencies, review of adopted plans and policies, review of available studies and reports, and specialized environmental assessments prepared for the proposed Project.

1.2 SUMMARY OF PROJECT DESCRIPTION

The project site includes approximately 33 acres of land and is located at the northeast corner of Katella Avenue and Enterprise Drive in the southwestern portion of the City, which itself is located in the northwestern portion of Orange County (County). The project site is bordered on the south by Katella Avenue, on the west by Enterprise Drive and Cottonwood Church, on the east by a small two-story church and a four-story Residence Inn Hotel, and on the east and north by portions of the Los Alamitos Race Course.

The proposed mixed-use Project includes two main components: a senior residential community and commercial/retail uses along Katella Avenue. The senior residential community would be developed on approximately 28 acres on the northern portion of the project site. The proposed commercial/retail improvements would be developed on an approximately 5-acre parcel on the southern portion of the project site.

1.2.1 Senior Residential Community

The senior residential community would include 244 dwelling units on approximately 28 acres, which would equate to a density of approximately 8.7 dwelling units per acre. The units would be for-sale and would include a mix of approximately 152 single-family detached units and approximately 92 single-family attached units (i.e., paired units) in one- and two-story configurations. The proposed residential units would be independent living units and require a qualified occupant 55 years of age or older.

An amenity center would be located on approximately 1 acre of common area and would include a community clubhouse, a fitness room, a pool, a spa, an outdoor fireplace, and barbeque and gathering areas. The community would also include guest parking areas, landscaped parkways, small pocket parks, and pedestrian access to the adjacent commercial/retail uses. The community would be gated with private streets and all common areas, amenities, and streets would be managed and maintained by a homeowners' association.

Vehicular access to the community would be provided by two gated entrances on Enterprise Drive. The main entry/exit would be near the northwest corner of the project site and would provide the primary entrance and exit for all residents and visitors of the senior residential community. A second private drive would provide access for emergency vehicles only.

1.2.2 Commercial/Retail Improvements

The proposed commercial/retail improvements would be developed on an approximately 5-acre parcel on the southern portion of the project site along the Katella Avenue frontage and would include approximately 47,876 square feet of space. The commercial/retail space would be divided into five buildings. The proposed commercial/retail uses would include neighborhood-serving restaurants, retail stores, and other commercial uses.

Access to the commercial/retail area would be provided by two new driveways on Katella Avenue and a third new driveway on Enterprise Drive. The proposed driveway exits would be controlled by stop signs. Circulation within the commercial/retail area would be provided by two-way drive aisles on the surface parking lot. Pedestrian access for the commercial/retail area would be provided by existing sidewalks along Katella Avenue and Enterprise Drive.

See Chapter 3.0, Project Description, for a complete description of the project components.

1.3 SIGNIFICANT UNAVOIDABLE IMPACTS

Section 15126.2(b) of the *California Environmental Quality Act Guidelines* (*CEQA Guidelines*) requires that an EIR describe significant environmental impacts that cannot be avoided if the proposed project is implemented, including those effects that can be mitigated, but not reduced to a less than significant level. As determined in this Draft EIR, implementation of the proposed Project would not result in any significant and unavoidable adverse impacts. All potentially significant impacts have been effectively mitigated to a less-than-significant level.

1.4 ALTERNATIVES

The following three alternatives to the proposed Project were selected for consideration, including the No Project Alternative as required by CEQA:

- **Alternative 1:** No Project/No Build Alternative
- **Alternative 2:** Reduced Density Alternative
- **Alternative 3:** All-Residential Alternative

The alternatives analysis is set forth in Chapter 5.0, Alternatives.

1.5 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

Pursuant to *CEQA Guidelines* Section 15123, this Draft EIR acknowledges the areas of controversy and issues to be resolved that are known to the City or that were raised during the scoping process. Major issues and concerns raised at the scoping meeting held on March 16, 2015, and comments submitted in writing during the Notice of Preparation (NOP) process (see Appendix A) included concerns related to: (1) traffic circulation and congestion; (2) the Migratory Bird Treaty Act (MTBA); (3) the groundwater table as it relates to project construction and operation; (4) the availability of water during construction activities; (5) the amount of public open space included in the proposed project; (6) the presence of a potential wetland resource on the project site; (7) noise from nearby racetrack operations; (8) the adequate capacity of existing storm drains and offsite channels to carry storm water from the proposed project; (9) greenhouse gas analyses to be prepared for the proposed project; and (10) the need to analyze the current and projected capacities of local streets and State highways.

1.6 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental topics addressed in this Draft EIR include aesthetics; air quality; biological resources; geology and soils; greenhouse gas emissions; hydrology and water quality; noise; population; public services, utilities, and energy use; recreation; and transportation/traffic. Table 1.A identifies the potentially significant environmental impacts associated with the proposed Project, the recommended mitigation measures with respect to those potentially significant environmental impacts, and the level of significance with the implementation of those mitigation measures (and related regulatory compliance measures and project design features), compliance with which would ensure that the identified environmental impacts would be less than significant. Table 1.B describes regulatory compliance measures applicable to the proposed Project. The regulatory compliance measures described in Table 1.B and the environmental analyses in Chapter 4.0, Environmental Impact Analysis, are not mitigation measures and are not intended to mitigate any significant environmental impacts associated with the proposed Project.

Please see Section 2.0, Introduction, of this Draft EIR for a discussion of environmental impacts that the Initial Study (Appendix A) determined were clearly insignificant and unlikely to occur, including agriculture resources, cultural resources, hazards and hazardous materials, land use and planning, and mineral resources, as well as certain environmental impacts related to aesthetics, air quality, biological resources, geology, hydrology, noise, population and housing, public services, transportation/traffic, and utilities.

Table 1.A: Summary of Potentially Significant Environmental Impacts, Mitigation Measures, and Level of Significance

Potentially Significant Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
4.3: BIOLOGICAL RESOURCES		
Threshold 4.3.4: 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.** The proposed Project would have no impact on the nests of migratory birds or raptors (which are migratory birds) if the existing trees in the approximately 1.5-acre ornamental vegetation area are removed outside the avian/raptor nesting season (migratory birds - February 1 to August 31 and raptors - February 1 to June 30). No bird nests were detected in any of the onsite ornamental trees or four offsite ornamental trees (blue gum eucalyptus) located adjacent to the project site. Therefore, based on current conditions, the proposed Project would not affect any migratory birds and its impact on migratory birds or raptors would be less than significant. However, the proposed Project has the potential to impact active migratory bird nests if and to the extent those trees are removed during the nesting season and special-status or common species of birds establish nests in any of those ornamental trees prior to their removal. Mitigation Measures 4.3.1 and 4.3.2 would mitigate any impact to nesting migratory birds and raptors should it be necessary to conduct vegetation removal during the avian/raptor nesting season and nests are present. With implementation of Mitigation Measures 4.3.1 and 4.3.2, the proposed Project's potential impacts on nesting migratory birds and raptors would be less than significant.	**Mitigation Measure 4.3.1: Nesting Migratory Birds.** If and to the extent practicable, vegetation removal should be conducted outside the avian nesting season (February 1 through August 31). If and to the extent avoidance of the avian nesting season is not practicable, then a qualified biologist shall conduct a nesting bird survey within 3 days prior to the commencement of grading activity. If active nests are identified, the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests. **Mitigation Measure 4.3.2: Nesting Raptors.** If and to the extent practicable, vegetation removal should be conducted outside of the raptor nesting season (February 1 through June 30). If and to the extent avoidance of the raptor nesting season is not practicable, then a qualified biologist will conduct a survey within 3 days prior to the commencement of grading activity to determine whether nesting raptors are present. If no breeding raptors are present, no additional survey is required. If active nests are identified, the biologist shall (1) establish appropriate buffers that consider the ecology of the species present and the location of grading activities to ensure that disruption of nesting does not occur, and (2) visit the project site bi-weekly to ensure that no impacts to the nesting raptors occur. The biologist will have the discretion to adjust the buffers (i.e., increase or decrease them) based on the monitoring results.	Less than Significant.
Cumulative Biological Resource Impacts. **Less than Significant Impact with Mitigation Incorporated.** The identified related projects include the removal of trees or shrubs where raptors and other migratory and nesting bird species protected by the	Refer to **Mitigation Measures 4.3.1** and **4.3.2**.	Less than Significant.

Table 1.A: Summary of Potentially Significant Environmental Impacts, Mitigation Measures, and Level of Significance

Potentially Significant Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
MBTA and California Fish and Game Code could potentially nest. Similar to the proposed Project, the related projects would be required to comply with the applicable MBTA and CDFW regulations. With the implementation of Mitigation Measures 4.3.1 and 4.3.2, the contribution of the proposed Project's impact on migratory and nesting birds, when considered in conjunction with the related projects, would not be cumulatively considerable.		
4.4: GEOLOGY AND SOILS		
Threshold 4.4.1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: **ii) Strong seismic ground shaking.** **Less than Significant Impact with Mitigation Incorporated.** The project site is subject to strong ground motion resulting from earthquakes on nearby faults. The severity of the shaking would be influenced by the magnitude of the earthquake, the distance of the project site to the seismic source, the soil conditions, the depth to groundwater, and the duration of the seismic event. This seismic shaking is considered a potentially significant act that may affect people or structures associated with the proposed Project. Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations of the final geotechnical assessment for the Project, which stipulates appropriate seismic design provisions that shall be implemented with project design and construction. Mitigation Measure 4.4.1 requires confirmation of the appropriateness and effectiveness of the recommendations in addressing the geotechnical and soils concerns based on the final design and specifications for the proposed Project and, as needed, modifications to those recommendations. The proposed Project would adhere to the City's Building Code, including the seismic standards therein as indicated in Regulatory Compliance Measure GEO-1. With the implementation of Mitigation Measure 4.4.1 and adherence to the regulatory standards described in Regulatory Compliance Measure GEO-1, potential project impacts related to seismic ground shaking would be reduced to a less than significant level.	**Mitigation Measure 4.4.1: Compliance with the Recommendations in the Project Geotechnical Assessment.** Prior to the issuance of a grading permit, the project applicant shall submit a final geotechnical assessment, subject to review and approval by the City Engineer, or designee, indicating that design, grading, and construction shall be performed in accordance with the then-applicable requirements of the City's Municipal Code, the requirements of the project geotechnical consultant set forth in the final geotechnical assessment, and the following requirements: 1. For the area represented by CPT-1 where the maximum estimated liquefaction-induced total settlement is 4.5 inches, employ a polymer geogrid-reinforced soil zone beneath the residential structures in conjunction with a post-tensioned slab or strengthened concrete mat foundation to address potential liquefaction-induced total settlement. Conduct appropriate remedial grading, including excavation and recompaction of near-surface soils, together with a post-tensioned or strengthened mat foundation, to address potential surface manifestation of liquefaction. 2. To address potential unstable soil in the area of CPT-8, reduce building foundation loadings, pre-compress the soils using a temporary soil surcharge prior to construction, implement a localized ground	Less than Significant.

Table 1.A: Summary of Potentially Significant Environmental Impacts, Mitigation Measures, and Level of Significance

Potentially Significant Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
	improvement program such as compaction grouting, stone columns, or construction of a polymer geogrid-reinforced soil zone, or bypass the potentially compressible soils by means of a deep foundation system (such as caissons or driven piles), as determined in the final geotechnical assessment.	
Threshold 4.4.1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: **iii) Seismic-related ground failure, including liquefaction.** **Less than Significant Impact with Mitigation Incorporated.** **Liquefaction-Induced Total Settlement.** There is potential for liquefaction on the project site. Based on the results of the Geotechnical Assessment, the maximum estimated dynamic free-field total settlement was calculated and is well within the commonly accepted limitations of structural mitigation. This limit was only exceeded in one area of exploration, where approximately 4.5 inches of liquefaction-induced total settlement is predicted. The predicted liquefaction-induced total settlement with respect to most of the project site would be addressed by incorporating post-tensioned and/or strengthened concrete mat-type foundation systems into the design of the project buildings (Project Design Feature GEO-1). With the incorporation of Project Design Feature GEO-1, the potential adverse effects of liquefaction-induced total settlement would be less than significant throughout most of the project site, except that the predicted liquefaction-induced settlement in the area represented by CPT-1 (in the northwestern corner of the project site), where a portion of the senior residential community would be developed, would exceed 4 inches and therefore require mitigation. Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations in the final geotechnical assessment, which outlines specific recommendations (including ground improvement or soil reinforcement) to reduce the predicted liquefaction-induced settlement level on the northwestern corner of the project site to 4 inches or less. With the implementation of Mitigation Measure 4.4.1, the	Refer to **Mitigation Measure 4.4.1**	Less than Significant.

Table 1.A: Summary of Potentially Significant Environmental Impacts, Mitigation Measures, and Level of Significance

Potentially Significant Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
proposed Project's impact with respect to liquefaction-induced total settlement would be less than significant. **Surface Manifestation of Liquefaction.** The project site is subject to surface manifestation of liquefaction, which could cause the foundations of the project buildings to lose a portion of their available bearing capacity during a strong seismic event. The post-tensioned concrete foundation systems that are included as Project Design Feature GEO-1 would provide an added degree of rigidity over what would typically be afforded by a conventionally reinforced foundation. The design of the foundation systems would be required to comply with applicable State and local laws and ordinances, including Chapter 16, Structural Design, of the CBC, as adopted by the City in its Municipal Code (Regulatory Compliance Measure GEO-1). Although the incorporation of strengthened foundation designs in compliance with applicable State and local laws and ordinances would reduce the proposed Project's impact related to surface manifestation of liquefaction, such impact would remain potentially significant. Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations in the final geotechnical assessment, including remedial grading, to reduce the proposed Project's impact related to surface manifestation of liquefaction. Remedial grading would include excavation and recompaction of near-surface soils. In order to provide adequate support for the proposed new engineered fills, structural foundations, and exterior site improvements, the existing ground surfaces should be over-excavated and the excavated material replaced as properly compacted, engineered fill. With implementation of Mitigation Measure 4.4.1, the proposed Project's impact with respect to surface manifestation of liquefaction would be less than significant.		
Threshold 4.4.3: 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. **Less than Significant Impact with Mitigation Incorporated.** During the subsurface investigation of the project site, soft and potentially	Refer to **Mitigation Measure 4.4.1**.	Less than Significant.

Table 1.A: Summary of Potentially Significant Environmental Impacts, Mitigation Measures, and Level of Significance

Potentially Significant Environmental Impact	Mitigation Measures	Level of Significance After Mitigation
compressible soils were identified in the southwest corner of the project site (in the area of CPT-8) at a level generally below the present groundwater levels. Subsidence due to consolidation of compressible subsurface soils may exceed local design tolerances of the proposed commercial buildings and associated exterior improvements. With the implementation of Mitigation Measure 4.4.1, the incorporation of Project Design Feature GEO-1 and adherence to the regulatory standards described in Regulatory Compliance Measure GEO-1, the proposed Project's impact with respect to liquefaction-induced total settlement and surface manifestation of liquefaction would be less than significant. Provided that design and remedial grading, ground improvement (as necessary), and design of building foundation systems are performed in accordance with the applicable requirements in the CBC (adopted by the City as its Building Code with certain amendments), current standards of practice in the area, and the site-specific recommendations to be provided in the comprehensive design-phase geotechnical report, excessive settlement resulting from compression of existing undocumented fill and low-density native alluvial soils on the project site (except in the area of exploration point CPT-8) would be reduced to a less than significant level. With respect to the area of CPT-8, Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations in the Geotechnical Assessment. With implementation of Mitigation Measure 4.4.1, the proposed Project's impact with respect to unstable soils in the area of CPT-8 would be less than significant.		

MBTA = Migratory Bird Treaty Act

Table 1.B: Summary of Regulatory Compliance Measures

Regulatory Compliance Measures	
4.1: AESTHETICS	
Regulatory Compliance Measure AES-1	**Lighting.** Project lighting shall meet all applicable lighting standards in the Cypress Zoning Ordinance. As required by Section 3.11.060.B (Exterior Features) of the Zoning Ordinance, the level of parking lot light projected onto any ground or wall surface shall not be more than 5 footcandles at the base of the light fixture and building-mounted decorative lights shall not exceed 5 footcandles measured 5 feet from the light source. In accordance with Section 3.11.060.C (Security Lighting), security lighting shall provide a maximum of 3 footcandles at the ground level of the project entrances. Pursuant to Section 3.11.060.D (Shielding of Light Source), where a project light source is visible from outside the project boundary (other than public street lighting), the light source shall be shielded to reduce glare so that neither the light source nor its image from a reflective surface shall be directly visible from any point beyond the property line. Finally, as required by Section 3.14.050.C.4 (Required Improvements for Off-Street Parking Areas), the level of parking lot light shall not exceed 1 footcandle at the boundaries of the project site.
4.2: AIR QUALITY	
Regulatory Compliance Measure AQ-1	**Idling of Commercial Vehicles.** The project applicant shall comply with the applicable provisions of Section 2485 of Title 13, Chapter 10, of the California Code of Regulations, which limit idling of diesel-fueled vehicles.
Regulatory Compliance Measure AQ-2	**SCAQMD Rule 403.** The project applicant shall implement fugitive dust control measures in compliance with South Coast Air Quality Management District (SCAQMD) Rule 403 during construction. The project applicant shall include in construction contracts the fugitive dust control measures for SCAQMD Rule 403 compliance, with construction controls being at least as effective as the following: • Apply water three times daily to all unpaved parking or staging areas, unpaved road surfaces, and active construction areas; • Maintain soil stabilization of inactive construction areas with exposed soil via water, non-toxic soil stabilizers, or replaced vegetation; • Minimize track-out emissions by covering all haul trucks or maintaining at least 6 inches of freeboard; • Suspend earthmoving operations or increase watering to meet Rule 403 criteria if winds exceed 25 miles per hour (mph); and • Limit vehicle speeds to 15 mph or less in staging areas and on project haul roads.
Regulatory Compliance Measure AQ-3	**SCAQMD Rule 1113.** The project applicant shall comply with SCAQMD Rule 1113 limiting the volatile organic compound (VOC) content of architectural coatings.
Regulatory Compliance Measure AQ-4	During construction, the project applicant shall ensure that United States Environmental Protection Agency (USEPA) Tier 2 or above certified construction equipment for the grading phases (i.e., scrapers, dozers, and tractors/loaders/backhoes) will be used.
Regulatory Compliance Measure NRG-1	**Title 24.** The project applicant shall comply with the applicable provisions of the 2013 Building Energy Efficiency Standards (Title 24).

Table 1.B: Summary of Regulatory Compliance Measures

Regulatory Compliance Measures	
4.4: GEOLOGY AND SOILS	
Regulatory Compliance Measure GEO-1	Compliance with Seismic and Building Standards in Building Code. Prior to issuance of the first building permit for the proposed buildings, the City Engineer, Building Official, or their designee, and the project soils engineer shall review the building plans to verify that the structural design conforms to the requirements of the Geotechnical Assessment and the City's Building Code. Structures and retaining walls shall be designed in accordance with and applicable sections of the City's Building Code.
4.5: GREENHOUSE GAS EMISSIONS	
Regulatory Compliance Measure GHG-1	The proposed Project would comply with applicable California Green Building Standards to reduce indoor potable water use by using water-saving fixtures and/or flow restrictors and would reduce outdoor water use by installing a high-efficiency irrigation system.
Regulatory Compliance Measure GHG-2	The proposed Project would comply with applicable provisions of AB 341, which establishes statewide solid waste diversion goals to achieve by 2020 by reducing, recycling, or composting solid waste.
Regulatory Compliance Measure GHG-3	The proposed Project will meet the statewide 2013 Building Energy Efficiency Standards, formally known as Title 24, Part 6.
4.6: HYDROLOGY AND WATER QUALITY	
Regulatory Compliance Measure WQ-1	**NPDES Construction General Permit.** Prior to the first grading permit for the proposed Project, the project applicant shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, Permit No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit) or subsequent permit. The project applicant shall provide the Waste Discharge Identification Number to the City Engineer, or designee, to demonstrate proof of coverage under the Construction General Permit. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the proposed Project in compliance with the requirements of the Construction General Permit. The SWPPP shall identify construction best management practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in storm water runoff as a result of construction activities.
Regulatory Compliance Measure WQ-2	**Groundwater Discharge Permit.** If groundwater dewatering during excavation for the proposed Project is required, then with respect to such dewatering the project applicant shall comply with the requirements of the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Groundwater Discharge Permit) (Order No. R8-2009-0003, NPDES No. CAG998001) or subsequent permit. The project applicant shall comply with all applicable provisions in the permit, including water sampling, analysis, and reporting of dewatering-related discharges. The project applicant shall submit a Notice of Intent for coverage under the permit to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 45 days prior to the start of dewatering. Groundwater discharge shall not commence until an authorization letter is received from the Santa Ana RWQCB. Upon completion of groundwater dewatering activities, the project applicant shall submit a Notice of Termination to the Santa Ana RWQCB.

Table 1.B: Summary of Regulatory Compliance Measures

Regulatory Compliance Measures	
Regulatory Compliance Measure WQ-3	**Water Quality Management Plan.** The final Water Quality Management Plan (WQMP) for the proposed Project shall be substantially with the Preliminary WQMP (PWQMP) for the Project (Fuscoe Engineering, Inc., revised January 16, 2015) and shall include all of the site design, biotreatment and nonstructural and structural source control BMPs described in the final WQMP.
Regulatory Compliance Measure WQ-4	**Municipal NPDES Permit (MS4 Permit).** Prior to the issuance of the first grading permit for the proposed Project, the project applicant shall demonstrate adherence to the operational requirements outlined in the Drainage Area Management Plan (DAMP) and Local Implementation Plan (LIP) under the Municipal NPDES Permit for the North Orange County Region (Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff, Orange County [MS4 Permit, Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062]), which was approved by the Santa Ana RWQCB in May 2009, was amended in October 2010, and became effective in August 2011.
4.7: NOISE	
Regulatory Compliance Measure N-1	**Construction Hours.** Prior to approval of grading plans and/or issuance of building permits, the project applicant shall document that noise-generating construction activities shall only occur on weekdays and Saturdays between 7:00 AM and 8:00 PM (excluding holidays).
Regulatory Compliance Measure N-2	**Haul Truck Delivery Hours.** Haul truck deliveries shall be limited to the same hours specified for construction equipment (weekdays and Saturdays between 7:00 AM and 8:00 PM, excluding holidays). The contractor shall prepare a haul route exhibit and shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.
4.9: PUBLIC SERVICES, UTILITIES, AND ENERGY USE	
Regulatory Compliance Measure PS-1	**City of Cypress Municipal Code Section 5-3 (California Fire Code, adoption, amendments).** Prior to issuance of building permits for planned structures, the Public Works Director, or designee, shall review the building plans to verify that the design conforms to the requirements of the Fire Code as adopted in the City Municipal Code.
Regulatory Compliance Measure PS-2	Section 2485 of Title 13 of the California Code of Regulations requires that the idling of all diesel-fueled commercial vehicles weighing over 10,000 pounds during construction be limited to 5 minutes at any location.
Regulatory Compliance Measure PS-3	City of Cypress Municipal Code Section 12-31 (Required Diversion Rates). The proposed Project shall comply with the City's 50 percent diversion rate for construction waste.
4.10: RECREATION	
Regulatory Compliance Measure REC-1	**Payment of Park Fees.** The project applicant shall comply with the applicable provisions of Chapter 25, Article 6, Park and Recreational Facilities, of the City's Municipal Code.

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2.0 INTRODUCTION AND PURPOSE

This Draft Environmental Impact Report (EIR) has been prepared to evaluate potential environmental impacts associated with the proposed Barton Place Project (Project) in the City of Cypress (City). The City is the "public agency which has the principal responsibility for carrying out or approving the project" and, as such, is the "Lead Agency" for the proposed Project under the California Environmental Quality Act of 1970 (CEQA) (*CEQA Guidelines* Section 15367). CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action on the proposed Project. *CEQA Guidelines* Section 15381 defines a "Responsible Agency" as a public agency other than the Lead Agency that has discretionary approval power over a project. This Draft EIR is an informational document to be considered by the City and any Responsible Agencies during deliberations on the proposed Project. The approvals and permits associated with the proposed Project are described in Chapter 3.0, Project Description.

The City, as the Lead Agency, has determined that the proposed Project has the potential to have a significant effect on the environment and that an EIR was required to more fully evaluate potential adverse environmental impacts that could result from development of the proposed Project. As a result, this Draft EIR has been prepared in accordance with CEQA (California Public Resources Code [PRC] Section 21000, et seq.), and the *CEQA Guidelines for Implementation of CEQA (CEQA Guidelines*) (California Code of Regulations [CCR], Title 14, Section 15000, et seq.).

2.1 PURPOSE AND TYPE OF EIR/INTENDED USES OF THE EIR

This Draft EIR has been prepared to evaluate potential environmental impacts that could result from implementation of the proposed Project. As the Lead Agency, the City has the authority for preparation of this Draft EIR and, after the comment/response process, certification of the Final EIR and approval of the proposed Project as described in this Draft EIR, as appropriate.

The City and any Responsible Agencies have the authority to make decisions on discretionary actions relating to development of the proposed Project. This Draft EIR evaluates a reasonable worst-case scenario of potential impacts associated with the proposed Project and identifies feasible mitigation for any identified potentially significant impacts.

This Draft EIR will serve as a Project EIR pursuant to *CEQA Guidelines* Section 15161. According to Section 15161 of the *CEQA Guidelines*, a Project EIR is appropriate for specific development projects for which information is available for all phases of the project, including planning, construction, and operation.

As the Lead Agency for the proposed Project under CEQA, the City must consider the information contained in the Final EIR prior to taking any discretionary action with respect to the proposed Project. This Draft EIR provides information to the Lead Agency and other public

agencies, the general public, and decision-makers regarding the potential environmental impacts from construction and operation of the proposed Project. The purpose of the public review of this Draft EIR is to evaluate the adequacy of the environmental analysis in terms of compliance with CEQA. Section 15151 of the *CEQA Guidelines* states the following regarding standards from which adequacy is judged:

> "An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

Under CEQA (PRC Section 21002.1[a]):

> "The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided."

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the *CEQA Guidelines* and provides the information needed to assess the environmental consequences of a proposed project. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts.

2.2 PUBLIC REVIEW PROCESS

In compliance with the *CEQA Guidelines*, the City has taken steps to promote opportunities for the public and other public agencies to participate in the environmental review process. The City conducted the scoping process, issued a Notice of Preparation/Initial Study (NOP/IS) with respect to the proposed Project, and determined that an EIR was required to evaluate the potentially significant environmental effects of the proposed Project and related actions.

2.2.1 Notice of Preparation/Initial Study

The City, as the Lead Agency, issued the NOP/IS on March 3, 2015, which was distributed via the State Clearinghouse (SCH). The SCH issued a project number for this Draft EIR (SCH No. 2015031004). In accordance with *CEQA Guidelines* Section 15082, the NOP was circulated to the agencies and individuals listed in Appendix A and was posted at the Orange County Clerk's Office for a period of 30 days, during which time written comments were solicited pertaining to environmental issues/topics that this Draft EIR should evaluate. The NOP/IS was also made

available for public review at the City's Planning Department and on the City's website during the review period. Responses to the NOP were received from the following:

- South Coast Air Quality Management District (SCAQMD)
- Airport Land Use Commission for Orange County
- Orange County Sanitation District
- Orange County Public Works/Flood Program/Hydrology Section
- City of Garden Grove
- Dave Emerson, Interested Party
- Charles H. Parsons, Interested Party
- John Underwood, Interested Party
- Lois Waddle, Interested Party
- California Department of Transportation, District 12

2.2.2 Scoping Meeting Summary

The City held a public scoping meeting at the Courtyard by Marriott Hotel in Cypress on Wednesday, March 16, 2015, to present the proposed Project and to solicit input from interested parties regarding environmental issues that should be addressed in this Draft EIR. The material environmental issues and concerns raised in response to the NOP/IS or at the scoping meeting included:

- **Biology:** Concerns were expressed that construction would impact geese, in particular Canada geese, that sometimes visit the project site. Assurances were requested that the provisions of the Migratory Bird Treaty Act would be addressed in this Draft EIR. Another concern related to the potential presence of a wetland on the project site.
- **Air Quality:** Recommendations were made that the air quality analysis follow SCAQMD guidance for air quality analysis and mitigation measures.
- **Water:** Concerns were expressed regarding the availability of water (due to current drought conditions) for use during construction of the proposed Project.
- **Recreation:** Concerns were expressed regarding the provision of open space and recreational opportunities as part of the proposed Project and the desire for public open space in the project design.
- **Traffic:** Concerns were expressed regarding the traffic that would be generated as a result of the commercial/retail component of the proposed Project. Additional concerns were raised regarding circulation in the vicinity of the project site. It was requested that this Draft EIR include current and projected capacities of local streets and certain State highway facilities, within the traffic analysis.
- **Hydrology/Geology:** It was requested that this Draft EIR identify any potential construction impacts related to the level of the groundwater table.

- **Noise:** Concerns were expressed regarding the hours of operation for the commercial/retail component of the proposed Project and potential noise impacts on nearby residential areas.

Appendix A to this Draft EIR includes the NOP/IS and copies of written comments received in response to the NOP/IS, as well as written comment cards received in response to the public scoping meeting.

2.3 SCOPE OF THIS DRAFT EIR

As required by *CEQA Guidelines* Section 15128, this Draft EIR must identify the effects of the proposed Project that are determined to be significant. Pursuant to *CEQA Guidelines* Section 15060, the City determined that the proposed Project may have a significant impact on the environment and that an EIR was required for the proposed Project.

The thresholds of significance utilized in this Draft EIR are based on Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*. This Draft EIR evaluates all environmental impacts related to the thresholds of significance identified in the Appendix G Checklist and the City's *Initial Study/Environmental Checklis*t, except for those environmental impacts that the Initial Study determined were clearly insignificant and unlikely to occur. The analysis herein determines whether there are less than significant impacts, less than significant impacts with mitigation, or significant and unavoidable impacts associated with the proposed Project. Mitigation measures are proposed where feasible to reduce or eliminate identified significant impacts.

2.4 EFFECTS FOUND NOT TO BE SIGNIFICANT

As required by *CEQA Guidelines* Section 15128, this Draft EIR identifies the potential effects of the proposed Project that were determined not to be significant and adverse and, therefore, need not be discussed in detail in this Draft EIR. As described in the Initial Study (Appendix A), the following Project impacts would be clearly insignificant and unlikely to occur: agriculture resources, cultural resources, hazards and hazardous materials, land use and planning, and mineral resources. In addition, some of the proposed Project's potential impacts related to aesthetics, air quality, biological resources, geology, hydrology, noise, population and housing, public services and utilities, and transportation/traffic were determined to be clearly insignificant and unlikely to occur.

2.5 FORMAT OF THE DRAFT EIR

This Draft EIR contains the information and analysis required by CEQA and the *CEQA Guidelines*, including Sections 15122 through 15131 of the *CEQA Guidelines*, and is generally organized as follows.

2.5.1 Chapter 1.0: Executive Summary

Chapter 1.0 contains the Executive Summary of this Draft EIR, which lists all significant project impacts, feasible mitigation measures that have been recommended to reduce any significant impacts of the proposed Project, and the level of significance of each impact following feasible mitigation. The summary is presented in a table format.

2.5.2 Chapter 2.0: Introduction and Purpose

Chapter 2.0 contains a discussion of the purpose and intended use of this Draft EIR.

2.5.3 Chapter 3.0: Project Description

Chapter 3.0 includes a discussion of the proposed Project's geographical setting, the project site's previous uses, and the proposed Project's objectives, characteristics, components, and construction phases, as well as the anticipated discretionary and ministerial permits and approvals for the proposed Project.

2.5.4 Chapter 4.0: Environmental Impact Analysis

Chapter 4.0 includes an analysis of the proposed Project's environmental impacts. It is organized into the following topical sections: aesthetics; air quality; biological resources; geology and soils; greenhouse gas emissions; hydrology and water quality; noise; population and housing; public services, utilities, and energy use; recreation; and transportation/traffic. The environmental setting discussions describe the "existing conditions" of the environment on the project site and in the vicinity of the site as they pertain to the environmental issues being analyzed (*CEQA Guidelines* Section 15125).

The impact discussions identify and focus on the potentially significant environmental effects of the proposed Project. The direct and indirect effects of the proposed Project on the environment are identified and described, giving due consideration to both the short-term and long-term effects, as necessary (*CEQA Guidelines* Section 15126.2[a]).

Chapter 4.0 also includes within the analysis of each environmental topic a discussion of the cumulative effects of the proposed Project when considered in combination with other projects causing related impacts, as required by *CEQA Guidelines* Section 15130. Cumulative impacts are based on the build out of the proposed Project and known relevant approved and proposed projects in the surrounding area.

The discussions of mitigation measures identify and describe feasible measures that could minimize or lessen potentially significant impacts for each significant environmental effect identified in this Draft EIR (*CEQA Guidelines* Section 15126[e]). The levels of significance before and after mitigation are provided. Significant unavoidable adverse effects are identified where mitigation is not expected to reduce the effects to less than significant levels.

2.5.5 Chapter 5.0: Alternatives to the Proposed Project

In accordance with CEQA, the alternatives discussion in Chapter 5.0 describes a reasonable range of alternatives that could feasibly attain the basic objectives of the proposed Project and are capable of eliminating or substantially reducing any of the proposed Project's significant unavoidable adverse environmental effects or reducing them to a less than significant level. The alternatives analyzed in Chapter 5.0 include a No Project/No Build Alternative and two additional alternatives: a Reduced Density Alternative and an All Residential (No Commercial/Retail) Alternative.

2.5.6 Chapter 6.0: Other CEQA Considerations

Chapter 6.0 contains discussions on the following topics as required by *CEQA Guidelines* Section 15126: (1) growth-inducing impacts of the proposed Project; and (2) whether there are any significant adverse environmental impacts associated with the proposed Project for which either no mitigation or only partial mitigation is feasible.

2.5.7 Chapter 7.0: Mitigation Monitoring and Reporting Program

CEQA Guidelines Section 15091(d) requires that public agencies adopt a mitigation monitoring and reporting program for any changes that it has either required in a project or made a condition of approval to avoid or substantially lessen significant environmental effects. Chapter 7.0 provides a list of all proposed project mitigation measures, defines the parties responsible for implementation and review/approval, and identifies the timing for implementation of each mitigation measure.

2.5.8 Chapter 8.0: List of Preparers

Chapter 8.0 provides the organizations and persons contacted during preparation of this Draft EIR, the Draft EIR preparers and technical report authors, and other experts involved in the preparation of this Draft EIR.

2.5.9 Chapter 9.0: References

Chapter 9.0 provides the references used in this Draft EIR.

2.6 INCORPORATION BY REFERENCE

A Draft EIR may incorporate by reference all or portions of another document that is a matter of public record or is generally available to the public, consistent with *CEQA Guidelines* Section 15150. Informational details from the documents that have been incorporated by reference are summarized in the appropriate sections of this Draft EIR, along with descriptions regarding how the public may review these documents. All documents are available for review at the City of Cypress, Community Development Department, Planning Division. These documents include:

- City of Cypress General Plan (available online at: http://www.ci.cypress.ca.us/community_develpmnt/general_plan/general_plan.htm)
- *Amended and Restated Cypress Business and Professional Center Specific Plan* (Amended Specific Plan) (June 2012) (available online at: http://www.ci.cypress.ca.us/community_develpmnt/lart_amended_spec_plan_2012.pdf)
- City of Cypress Municipal Code (available online at: http://qcode.us/codes/cypress/)

2.7 DRAFT EIR PUBLIC REVIEW PERIOD

This Draft EIR is being distributed to numerous public agencies and other interested parties for review and comment. This Draft EIR is also available at the following locations and on the City's website for the proposed Project (http://www.ci.cypress.ca.us/33acreproject.html):

City of Cypress
Community Development Department
Planning Division
5275 Orange Avenue
Cypress, California 90630
Hours: Monday–Thursday: 7:30 AM to 5:30 PM; Friday: 8:00 AM to 5:00 PM

Orange County Public Library
Cypress Branch
5331 Orange Avenue
Cypress, California 90630
Hours: Sunday: 12:00 to 5:00 PM; Monday through Wednesday: 10:00 AM to 9:00 PM; Thursday: 10:00 AM to 6:00 PM; Friday: closed; Saturday: 10:00 AM to 5:00 PM

All comments received from agencies and individuals on this Draft EIR will be accepted during the public comment period, which will not be less than 45 days, in compliance with CEQA and the *CEQA Guidelines*. All comments on this Draft EIR should be sent to the following City contact person:

Douglas Hawkins, AICP, City Planner
City of Cypress
5275 Orange Avenue
Cypress, California 90630
Phone: (714) 229-6720
Fax: (714) 229-0154
Email: DHawkins@ci.cypress.ca.us

Following the close of the public comment period, the City will prepare written responses to all written comments received during the public comment period and will compile these comments and responses, together with any text changes to this Draft EIR, into a Final EIR that includes all of the information required pursuant to Section 15132 of the *CEQA Guidelines*. The Final EIR will be provided to all public agencies that submitted comments on this Draft EIR at least 10 days

prior to certification of the Final EIR. The Final EIR shall consist of the Draft EIR or a revision of the draft; comments and recommendations received on the Draft EIR either verbatim or in summary; a list of persons, organizations, and public agencies commenting on the Draft EIR; the response of the City to significant environmental points raised in the review and consultation process; and any other information added by the City.

The City will make findings regarding the extent and nature of the impacts as presented in the Final EIR. The Final EIR must be certified as complete by the City Council prior to making a decision to approve or deny the requested entitlements for the proposed Project. Public input is encouraged at all public hearings regarding the proposed Project.

3.0 PROJECT DESCRIPTION

This section describes the proposed Barton Place Project (Project) evaluated in this Draft Environmental Impact Report (EIR). A description of the proposed Project's location, objectives, and required approvals is provided.

3.1 PROJECT LOCATION

3.1.1 Regional Location

The proposed Project is located at the northeast corner of Katella Avenue and Enterprise Drive (the project site), in the southwestern portion of the City of Cypress (City). The City encompasses approximately 6.5 square miles of land (approximately 4,218 acres) within northwestern Orange County (County). The Cities of Buena Park and La Palma border the City to the north. The City of Hawaiian Gardens, in Los Angeles County, borders the City to the northwest. The City of Los Alamitos borders the City to the west and south and is immediately south of the project site. The City of Garden Grove borders the City to the southeast. To the east, the City is bordered by the Cities of Buena Park, Anaheim, and Stanton. Regional access to the project site is provided by Interstate 605 (I-605), State Route 22 (SR-22), and Interstate 405 (I-405). I-605 is located approximately 2 miles west of the project site and extends in a north-south direction. SR-22 and I-405 are located approximately 3.5 miles south of the project site and extend in an east-west direction. A regional depiction of the project site is presented on Figure 3.1, Regional and Vicinity Location Map.

3.1.2 Surrounding Land Uses

The approximately 33-acre project site is located at the northeast corner of Katella Avenue and Enterprise Drive. Land uses south of Katella Avenue are located in the City of Los Alamitos and include commercial, office, and single-family residential uses. The Cottonwood Church campus is located to the west across Enterprise Drive. The project site is bordered on the north by a portion of the Los Alamitos Race Course that includes one-story horse barns currently occupied by quarter and thoroughbred horses, associated equipment, and other portions of the Los Alamitos Race Course. A surface parking area for the Los Alamitos Race Course, a small two-story church, and a four-story Residence Inn Hotel are located to the east of the project site, with commercial uses, including a 24 Hour Fitness and Office Depot, located to the east beyond the hotel. The project site and surrounding uses are depicted on Figure 3.2.[1]

[1] The underlying aerial photograph on Figure 3.2 shows trailers, vehicles, and equipment on the northern portion of the Project. However, that is a dated photograph, and all of those trailers, vehicles, and equipment have been removed from the project site.

3.2 ENVIRONMENTAL SETTING

3.2.1 Existing Site Conditions

The project site was previously part of the Cypress Golf Club, which permanently closed in 2004. Following its closure, the golf course was demolished, the site was regraded, and all vegetation was removed, except for some ornamental trees and vegetation in an approximately 1.5-acre area along the southerly and southeasterly boundaries of the project site (Figure 3.3, Existing Vegetation Area). The project site is unimproved and is not currently utilized for any activity. It is relatively flat, with elevations ranging between approximately 21 feet above sea level in the southwest corner and approximately 32 feet in the northeast corner.

3.2.2 Current General Plan Land Use Designation

The project site is currently designated "Specific Plan" on the City's General Plan Land Use Policy Map (Figure 3.4), in recognition that the project site is subject to the *Amended and Restated Cypress Business and Professional Center Specific Plan* (Amended Specific Plan).

As set forth in the Land Use Element of the City's General Plan, Specific Plans implement General Plan goals and policies by designating land uses, densities, development, and design standards in more specific detail. On April 17, 1990, the Cypress City Council adopted the original Cypress Business & Professional Center Specific Plan (Original Specific Plan), which established comprehensive guidance and regulations for the development of approximately 298 acres of land within the City, including the approximately 33-acre project site. On June 5, 2012, City of Cypress voters approved the Amended Specific Plan, which amended and restated the Original Specific Plan, as part of an initiative measure titled "Measure L." The Amended Specific Plan established a new Planning Area 9 that consists of portions of Planning Areas 6, 7, and 8 from the Original Specific Plan. The permitted uses in Planning Area 9 include a variety of office, retail, and other commercial uses, as well as senior housing and related uses. The proposed project does not conflict with either the General Plan or the Amended Specific Plan.

3.2.3 Current Zoning

The Amended Specific Plan is a regulatory plan that constitutes the zoning for the project site. While the City's Zoning Map designates the project site as PBP-25A (Planned Business Park), the Amended Specific Plan largely governs the permitted uses on, and development standards for, the project site. Figure 3.5 depicts the Planning Areas in the Amended Specific Plan area. As shown on Figure 3.5, the project site includes most of Planning Area 9, which is designated as Mixed-Use Commercial/Senior Housing in the Amended Specific Plan, and most of the remaining undeveloped portion of Planning Area 6, which is designated as Professional Office/Hotel and Support Commercial in the Amended Specific Plan.

Within Planning Area 9, the Senior Housing designation permits senior housing (at a density of up to 20 units per acre) and related uses, while the Mixed-Use Commercial designation allows a variety of retail and commercial uses (at a maximum floor area ratio [FAR] of 1.0). The Amended Specific Plan also permits senior housing and various commercial/retail uses in Planning Area 6, subject to approval by the City's Director of Community Development.

3.3 PROJECT CHARACTERISTICS

Figure 3.6, Conceptual Site Plan, illustrates the land uses proposed for the Project. The proposed Project includes two components: a senior residential community and commercial/retail improvements along Katella Avenue. Figure 3.7, Vesting Tentative Tract Map, shows that the proposed Project includes the subdivision of the project site into nine separate lots. The senior residential community would be developed on Lots 1 through 6, and the commercial/retail improvements would be developed on Lot 7. Lot A would be a private street, while Lot B would be the site of a proposed amenity center for the senior residential community.

Table 3.A provides a comparison between the acreage, density, and building heights associated with the proposed Project against the applicable development standards contained in the Amended Specific Plan. As shown in Table 3.A, the proposed Project would comply with those development standards.

Table 3.A: Comparison of Proposed Project and Amended Specific Plan Development Standards

	Allowable Development Under the Amended Specific Plan	Proposed Project
Senior Residential Community		
Age	55 and older	55 and older
Density	Maximum 20 units/acre (560 units)	8.7 units/acre (244 units)
Ownership Type	For-sale and for-rent	For-sale
Maximum Building Height	55 feet	30 feet
Private Resident Parking	Minimum 1 space per unit (244 spaces)	2 spaces per unit (488)
Guest Parking	Minimum 1 space per 20 units (13 spaces)	78 spaces
Minimum Landscaped Open Area	25 percent	26 percent
Commercial		
Square Footage	Maximum 130,680 square feet	47,876 square feet
Maximum Building Height	99 feet	39 feet
Maximum Floor Area Ratio (FAR)	0.6	0.22
Parking Ratio	Restaurant: Minimum 1 space per 100 square feet (114 spaces) Commercial/Retail: Minimum 1 space per 225 square feet (163 spaces) Minimum 277 total spaces	277 spaces
Minimum Required Landscaping	Katella Avenue shall have landscaping to a depth of at least 20 feet within a minimum front-yard building setback of 25 feet.	Katella Avenue has a minimum front-yard building setback of 25 feet with landscaping provided to a depth of at least 20 feet

Source: *Amended and Restated Cypress Business and Professional Center Specific Plan* (June 5, 2012); Robert Hidey Architects (February 19, 2015).

3.3.1 Senior Residential Community

Figure 3.6, Conceptual Site Plan, depicts the proposed senior residential community, which would be developed on approximately 28 acres on the northern portion of the project site, most of which is located in Planning Area 9 and a small portion of which is located in Planning Area 6, as those Planning Areas are designated in the Amended Specific Plan. The senior residential community would include 244 dwelling units, which equates to a density of approximately 8.7 dwelling units per acre, considerably lower than the approximately 560 units and the 20 units per acre maximums allowed under the Amended Specific Plan.

The units would be for-sale and would incorporate a mix of approximately 152 single-family detached homes and approximately 92 single-family attached homes (i.e., paired homes), in one- and two-story configurations. The maximum height of the units would be up to approximately 30 feet, which is substantially below the maximum height of 55 feet allowed in the Amended Specific Plan. Conceptual elevations for both the detached and attached products are provided on Figures 3.8 and 3.9, respectively.

Each home in the senior residential community would require a qualified occupant 55 years of age or older pursuant to recorded covenants, conditions, and restrictions. Each resident would have access to the amenity center and landscaped areas. The amenity center would be located on approximately 1 acre of common area and would include a community clubhouse, a fitness room, a pool, a spa, an outdoor fireplace, and barbeque and gathering areas. The community would include guest parking areas, landscaped parkways, small pocket parks, and access to the adjacent commercial/retail uses. The community would be gated with private streets and all common areas, amenities, and streets would be managed and maintained by a homeowners' association (HOA).

3.3.2 Commercial/Retail Improvements

As shown on Figure 3.6, the proposed commercial/retail improvements would be developed on an approximately 5-acre parcel on the southern portion of the project site along the Katella Avenue frontage and would consist of approximately 47,876 square feet of space. The commercial/retail space would be divided into five buildings. The proposed commercial/retail uses would include neighborhood-serving restaurants, retail stores, and other commercial uses. Conceptual elevations depicting the typical architectural design of the commercial/retail structures are provided on Figure 3.10 . The commercial/retail improvements would also feature a hardscape plaza, including a water feature, seating, and a gathering area, near the corner of Katella Avenue and Enterprise Drive. The height of the commercial/retail buildings would not exceed 40 feet, which is substantially lower than the maximum height of 99 feet permitted by the Amended Specific Plan.

3.3.3 Building Design

The proposed architectural elements and features of the proposed Project are in a "Santa Barbara" style consisting of a mix of neutral colors and a variety of materials, such as tile, cement, plaster, and wood. The use of multiple residential and commercial/retail buildings with various plane breaks and color tones would break up the scale and massing of the proposed Project.

3.3.4 Access, Circulation, and Parking

Senior Residential Community. Access to the senior residential community would be provided by two new gated private drives off of Enterprise Drive. The main entry/exit would be near the northwest corner of the project site and would provide the primary entrance and exit for all residents and visitors of the senior residential community. A second private drive along Enterprise Drive, south of the main entry/exit, would provide access for emergency vehicles only. Circulation within the senior residential community would be provided by a private two-way street that would loop through the neighborhood. The private loop street would connect to private motor courts that would provide access to the residential units. Figure 3.11, Conceptual Pedestrian Circulation Plan, depicts the locations of proposed sidewalks and pedestrian circulation routes throughout the project site. As shown on Figure 3.11, pedestrians would have access to the senior residential community by an existing sidewalk along Enterprise Drive. Within the community, a sidewalk adjacent to the loop street would provide access to the residential units and community amenity center. A pedestrian gate would be provided along the southern boundary of the senior residential community to provide easy access to the commercial/retail buildings along Katella Avenue. Community residents would have secure access to this gate.

Each of the senior residential units would include an attached two-car garage. As illustrated by Figure 3.6, approximately 78 guest parking spaces, including approximately four Americans with Disabilities Act (ADA) compliant parking spaces, would be provided along the loop street. No resident or guest parking would be allowed within the private motor courts.

Commercial/Retail. Access to the commercial/retail area would be provided by two new driveways on Katella Avenue (in locations identified in the Amended Specific Plan, aligning with Midway Drive and Ticonderoga Drive) and a third new driveway on Enterprise Drive (see Figure 3.6, Conceptual Site Plan). The proposed driveway exits would be controlled by stop signs. Circulation within the commercial/retail area would be provided by two-way drive aisles on the surface parking lot. Pedestrian access for the commercial/retail area would be provided by existing sidewalks along Katella Avenue and Enterprise Drive. The surface parking lot that supports the commercial/retail area would include 277 parking spaces (including the required ADA-compliant spaces).

3.3.5 Landscaping

Landscaping for the proposed Project would include a variety of tree and plant species in accordance with the Specific Plan. Conceptual landscape plans for the residential and commercial/retail components of the proposed Project are presented on Figures 3.12 and 3.13, respectively. As shown on Figures 3.12 and 3.13, trees, shrubs, and drought-tolerant landscaping would be planted along the perimeter of the project site, within the interior, along the pedestrian and vehicle routes, and throughout the common areas. None of the existing trees on the project site would remain.

Within the senior residential community, parkways, private yards, the community amenity center, pocket parks, and the loop road would be designed with a similar landscape theme. The commercial/retail component would include a 25-foot setback along Katella Avenue, of which 20 feet would be landscaped in accordance with the Specific Plan. In addition to the required landscaped setback along Katella Avenue and the 10-foot landscaped setback along Enterprise Drive, the plaza area, parking lot medians, and

landscape buffer separating the senior residential and commercial/retail uses would be designed with a similar landscape theme and contain a variety of tree and plant species.

The irrigation system for the landscaping would consist of low-volume spray heads or bubblers connected to an automatic irrigation control system with "smart" controllers containing rain sensors.

3.3.6 Outdoor Lighting

Conceptual lighting plans for the residential and commercial/retail components of the proposed Project are presented on Figures 3.14 and 3.15, respectively. Outdoor lighting for the proposed Project would include downward-directed and shielded-post top lights and bollard lights. The motor courts would be illuminated by garage-mounted light fixtures. Landscape accent lights would be utilized to highlight certain landscape focal points and monument signs. Lighting within public areas would be warm-colored and unobtrusive. Energy-efficient lamp technologies shall be incorporated wherever practicable. The proposed lighting would be shielded, recessed, or directed downward to be contained within property lines in order to prevent glare and spillover onto adjacent properties and minimize lighting of the night sky. The locations of the proposed exterior lights would comply with the City's safety standards.

3.3.7 Utilities and Public Services

New water and sewer lines would be constructed onsite and beneath the commercial/retail area, and would connect to the existing water lines and sewer mains within Katella Avenue and Enterprise Drive. The proposed Project would maintain the historic drainage pattern on the project site and drain from the northeast to the southwest. Flows would be collected at catch basins and directed to an onsite private storm drain/detention system. Figure 3.16, Conceptual Stormwater Management System, provides an overview of the proposed Project's storm water management system. As shown on Figure 3.16, the onsite storm drain system would flow south to an underground detention system located beneath the proposed commercial/retail site near Katella Avenue (refer to Project Design Feature WQ-1 in Section 3.5 below). Prior to discharging into the detention system, low-flow and first-flush runoff from the project site would be diverted to Modular Wetland Units for filtration and biotreatment. Treated runoff from the units would then discharge back into the internal storm drain lines and into the detention system. Figure 3.17, Stormwater Treatment and Storage Features, is a general depiction of the biofiltration units and underground storm water detention system that are proposed as part of the proposed Project. The detention system would be sized to accommodate flows for the 100-year storm event to limit peak flow discharges to the storm drain within Katella Avenue. The underground detention system would discharge via gravity to the existing storm drain line located within Katella Avenue at a controlled rate, per the City's standards.

3.3.8 Green Building Characteristics

The proposed Project has been designed to meet sustainability goals, including the California Green Building Code, Title 24 energy efficiency requirements, and Assembly Bill (AB) 1881 water-efficient landscape requirements. The senior residential community would also incorporate a number of energy and water conservation measures, green building features, and Low Impact Development (LID) design features. These design features and practices may include, but are not limited to:

- Energy-efficient lighting and mechanical systems;
- Water-efficient plumbing fixtures;
- Water-efficient landscaping, including the utilization of some native plant species in addition to drought-tolerant ornamental species;
- Water quality treatment;
- Education of homeowners and maintenance staff regarding proper irrigation and landscaping maintenance to limit water runoff; and
- Recycling and/or salvaging for re-use of at least 50 percent of construction and demolition debris and materials.

3.4 PROJECT CONSTRUCTION

It is anticipated that the construction period for the proposed Project would be approximately 8 months for the site work and approximately 29 months for building construction, with approximately 3 months of overlapping grading and construction activities. This results in a total construction period of approximately 34 months. The proposed Project is anticipated to be completed in 2018.

3.5 PROJECT DESIGN FEATURES

Project Design Features are specific design components of the proposed Project that have been incorporated to reduce potential environmental impacts. These features are part of the project design and therefore do not constitute mitigation measures. These Project Design Features are described in the relevant sections of Chapter 4.0, Environmental Impact Analysis, with respect to relevant environmental topics. Project Design Features are not included for every environmental topic.

Project Design Feature GEO-1: **Foundation Systems.** The design of the project buildings will incorporate post-tensioned and/or strengthened concrete mat-type foundation systems.

Project Design Feature NRG-1 **Energy-Efficient Appliances.** Energy Star appliances, including clothes washers, dishwashers, and refrigerators, shall be installed in the residences.

Project Design Feature NRG-2 **High-Efficiency Lighting.** High-efficiency lightbulbs and lighting fixtures shall be installed in residential and non-residential buildings pursuant to applicable code standards.

Project Design Feature WQ-1: **Underground Storm Water Detention Basin.** The proposed Project would include an underground storm water detention system located beneath the proposed commercial/retail area near Katella Avenue. The detention system would have a design detention volume of 5.3 acre-feet and be sized to accommodate flows for the 100-year storm event to limit peak

flow discharges to the storm drain within Katella Avenue. The underground detention system would discharge via gravity to the existing storm drain line located within Katella Avenue at a controlled rate, per City of Cypress standards.

Project Design Feature N-1: **Perimeter Walls.** The construction of the 8-foot-high planned wall around the residential uses within the project site shall be prioritized as soon as practicable once construction has commenced. The locations of the planned perimeter walls are shown on Figure 3.18, Noise Reducing Project Design Features.

Project Design Feature N-2: **Construction Equipment Noise Reduction.** During construction, the contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer's standards. The contractor shall locate stationary construction equipment so that emitted noise is directed away from the noise-sensitive receptors nearest the project site to the extent practicable.

Project Design Feature N-3: **Equipment Staging Area.** Equipment staging areas shall be located a minimum distance of 100 feet from noise-sensitive receivers nearest the project site (i.e., in the center) during construction.

Project Design Feature N-4: **Structure Design Features.** The proposed Project includes the following structural features:

- **Windows:**
  - All windows and sliding glass doors throughout the project site shall be well-fitted, well-weather-stripped assemblies and shall have a minimum sound transmission class (STC) rating of 27.
  - Upgraded second-floor windows and sliding glass doors with a minimum STC rating of 35 shall be installed facing the Los Alamitos Race Course along the northern site boundary. The locations of the lots requiring upgraded second-floor windows are shown on Figure 3.18, Noise Reducing Project Design Features.
- **Doors:** All exterior doors shall be well-weather-stripped solid-core assemblies at least 1.75 inches thick.
- **Roof:** Roof sheathing of wood construction shall be well-fitted or caulked plywood at least 0.5 inch thick. Ceilings shall be well-fitted, well-sealed gypsum board at least

0.5 inch thick. Insulation with a rating of at least R-19 shall be used in the attic space.

- **Attic:** Attic vents should be oriented away from Katella Avenue. If such an orientation cannot be avoided, then an acoustical baffle shall be placed in the attic space behind the vents.
- **Ventilation:** Any habitable room shall be designed and constructed such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g., air conditioning) or active ventilation system (e.g., fresh air supply) shall be provided to satisfy the requirements of the Uniform Mechanical Code.

Project Design Feature REC-1: **Onsite Recreational Amenities.** The senior residential community shall include, for the use of its residents, an approximately 1-acre amenity center that includes a community clubhouse, a fitness room, a pilates/yoga terrace, a pool, a spa, bocce ball, an outdoor fireplace, and barbeque and gathering areas, or substantially equivalent features.

3.6 PROJECT OBJECTIVES

The following project objectives have been established to aid decision-makers in their review of the proposed Project and its associated environmental impacts:

- Provide new senior housing and commercial/retail uses allowed under the Amended Specific Plan.
- Provide a substantial amount of high-quality senior housing for local and area residents to help meet the increasing market demand for age-restricted housing.
- Revitalize the vacant former golf course site with a well-designed, attractively landscaped, mixed-use project.
- Provide senior housing in close proximity to existing and future commercial/retail services and medical facilities.
- Develop a project that furthers the goals of the City's Housing Element to provide a wide range of housing stock to meet the existing and future needs of Cypress residents, provide housing opportunities for the growing number of senior households in the City, and help satisfy the City's obligation to provide its fair share of regional housing needs with regard to market-rate housing.
- Develop a senior housing community near a major transportation corridor to allow a range of transportation options for project residents.
- Develop a project that will invigorate the local economy by providing new employment and business opportunities.

- Develop a senior residential community with sufficient housing units to support the size, scale, and operation of amenities and common areas necessary to attract senior residents while maintaining reasonable monthly homeowner dues.
- Provide land uses that capitalize on the project site's frontage along Katella Avenue to attract commercial/retail tenants and customers to the project site.
- Provide land uses along Katella Avenue that are compatible with the existing commercial/retail uses on Katella Avenue and provide a buffer between Katella Avenue and the new senior residential community.
- Provide commercial/retail improvements that generate new sources of revenue for the City through increased property values and retail sales.
- Provide a mix of uses on the project site that are linked by a convenient pedestrian circulation system to reduce vehicle trips.
- Provide a mix of uses on the project site that will reduce vehicle trips as compared to the higher-vehicle-trip uses permitted on the project site.
- Provide a walkable retail/commercial amenity for the new senior residential community.
- Provide for-sale senior housing to increase the opportunity for senior residents in the City and region to own their own homes in a community of their peers.

3.7 DISCRETIONARY ACTIONS, PERMITS AND OTHER APPROVALS

In accordance with Sections 15050 and 15367 of the *State California Environmental Quality Act (CEQA) Guidelines*, the City of Cypress is the designated Lead Agency for the proposed Project and has principal authority and jurisdiction for CEQA actions.

The following agency is expected to use this Draft EIR in its decision-making:

- City of Cypress

It is anticipated that the proposed Project would or could require the following discretionary and ministerial approvals and permits from the City:

- Approval of a site plan review through the Design Review Committee permit process pursuant to the Amended Specific Plan;
- Transfer of land uses from Planning Area 9 to Planning Area 6 pursuant to the Amended Specific Plan;
- A vesting tentative tract map, final tract map, and parcel map;
- A conditional use permit to allow a shopping center and restaurants;
- Administrative approval of a priority project water quality management plan;
- Grading, street, and infrastructure permits;
- Utility permits (sewer, water, and storm drain);

- Building permits;
- Sign permits; and
- Any other necessary discretionary or ministerial permits and approvals required for the construction or operation of the proposed Project.

In addition, the proposed Project would or could require the following discretionary or ministerial permits and approvals from other governmental agencies:

- A Notice of Intent (NOI) to comply with the General Activity Construction National Pollution Discharge Elimination System (NPDES) Permit and Municipal Separate Storm Sewer System (MS4) Permit from the State Water Resources Control Board;
- An NPDES Permit and a Temporary Construction Dewatering Permit from the Regional Water Quality Control Board; and
- Plan approval, including emergency access and fire water supply, from the Orange County Fire Authority.

This Draft EIR is intended to serve as an informational document to be considered by the City and any responsible agencies during deliberations on the proposed Project. This Draft EIR evaluates a reasonable worst-case scenario of potential environmental impacts associated with the proposed Project and provides mitigation to the extent feasible and necessary.

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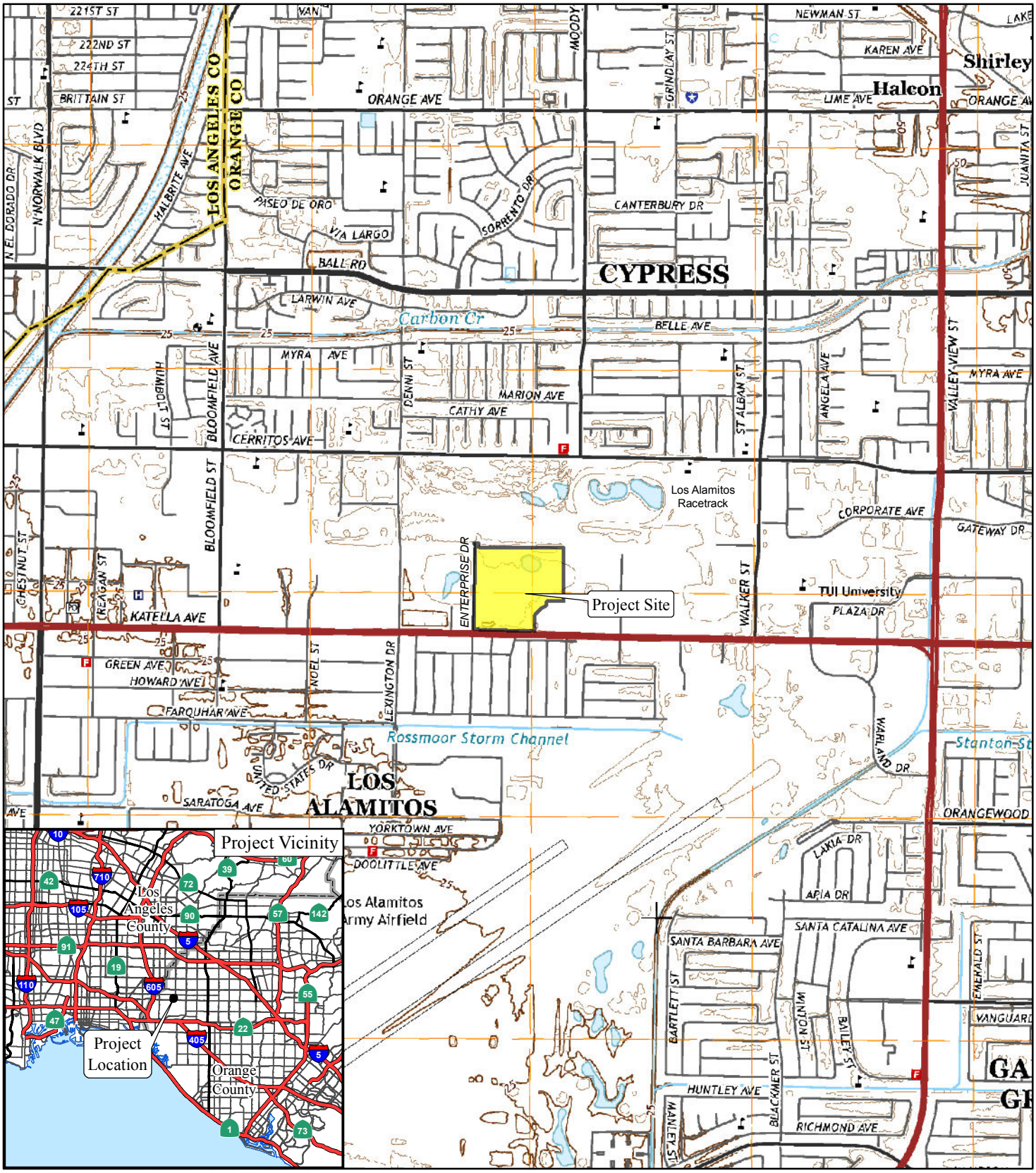

LSA

LEGEND

Project Site

FIGURE 3.1

N

0 1000 2000
FEET

SOURCE: USGS 7.5' Quad - Los Alamitos (2015), CA

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Barton Place

Regional Location and Vicinity Map

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LSA

FIGURE 3.2

N

0 200 400
FEET

SOURCE: Google Earth

Barton Place

Project Site and Surrounding Land Uses

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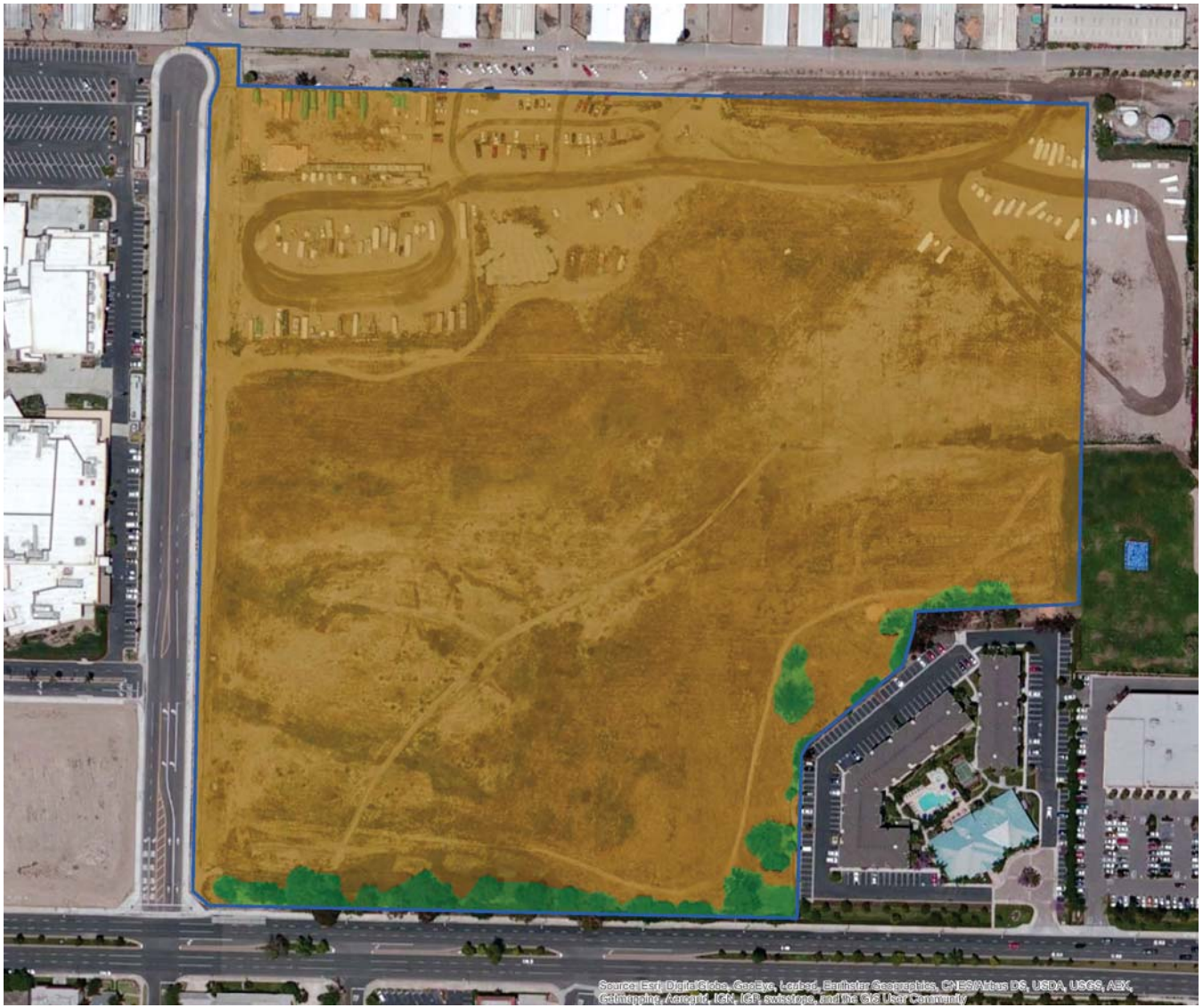

LSA

FIGURE 3.3

LEGEND

- Approximate Boundary
- Ornamental Vegetation
- Previous Golf Course/Disturbed

N

0 125 250

FEET

SOURCE: Glenn Lukos Associates

Barton Place

Existing Vegetation Area

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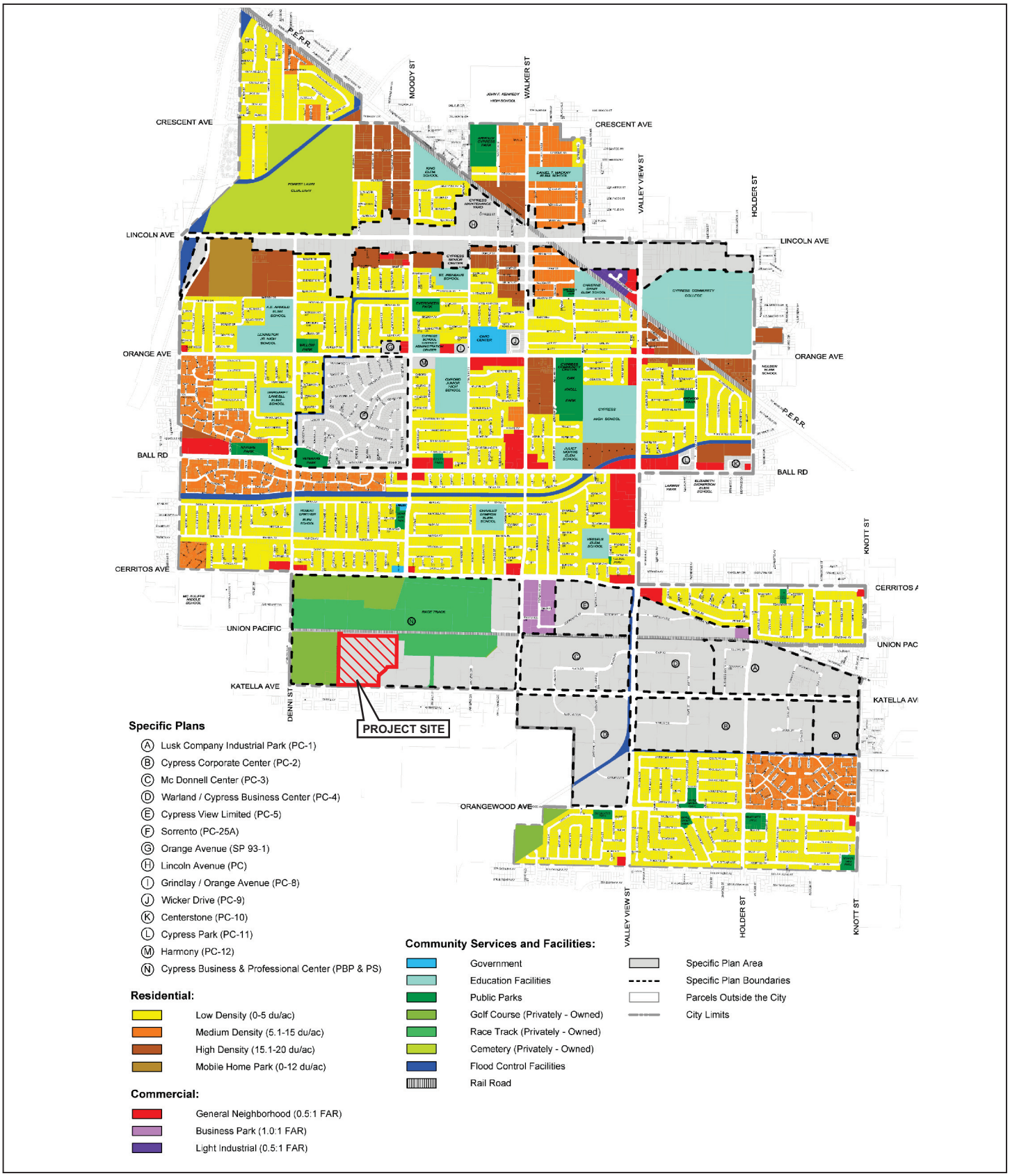

LSA

FIGURE 3.4

PROJECT SITE

N

NO SCALE

SOURCE: City of Cypress, Land Use Planning

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Barton Place

General Plan Land Use Map

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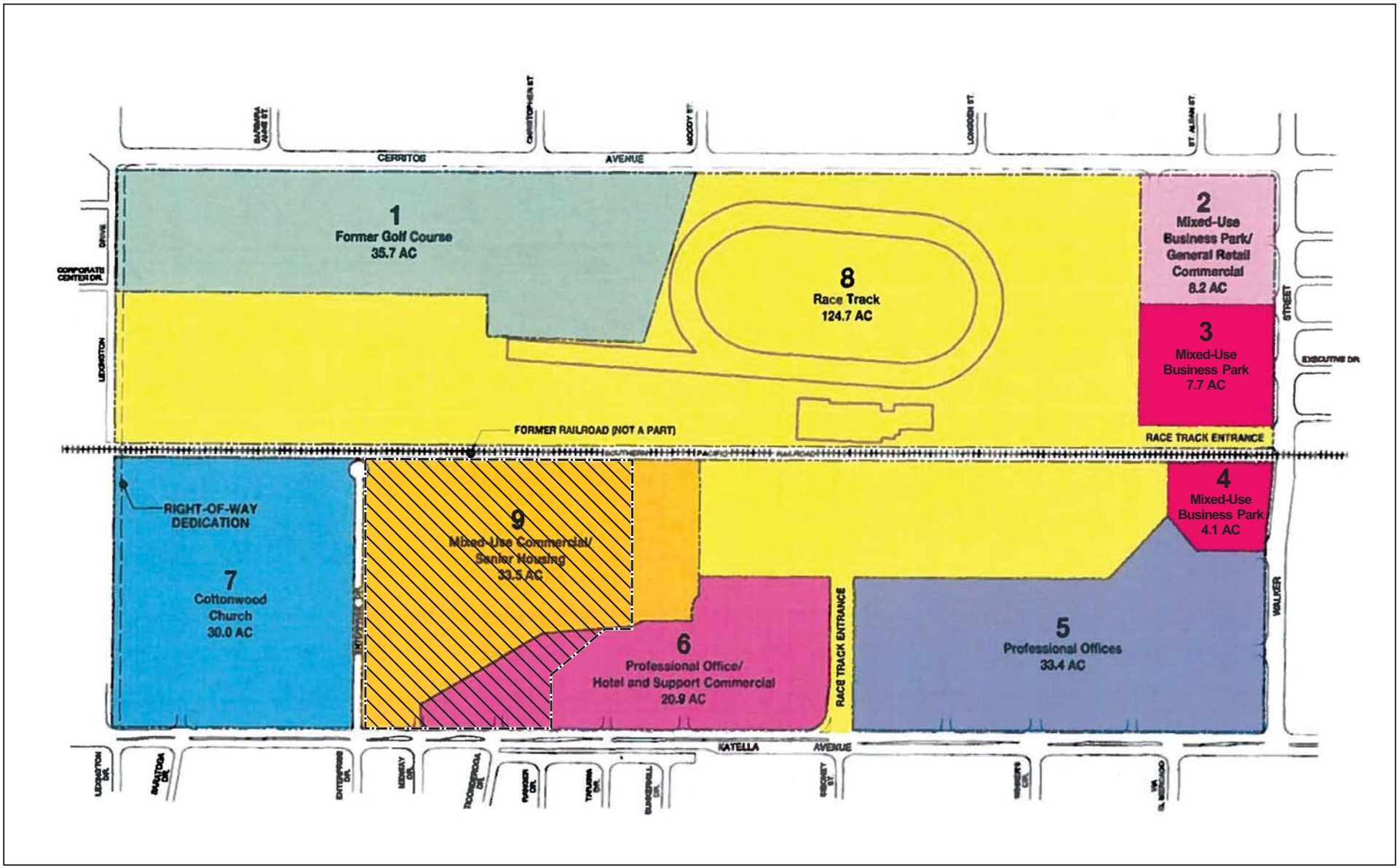

LSA

FIGURE 3.5

LEGEND

- Project Site

N

0 300 600

FEET

SOURCE: MJS Design Group

Barton Place

Amended and Restated Cypress Business and Professional Center Specific Plan

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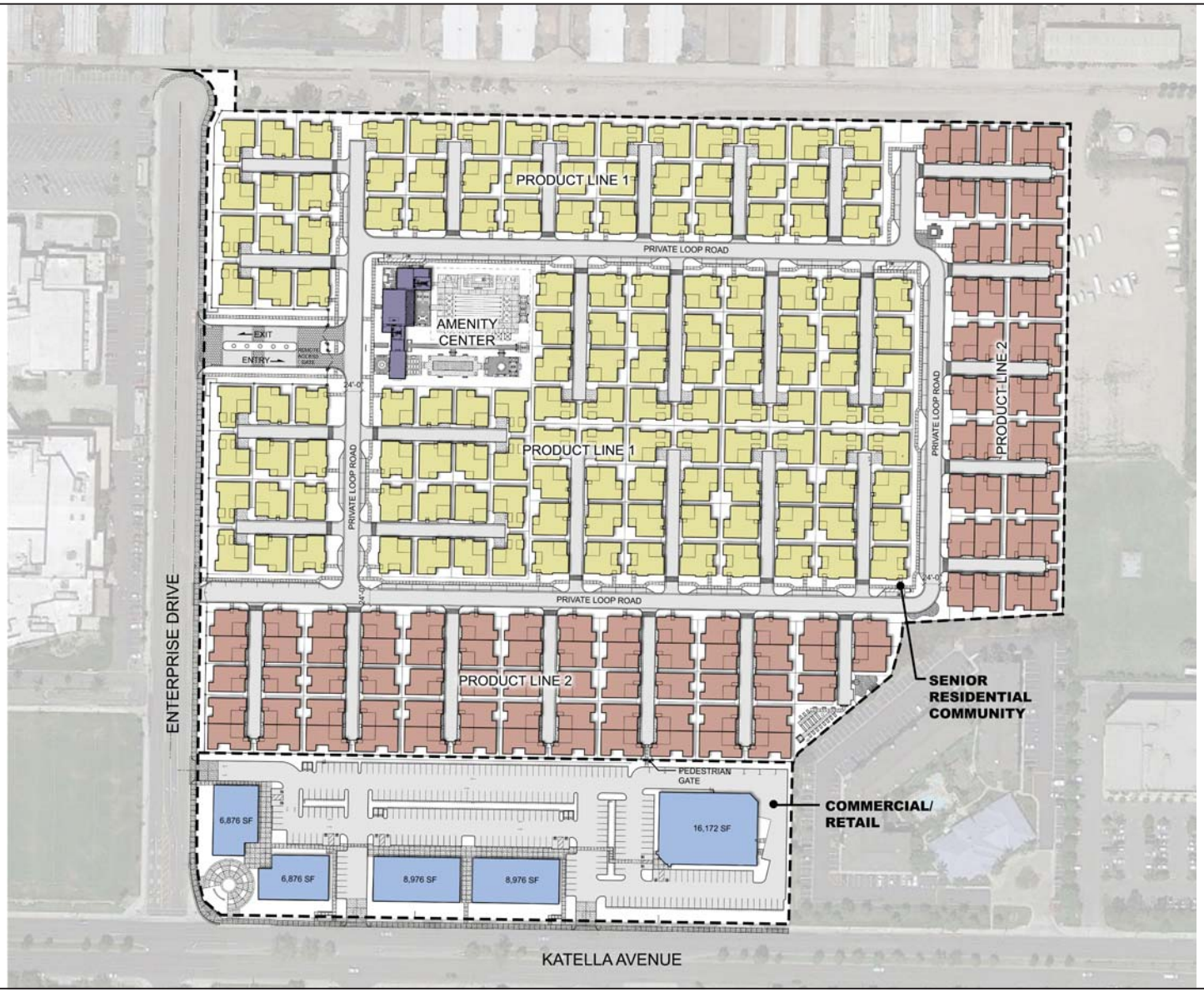

LSA

FIGURE 3.6

LEGEND

- Single-Family Detached Homes
- Single-Family Attached Homes
- Commercial
- Amenity Building

N

0 120 240

FEET

SOURCE: Robert Hidey Architects

Barton Place

Conceptual Site Plan

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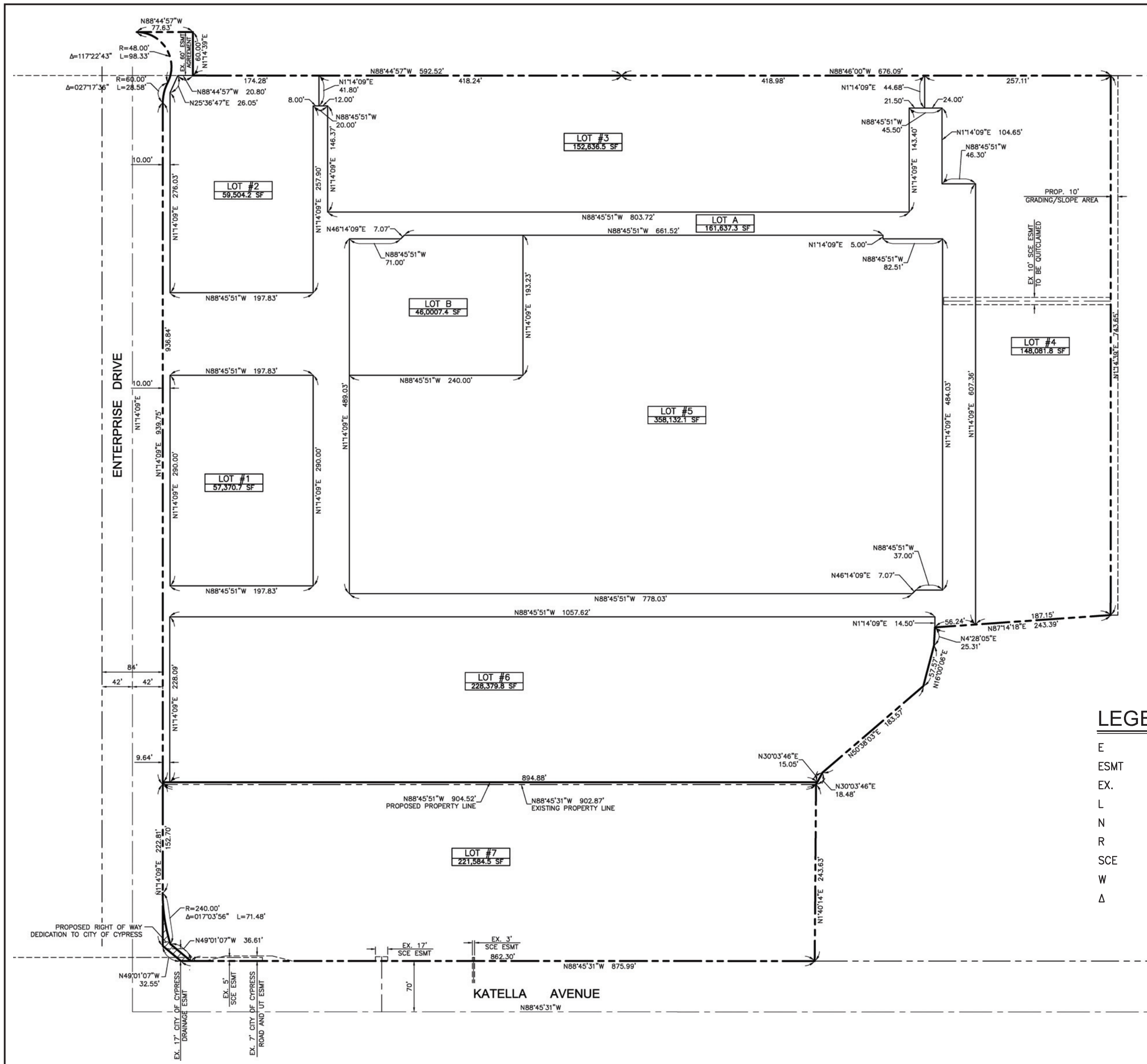

LOT SUMMARY

LOT NO.	AREA (SF)	AREA (ACRES)	INTENDED USE
1	57,370.7	1.32	SENIOR HOUSING
2	59,504.2	1.37	SENIOR HOUSING
3	152,636.5	3.50	SENIOR HOUSING
4	148,081.8	3.40	SENIOR HOUSING
5	358,132.1	8.22	SENIOR HOUSING
6	228,379.8	5.24	SENIOR HOUSING
7	221,584.5	5.09	RETAIL/COMMERCIAL
A	161,637.3	3.71	PRIVATE STREET
B	46,007.4	1.06	AMENITY CENTER
N/A	562.2	0.01	PROPOSED DEDICATION
TOTAL	1,433,896.5	32.92	

LEGEND:

E	EAST		EXISTING CENTER LINE
ESMT	EASEMENT		EXISTING EASEMENT
EX.	EXISTING		EXISTING PROPERTY LINE
L	LENGTH		PROPOSED EASEMENT
N	NORTH		PROPOSED LOT LINE
R	RADIUS		PROPOSED PROPERTY LINE
SCE	SOUTHERN CALIFORNIA EDISON		
W	WEST		
Δ	DELTA		

LSA

FIGURE 3.7

N

0 120 240
FEET

SOURCE: Fuscoe Engineering

Barton Place

Vesting Tentative Tract Map

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LOOP ROAD ELEVATIONS

MOTOR COURT ELEVATIONS

LSA

FIGURE 3.8

Barton Place

Conceptual Detached Residential Elevations

SOURCE: Robert Hidey Architects

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LOOP ROAD ELEVATIONS

MOTOR COURT ELEVATIONS

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FIGURE 3.9

Barton Place

Conceptual Attached Residential Elevations

SOURCE: Robert Hidey Architects

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PAD B - WEST ELEVATION

PAD B - SOUTH ELEVATION

PAD B - EAST ELEVATION

PAD B - NORTH ELEVATION

LSA

FIGURE 3.10

Barton Place

Conceptual Commercial Elevations

SOURCE: Robert Hidey Architects

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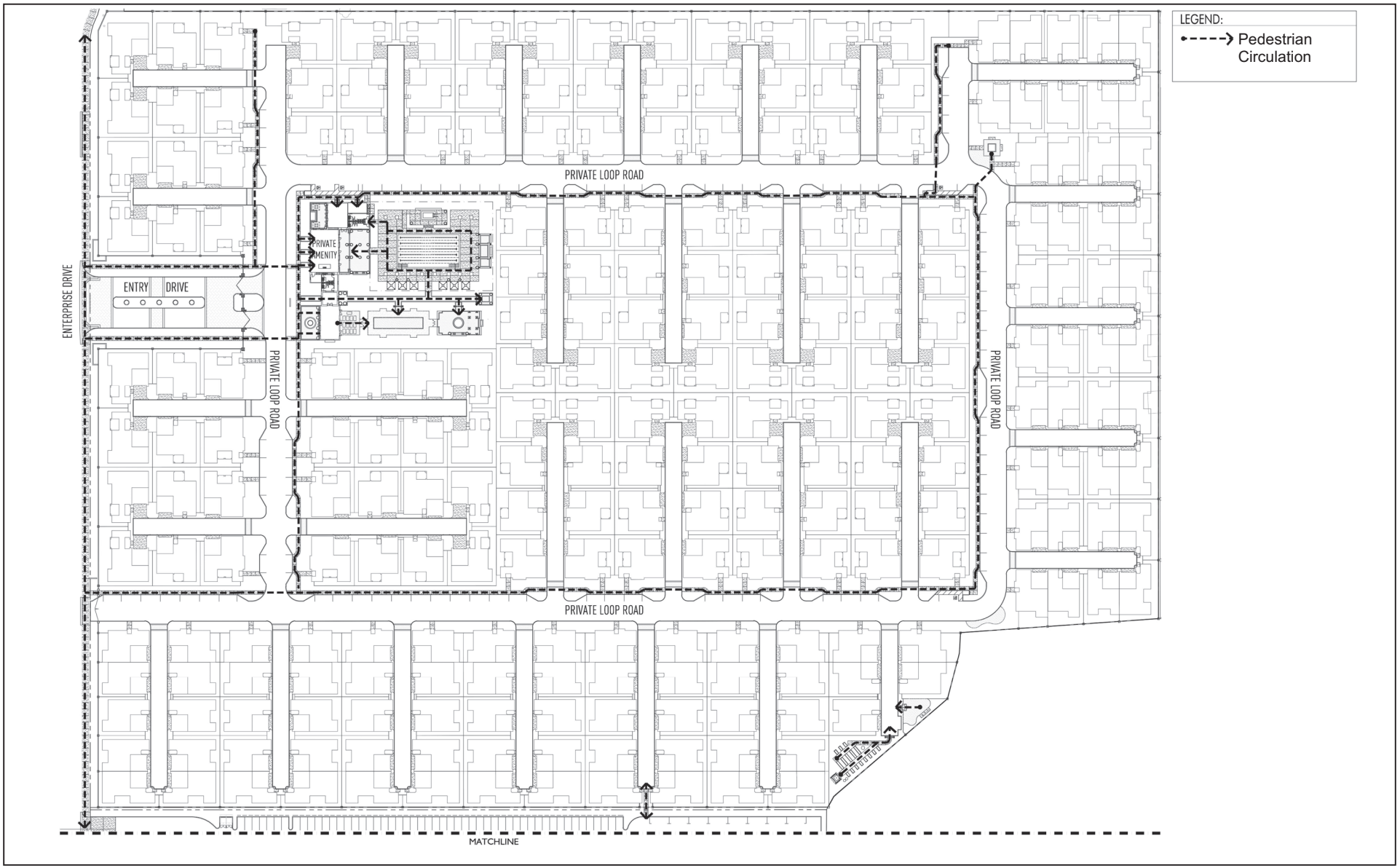

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FIGURE 3.11
(Page 1 of 2)

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SOURCE: MJS Design Group

Barton Place

Conceptual Pedestrian Circulation Plan

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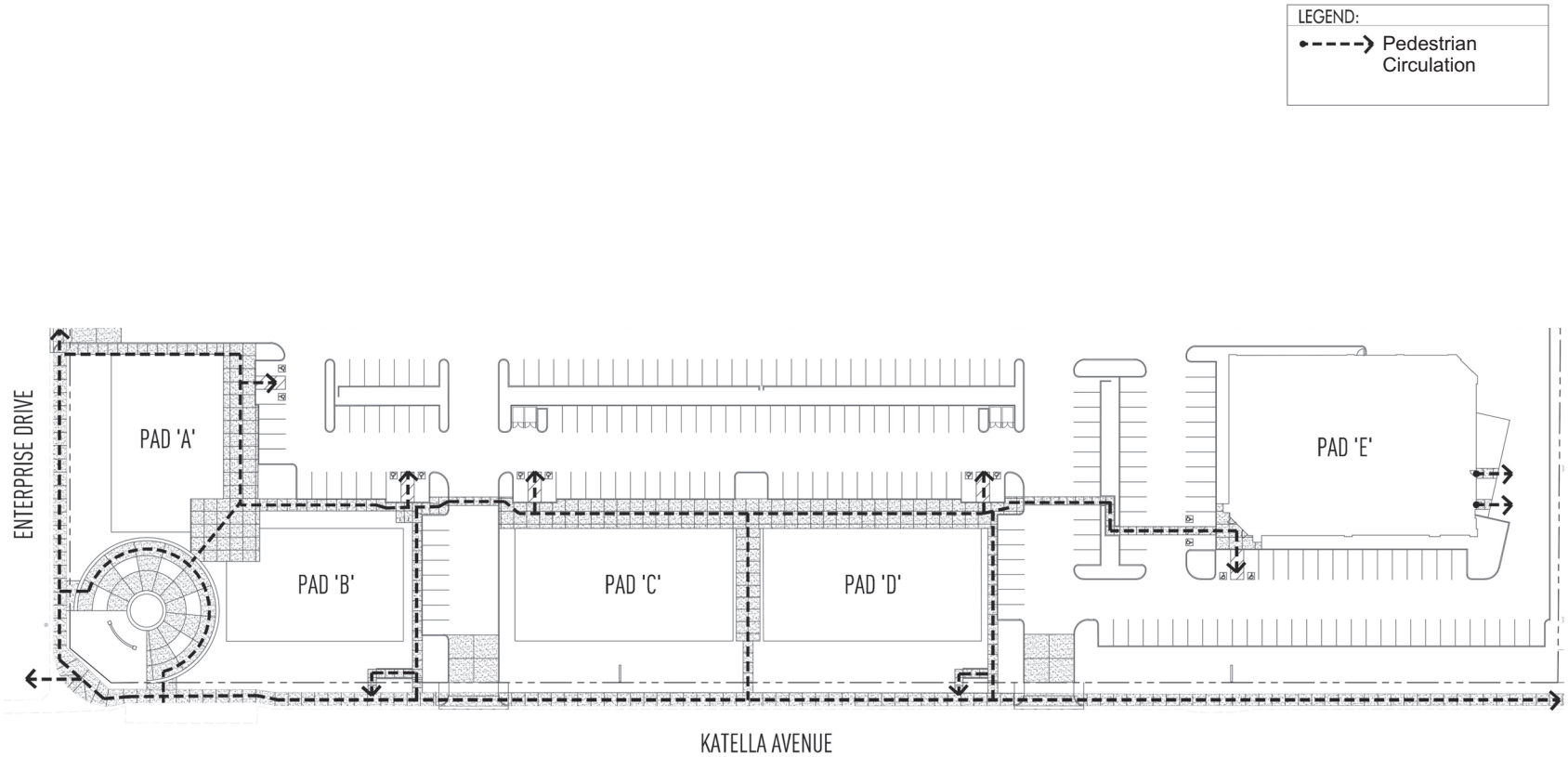

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FIGURE 3.11
(Page 2 of 2)

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SOURCE: MJS Design Group

Barton Place

Conceptual Pedestrian Circulation Plan

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PROPOSED PLANT PALETTE

ALL PROPOSED TREES AND SHRUBS WILL BE COMPLIANT WITH CAL GREEN REQUIREMENTS FOR WATER CONSERVING AND NON-INVASIVE AS DEFINED BY IPC.

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WUCOLS
ENTERPRISE DRIVE STREET TREE:				
STREET TREES PROVIDED BEHIND THE SIDEWALK ON EACH STREET.				
	BRACHYCHITON POPULNEUS	BOTTLE TREE	24" BOX	Medium
PERIMETER SCREEN TREES:				
	ROBINIA x 'PURPLE ROBE'	PURPLE ROBINIA	24" BOX	Low
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	Medium
PALMS:				
	PHOENIX DACTYLIFERA 'MEDJOOL'	DATE PALM	18' BTH	Low
	WASHINGTONIA FILIFERA 'HYBRID'	HYBRID CA. FAN PALM	16' BTH	Low
UPRIGHT TREES:				
	CUPRESSUS SEMPERVIRENS	ITALIAN CYPRESS	24" BOX	Medium
	JUNIPERUS CHINENSIS 'BLUE POINT'	BLUE POINT JUNIPER	24" BOX	Medium
ACCENT TREES:				
	LAGERSTROEMIA I. HYBRID	CRAPE MYRTLE	24" BOX	Medium
	TABEBUIA IMPETIGINOSA	PINK IPE TREE	24" BOX	Medium
ENTRY DRIVE TREE				
	OLEA EUROPEAEA 'SWAN HILL'	FRUITLESS OLIVE	48" BOX	Medium
COMMUNITY GARDEN TREES:				
	CITRUS SPP.	CITRUS TREES T.B.S.	24" BOX	Medium
	FRUIT TREE SPP.	FRUIT TREES T.B.S.	36" BOX	Medium
COMMON AREA TREES:				
	AGONIS F. 'JERVIS BAY AFTER DARK'	AGONIS	24" BOX	Medium
	ARBUTUS 'MARINA'	STRAWBERRY TREE	24" BOX	Medium
	CUPRESSUS SEMPERVIRENS	ITALIAN CYPRESS	24" BOX	Medium
	LAGERSTROEMIA I. HYBRID	CRAPE MYRTLE	24" BOX	Medium
	MAGNOLIA G. 'LITTLE GEM'	SOUTHERN MAGNOLIA	24" BOX	Medium
	PLATANUS x A.'BLOODGOOD'	PLANE TREE	24" BOX	Medium
	PYRUS CALLERYANA 'CHANTICLEER'	FLOWERING PEAR	24" BOX	Medium
	OLEA 'SWAN HILL'	FRUITLESS OLIVE	36" BOX	Low
	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	24" BOX	Low
	TABEBUIA IMPETIGINOSA	PINK IPE TREE	36" BOX	Medium
	TIPUANA TIPU	TIPU TREE	24" BOX	Medium
SHRUBS:				
	LARGE SHRUBS:			
	ARBUTUS UNEDO	STRAWBERRY TREE-MULTI	5 GAL	Low
	AGAVE ATTENUATA	FOXTAIL AGAVE	5 GAL	Low
	DIETES VEGETA	FORTNIGHT LILY	5 GAL	Medium
	FEIJOA SELLOWIANA	PINEAPPLE GUAVA	5 GAL	Low
	PITTOSPORUM SPECIES	PITTOSPORUM	5 GAL	Medium
	PHOTINIA FRASERI	RED-TIPPED PHOTINIA	5 GAL	Medium
	PHORMIUM SPECIES	NEW ZEALAND FLAX	5 GAL	Low
	STRELITZIA REGINAE	BIRD OF PARADISE	5 GAL	Medium
	MEDIUM SHRUBS			
	BOUGAINVILLEA 'ROSENKA'	BOUGAINVILLEA	5 GAL	Low
	CALLISTEMON 'LITTLE JOHN'	DWARF CALLISTEMON	5 GAL	Low
	LIGUSTRUM J. 'TEXANUM'	WAX LEAF PRIVET	5 GAL	Medium
	RHAPHIOLEPIS INDICA 'CLARA'	INDIA HAWTHORN	5 GAL	Medium
	ROSA 'ICEBERG'	ICEBERG ROSE	5 GAL	Medium
	SMALL SHRUBS:			
	AGAPANTHUS A. 'PETER PAN'	DWARF LILY OF THE NILE	1 GAL	Medium
	BUXUS M. 'GREEN BEAUTY'	JAPANESE BOXWOOD	1 GAL	Medium
	CARISSA M. 'PROSTRATA'	NATAL PLUM	1 GAL	Medium
	HEMEROCALLIS HYBRIDS	DAY LILY	1 GAL	Medium
	PHILODENDRON 'XANADU'	DWARF PHILODENDRON	1 GAL	Medium
	ROSEMARINUS PROSTRATUS	DWARF ROSEMARY	1 GAL	Low
	TRACHELOSPERMUM JASMINIOIDES	STAR JASMINE	1 GAL	Medium
	GROUNDCOVERS:			
	COPROSMA X KIRKII	CREEPING MIRROR PLANT	1 GAL	Low
	MYOPORUM 'PACIFICUM'	DWARF MYOPORUM	1 GAL	Low
SODDED TURF:				
	WATER CONSERVING TALL-TYPE FESCUE 'MEDALLION DWARF' BY PACIFIC SOD OR EQUAL			
PRIVATE HOMEOWNER LANDSCAPE AREAS:				
	PER HOMEOWNER			

LSA

FIGURE 3.12

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SOURCE: MJS Design Group

Barton Place

Conceptual Landscape Plan - Residential

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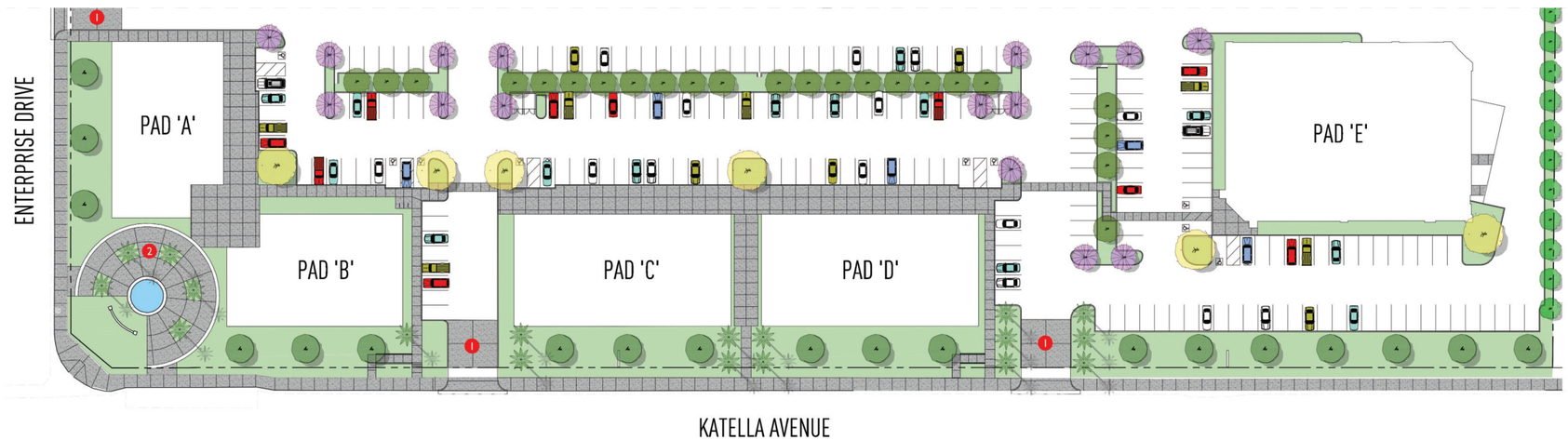

PROPOSED PLANT PALETTE

ALL PROPOSED TREES AND SHRUBS WILL BE COMPLIANT WITH CAL GREEN REQUIREMENTS FOR WATER CONSERVING AND NON-INVASIVE AS DEFINED BY IPC.

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	BRACHYCHITON POPULNEUS	BOTTLE TREE	24" BOX	Medium
PERIMETER SCREEN TREES:				
	ROBINIA x 'PURPLE ROBE'	PURPLE ROBINIA	24" BOX	Low
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	Medium
PALMS:				
	PHOENIX DACTYLIFERA 'MEDJOOL'	DATE PALM	18' BTH	Low
	WASHINGTONIA FILIFERA 'HYBRID'	HYBRID CA. FAN PALM	16' BTH	Low
UPRIGHT TREES:				
	CUPRESSUS SEMPERVIRENS	ITALIAN CYPRESS	24" BOX	Medium
	JUNIPERUS CHINENSIS 'BLUE POINT'	BLUE POINT JUNIPER	24" BOX	Medium
ACCENT TREES:				
	LAGERSTROEMIA I. HYBRID	CRAPE MYRTLE	24" BOX	Medium
	TABEBUIA IMPETIGINOSA	PINK IPE TREE	24" BOX	Medium
ENTRY DRIVE TREE				
	OLEA EUROPEAEA 'SWAN HILL'	FRUITLESS OLIVE	48" BOX	Medium
COMMUNITY GARDEN TREES:				
	CITRUS SPP.	CITRUS TREES T.B.S.	24" BOX	Medium
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	CUPRESSUS SEMPERVIRENS	ITALIAN CYPRESS	24" BOX	Medium
	LAGERSTROEMIA I. HYBRID	CRAPE MYRTLE	24" BOX	Medium
	MAGNOLIA G. 'LITTLE GEM'	SOUTHERN MAGNOLIA	24" BOX	Medium
	PLATANUS x A.'BLOODGOOD'	PLANE TREE	24" BOX	Medium
	PYRUS CALLERYANA 'CHANTICLEER'	FLOWERING PEAR	24" BOX	Medium
	OLEA 'SWAN HILL'	FRUITLESS OLIVE	36" BOX	Low
	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	24" BOX	Low
	TABEBUIA IMPETIGINOSA	PINK IPE TREE	36" BOX	Medium
	TIPUANA TIPU	TIPU TREE	24" BOX	Medium
SHRUBS:				
	LARGE SHRUBS:			
	ARBUTUS UNEDO	STRAWBERRY TREE-MULTI	5 GAL	Low
	AGAVE ATTENUATA	FOXTAIL AGAVE	5 GAL	Low
	DIETES VEGETA	FORTNIGHT LILY	5 GAL	Medium
	FEIJOA SELLOWIANA	PINEAPPLE GUAVA	5 GAL	Low
	PITTOSPORUM SPECIES	PITTOSPORUM	5 GAL	Medium
	PHOTINIA FRASERI	RED-TIPPED PHOTINIA	5 GAL	Medium
	PHORMIUM SPECIES	NEW ZEALAND FLAX	5 GAL	Low
	STRELITZIA REGINAE	BIRD OF PARADISE	5 GAL	Medium
	MEDIUM SHRUBS			
	BOUGAINVILLEA 'ROSENKA'	BOUGAINVILLEA	5 GAL	Low
	CALLISTEMON 'LITTLE JOHN'	DWARF CALLISTEMON	5 GAL	Low
	LIGUSTRUM J. 'TEXANUM'	WAX LEAF PRIVET	5 GAL	Medium
	RHAPHIOLEPIS INDICA 'CLARA'	INDIA HAWTHORN	5 GAL	Medium
	ROSA 'ICEBERG'	ICEBERG ROSE	5 GAL	Medium
	SMALL SHRUBS:			
	AGAPANTHUS A. 'PETER PAN'	DWARF LILY OF THE NILE	1 GAL	Medium
	BUXUS M. 'GREEN BEAUTY'	JAPANESE BOXWOOD	1 GAL	Medium
	CARISSA M. 'PROSTRATA'	NATAL PLUM	1 GAL	Medium
	HEMEROCALLIS HYBRIDS	DAY LILY	1 GAL	Medium
	PHILODENDRON 'XANADU'	DWARF PHILODENDRON	1 GAL	Medium
	ROSEMARINUS PROSTRATUS	DWARF ROSEMARY	1 GAL	Low
	TRACHELOSPERMUM JASMINIOIDES	STAR JASMINE	1 GAL	Medium
	GROUNDCOVERS:			
	COPROSMA X KIRKII	CREEPING MIRROR PLANT	1 GAL	Low
	MYOPORUM 'PACIFICUM'	DWARF MYOPORUM	1 GAL	Low
SODDED TURF:				
	WATER CONSERVING TALL-TYPE FESCUE 'MEDALLION DWARF' BY PACIFIC SOD OR EQUAL			
PRIVATE HOMEOWNER LANDSCAPE AREAS:				
	PER HOMEOWNER			

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FIGURE 3.13

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SOURCE: MJS Design Group

Barton Place

Conceptual Landscape Plan - Commercial

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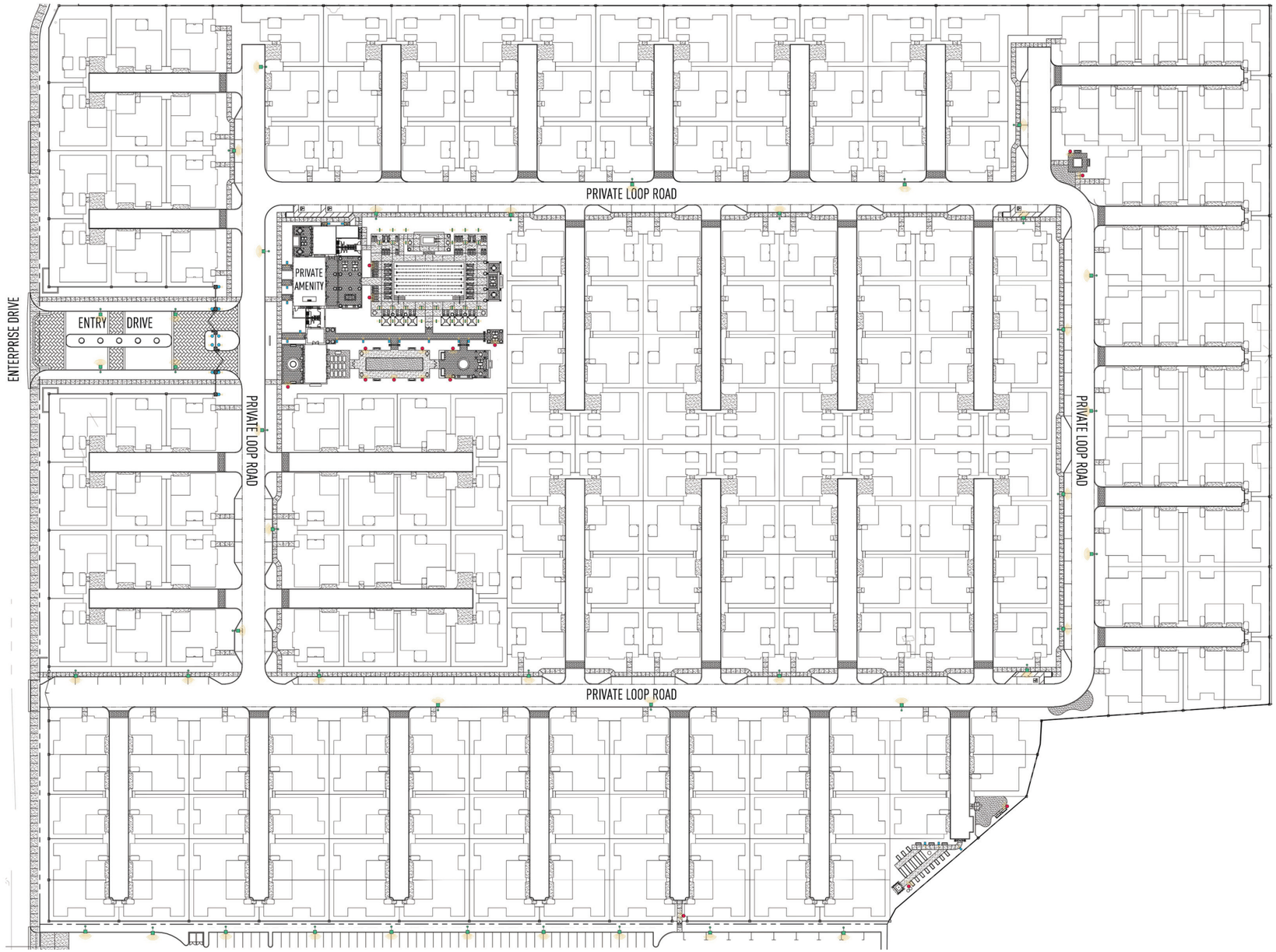

EXTERIOR LIGHTING LEGEND

SYMBOL	TYPE/TECHNIQUE:	LOCATION:
	42" HT BOLLARD	PEDESTRIAN WALKWAYS
	10' HT POLE LIGHT	COMMON AREAS
	15' HT POLE LIGHT	SPINE ROAD UPGRADE POLE LIGHTS at ENTRY DRIVE
	PALM TREE UP/ DOWN LIGHTS	RECREATION AREA
	THEMATIC MOTORCOURT LIGHTS	PILASTERS

LSA

FIGURE 3.14

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SOURCE: MJS Design Group

Barton Place

Conceptual Lighting Plan - Residential

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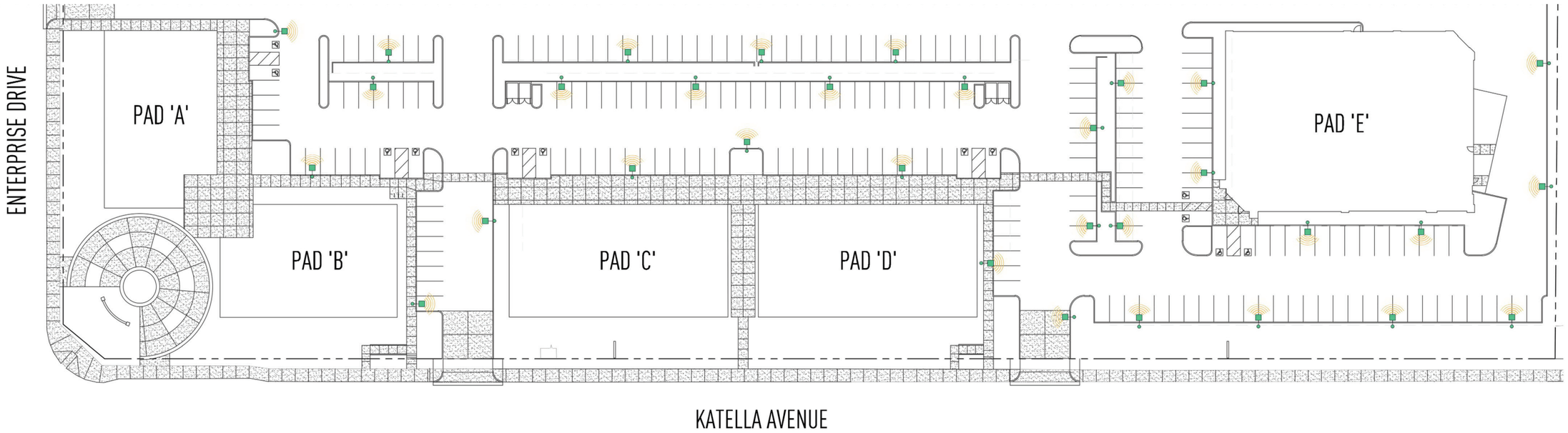

EXTERIOR LIGHTING LEGEND

SYMBOL	TYPE/TECHNIQUE:	LOCATION:
	42" HT BOLLARD	PEDESTRIAN WALKWAYS
	10' HT POLE LIGHT	COMMON AREAS
	15' HT POLE LIGHT	SPINE ROAD UPGRADE POLE LIGHTS at ENTRY DRIVE
	PALM TREE UP/ DOWN LIGHTS	RECREATION AREA
	THEMATIC MOTORCOURT LIGHTS	PILASTERS

LSA

FIGURE 3.15

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SOURCE: MJS Design Group

Barton Place

Conceptual Lighting Plan - Commercial

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LEGEND

- PROJECT BOUNDARY
- BMP DRAINAGE BOUNDARY
- 36"SD — EXISTING STORM DRAIN
- 18"SD — PROPOSED STORM DRAIN
- PROPOSED CATCH BASIN STENCILING & SIGNAGE
- PROPOSED PRETREATMENT CHAMBER FOR DETENTION CHAMBERS DETENTION INLET LOCATION
- DETENTION OUTLET LOCATION
- PROPOSED LOADING/DELIVERY AREA
- PROPOSED UNDERGROUND DETENTION SYSTEM SEE STORMTRAP DETAIL ON SHEET 8 PER VESTING TENTATIVE TRACT MAP
- PROPOSED COMMERCIAL BUILDING
- PROPOSED RESIDENTIAL BUILDING
- PROPOSED MODULAR WETLAND UNIT
- PROPOSED TRASH ENCLOSURE
- STREET SWEEPING PRIVATE STREETS, DRIVE AISLES & PARKING LOTS
- PERIMETER LANDSCAPING (SELF TREATING AREA)
- LANDSCAPE DEPRESSION (2" PONDING DEPTH)
- A / 1.75AC — DRAINAGE MANAGEMENT AREA (DMA) DESIGNATION; ACREAGE
- PROPOSED LOW-FLOW DIVERSION MANHOLE
- PROPOSED PUMP TO MODULAR WETLAND SYSTEM
- PROPOSED FLOW DIRECTION
- (ENTIRE SITE) PROPOSED COMMON AREA LANDSCAPING
- TRENCH DRAIN FILTER FOR DRIVE AISLE

MODULAR WETLAND SYSTEMS

DRAINAGE AREA	MWS NO.	MWS SIZE	TREATMENT RATE REQUIRED, cfs	TREATMENT RATE PROVIDED, cfs
A	#1-3	8X16	1.367	1.386
B	#4-5	8X12	0.613	0.692
C	#6-10	8X16	2.633	2.656
	#11	8X12		
D1	#12	4X8	0.103	0.115
D2	#13	4X8	0.093	0.115
D3	#14	4X13	0.140	0.144
D4	#15	8X12	0.319	0.346
D5	#16	4X17	0.182	0.206

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FIGURE 3.16

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SOURCE: Fuscoe Engineering

Barton Place

Conceptual Stormwater Management System

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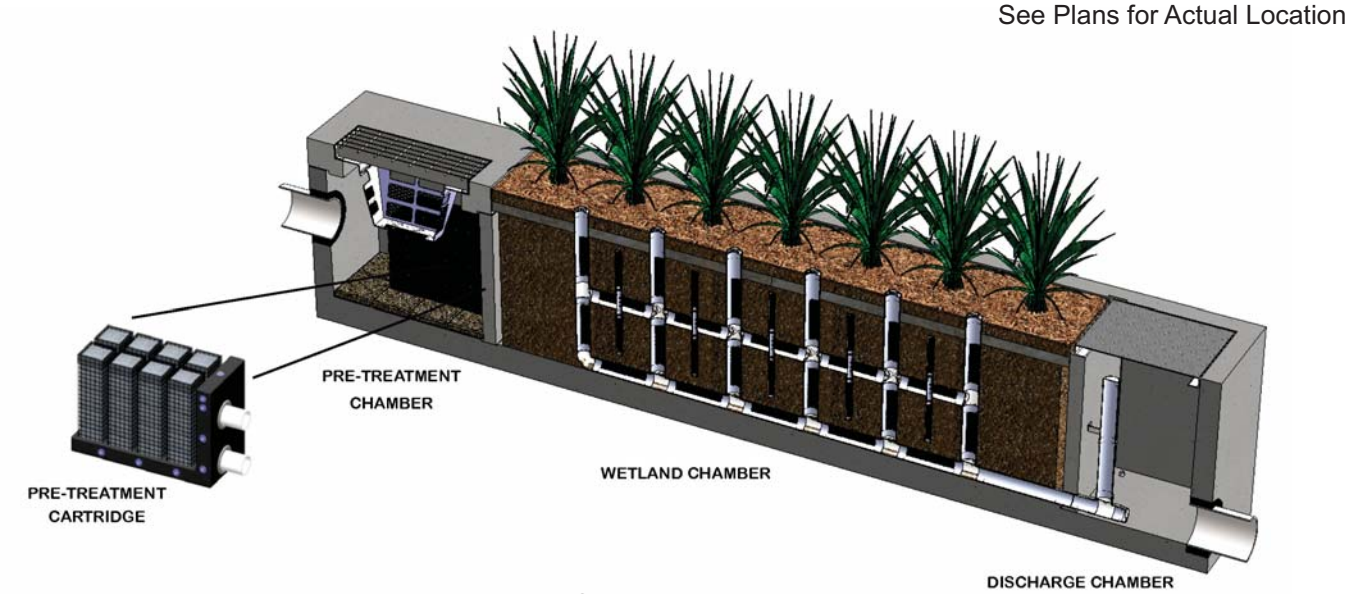
Underground Stormwater Detention System

For Illustrative Purposes Only
See Plans for Actual Location



Biofiltration Units

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FIGURE 3.17

Barton Place

Stormwater Treatment and Storage Features

SOURCE: Fuscoe Engineering

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LEGEND:

Planned Barrier Location

8' Planned Barrier Height (in feet)

Lots requiring upgraded second floor windows with a minimum STC rating of 35 and a means of mechanical ventilation (e.g. air conditioning).

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FIGURE 3.18

Barton Place

Noise Reducing Project Design Features

SOURCE: Urban Crossroads

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4.0 ENVIRONMENTAL IMPACT ANALYSIS

ENVIRONMENTAL SETTING

The proposed Barton Place Project (Project) is located at the northeast corner of Katella Avenue and Enterprise Drive, in the southwestern portion of the City of Cypress (City). The City encompasses approximately 6.5 square miles of land (approximately 4,218 acres) within northwestern Orange County (County). The Cities of Buena Park and La Palma border the City to the north. The City of Hawaiian Gardens, in Los Angeles County, borders the City to the northwest. The City of Los Alamitos borders the City to the west and south and is immediately south of the project site. The City of Garden Grove borders the City to the southeast. To the east, the City is bordered by the Cities of Buena Park, Anaheim, and Stanton. The regional and area locations of the project site are shown on Figure 3.1, Regional and Vicinity Location Map, in Chapter 3.0, Project Description, of this Draft Environmental Impact Report (Draft EIR).

The approximately 33-acre project site is located at the northeast corner of Katella Avenue and Enterprise Drive. Land uses south of Katella Avenue are located in the City of Los Alamitos and include commercial, office, motel, and single-family residential uses. The Cottonwood Church campus is located to the west across Enterprise Drive. The project site is directly bordered on the north by a portion of the Los Alamitos Race Course that includes one-story horse barns currently occupied by quarter and thoroughbred horses, associated equipment, and other portions of the Los Alamitos Race Course. A surface parking area for the Los Alamitos Race Course, a two-story church, and a four-story Residence Inn Hotel are located to the east of the project site, with commercial uses (including a 24-Hour Fitness and Office Depot) located to the east beyond the hotel. The project site and surrounding uses are depicted on Figure 3.2, Project Site and Surrounding Uses.

The project site was previously part of the Cypress Golf Club, which permanently closed in 2004. Following the closure of the Golf Club, the golf course was demolished, the site was regraded, and all vegetation was removed, except for some ornamental trees and vegetation along the southerly and southeasterly boundaries of the project site. The project site is unimproved and is not currently utilized for any activity. It is relatively flat, with elevations ranging between approximately 21 feet above sea level in the southwest corner and approximately 32 feet in the northeast corner of the site.

CHAPTER FORMAT

The following chapter contains 11 chapters, each of which addresses one or a series of related environmental topics outlined in Appendix G to the *California Environmental Quality Act (CEQA) Guidelines* and the City's *Initial Study/Environmental Checklist*.

For each environmental topic analyzed, this Draft EIR includes (1) a detailed explanation of the relevant existing conditions, (2) one or more thresholds of significance that will be applied to determine whether the impacts associated with the proposed Project are potentially significant or less than significant, (3) analysis of the environmental impacts and a determination of the proposed

Project's impacts, (4) identification of feasible mitigation for impacts identified as potentially significant, (5) identification of relevant project design features and regulatory compliance measures that would reduce the proposed Project's environmental impacts, and (6) determination of whether impacts remain significant if mitigation is implemented. A "significant impact" or "significant effect" means "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, water, minerals, flora fauna, ambient noise, and object of aesthetic significance. An economic or social change by itself shall not considered to be a significant effect on the environment." (*CEQA Guidelines*, Section 15382).

Each environmental topic section in Chapter 4.0 also includes a discussion of the cumulative effects of the proposed Project when considered in combination with other projects causing related impacts, as required by Section 15130 of the *CEQA Guidelines*.

Each of the sections is organized into nine subsections, as follows:

- **Introduction** briefly describes the topics and issues covered in the section.
- **Methodology** describes the approach and methods employed to complete the environmental analysis for the issue under investigation.
- **Existing Environmental Setting** describes the relevant physical conditions that exist at the time of the issuance of the Notice of Preparation/Initial Study (NOP/IS) that may influence or affect the issue under investigation. This section focuses on physical site characteristics that are relevant to the environmental topic being analyzed.
- **Regulatory Setting** lists and discusses the laws, ordinances, regulations, plans, and policies that relate to the specific environmental topic and how they apply to the proposed Project.
- **Thresholds of Significance** sets forth the thresholds that are the basis of the conclusions regarding significance, which are the criteria in Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*.
- **Project Impacts** describes the potential environmental changes to the existing physical conditions that may occur if the proposed Project is implemented. Evidence is presented to show the cause-and-effect relationship between the proposed Project and potential changes in the environment. In accordance with Section 15126.2(a) of the *CEQA Guidelines*, this Draft EIR is required to "identify and focus on the significant environmental effects" of the proposed Project. The magnitude, duration, extent, frequency, and range or other parameters of a potential impact are ascertained to the extent feasible to determine whether impacts may be significant. In accordance with CEQA, potential project impacts, if any, are classified as follows for each of the environmental topics discussed in this Draft EIR.
    - **Significant and Unavoidable Impact.** If the proposed Project is approved with significant and unavoidable impacts, the decision-making body is required to adopt a statement of overriding considerations pursuant to *CEQA Guidelines* Section 15093 explaining why the project benefits outweigh the unavoidable adverse environmental effects caused by those significant and unavoidable environmental impacts.
    - **Less than Significant Impact with Mitigation Incorporated.** This classification refers to potentially significant environmental impacts that can be feasibly mitigated to a level of insignificance. If the proposed Project is approved, the decision-making body is required to

make findings pursuant to *CEQA Guidelines* Section 15091 that significant impacts have been mitigated to the extent feasible through implementation of mitigation measures.

  - **Less than Significant Impact.** Less than significant impacts are environmental impacts that have been identified but are not potentially significant. No mitigation is required for less than significant impacts.
  - **No Impact.** A "no impact" determination is made when the proposed Project is found to have no environmental impact.

- **Mitigation Measures** are project-specific measures that avoid, minimize, rectify, reduce, eliminate, or compensate for a potentially significant impact.
- **Cumulative Impacts** refers to potential environmental changes to the existing physical conditions that may occur as a result of project implementation together with all other reasonably foreseeable, planned, and approved future projects in the vicinity of the project site that produce related impacts. Section 15355 of the *CEQA Guidelines* defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts may result from individually minor but collectively significant projects taking place over a period of time. Projects that have progressed to the stage where CEQA review has been initiated are normally treated as foreseeable probable future projects. For each of the environmental topics considered in this Draft EIR, the geographic scope of the cumulative analysis is defined.
- **Level of Significance after Mitigation** describes the significance of potential impacts after implementation of feasible mitigation measures.

Where applicable, sections include the following subsections:

- **Regulatory Compliance Measures** describes any relevant and applicable regulatory compliance measures that must be adhered to with respect to the construction or operation of the proposed Project and would reduce or lessen potential impacts related to a particular issue area.
- **Project Design Features** describes design features that the project applicant has incorporated into the proposed Project that would reduce or lessen potential impacts related to a particular issue area.

RELATED PROJECTS

A list of development projects that could cumulatively affect environmental conditions in the vicinity of the project site was prepared based on information obtained from the Cities of Cypress, Los Alamitos, Hawaiian Gardens, La Palma, Stanton, Buena Park, and Garden Grove. A total of 17 potentially related development projects have been identified for inclusion in the cumulative impact analyses for this Draft EIR. These related projects are either the subject of pending applications, have been approved, or are under construction as of March 2015. The related projects are located in the City and the surrounding Cities of Los Alamitos, Buena Park, Garden Grove, Hawaiian Gardens, La Palma, and Stanton, and include residential, retail, restaurant, religious, hospital, gaming, office, and industrial uses.

The related projects are listed and described in Table 4.0.A, Summary of Related Projects. Figure 4.0.1, Related Project Locations, illustrates the locations of the related projects in relation to the project site. It is noted that some of the related projects may not be completed by 2018 (the proposed Project's anticipated buildout year), may never be built, or may be approved and built at reduced densities. However, to provide a conservative forecast, the future baseline forecast assumes that all of the related projects will be fully built out by 2018.

Table 4.0.A: Summary of Related Projects

Project No.	Project Name	Location	Status	Project Description
City of Cypress				
1	13-Acre Retail/ Commercial Project	NW Corner of Katella Avenue and Winners Circle	Approved, not built	• 122,556 sf major retail • 21,000 sf retail/restaurant • 9,353 sf sit-down restaurant
2	Cottonwood Church	NW Corner of Katella Avenue and Lexington Drive	Approved, portion of project not built	• 245,843 sf church • 28,000 sf specialty retail • 33,600 sf community college • 1,750 students
3	Mackay Place Specific Plan	8721 Cypress Avenue	Approved, not built	47 single-family DU
4	Habitat for Humanity	6122 Lincoln Avenue	Approved, portion of project not built	10 condominiums
5	Lincoln Village	6178 and 6182 Lincoln Avenue	Approved, under construction	19 condominiums
6	Camp Place Townhomes	4861–4891 Camp Street	Approved, recently completed	16 condominiums
7	Cypress Townhome Square	4604 Lincoln Avenue	Approved, not built	57 condominiums
8	The Boardwalk	NW Corner of Katella Avenue and Valley View Street	Pending application	17,391 sf restaurants
City of Los Alamitos				
9	Los Alamitos Medical Center Specific Plan (Phase 2 and Phase 3)	Katella Avenue on the south, Cherry Street on the west, Catalina and Florista Streets on the north, Bloomfield Street on the east	Approved, not built	• 164 hospital beds • 14,100 sf light industrial (Central Plant)
City of Hawaiian Gardens				
10	Hawaiian Gardens Casino Redevelopment	11871 Carson Street	Approved, under construction	• 102,425 sf of gaming floor area • Demolition of 45,858 sf of gaming table area
JFTB Los Alamitos				
11	New Headquarters Facilities at JFTB Los Alamitos, California	JFTB Air Force Base	Approved, not built	• 229,833 sf general office • 124 employees

Table 4.0.A: Summary of Related Projects

Project No.	Project Name	Location	Status	Project Description
City of Stanton				
12	Harmony I	7102–7142 Kermore Lane	Approved, under construction	20 single-family detached DU
13	Harmony II	7171–7232 Kermore Lane	Approved, under construction	22 single-family detached DU
City of Buena Park				
14	Dickerson School Site	10051 Bernadette Avenue	Approved, not built	67 single-family detached DU
City of La Palma				
15	Residential Project	7601 and 7621 Walker Street	Pending application	7 single-family detached DU
City of Garden Grove				
16	Gas Station Remodel/ Expansion	11971 Valley View Street	Approved, not built	• 2,140 sf convenience store • 690 sf automatic car wash • Demolition of 384 sf of existing convenience store
17	Expansion of Existing Industrial Building	7191 Acacia Avenue	Approved, not built	3,760 sf industrial

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
DU = dwelling units
JFTB = Joint Forces Training Base
NW = northwest
sf = square foot/feet

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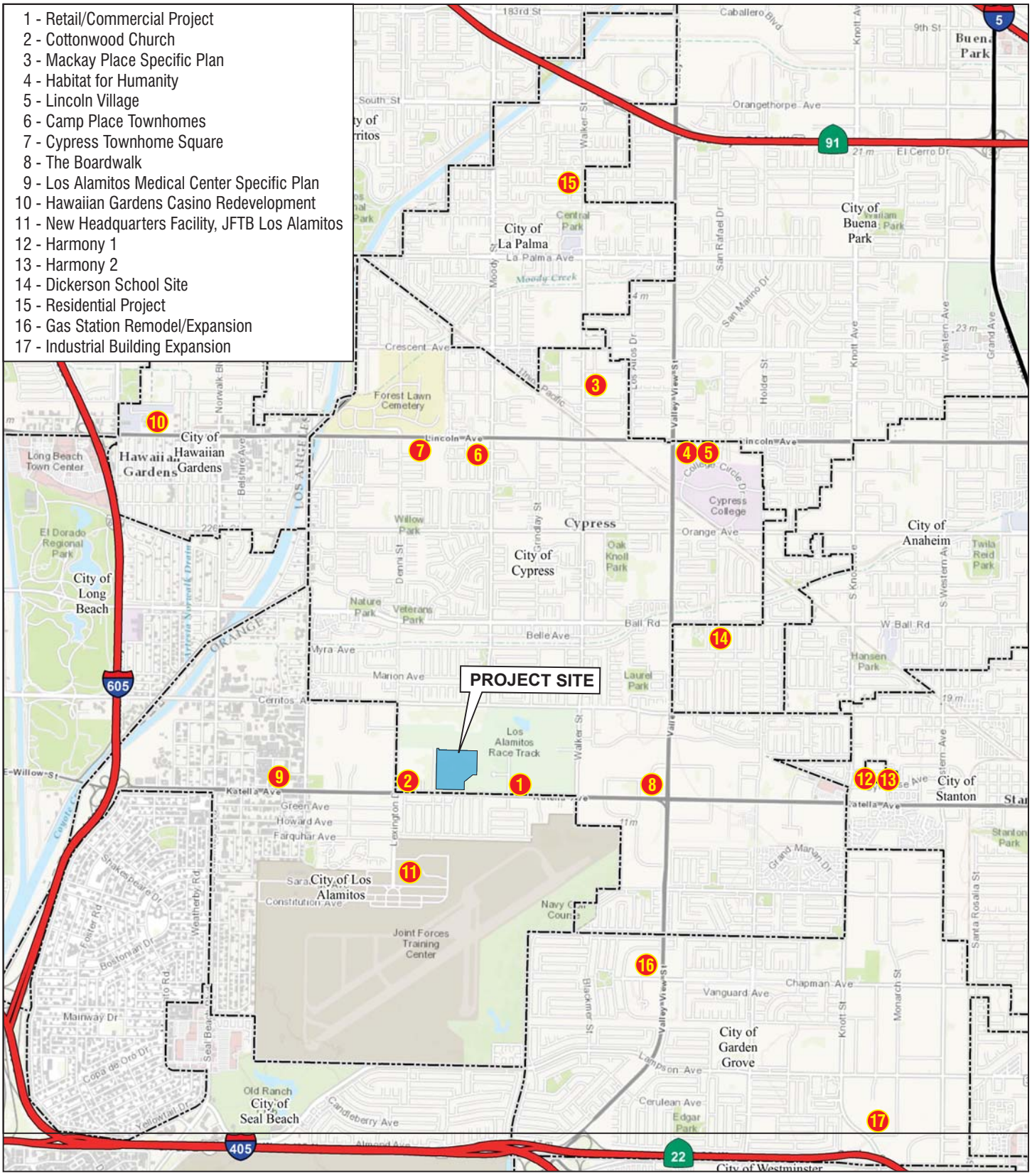

LSA

FIGURE 4.0.1

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0 2000 4000
FEET

SOURCE: ESRI

Barton Place

Related Project Locations

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4.1 AESTHETICS

4.1.1 Introduction

This section provides a discussion of the existing visual and aesthetic resources on the project site and in the surrounding area, as well as an analysis of potential impacts that could result from implementation of the proposed Project with regard to visual quality, views, and light and glare.

Photographs of the project site and conceptual plans and renderings are included in this section to assist in the analysis of the proposed Project's potential impacts on visual and aesthetic resources.

4.1.2 Methodology

The assessment of aesthetic impacts is subjective by nature. This analysis identifies and objectively examines factors that contribute to the perception of aesthetic impacts that could be caused by the proposed Project. The potential aesthetic impacts of the proposed Project were assessed based on consideration of several factors, including setting, scale, mass, and proportion.

The concepts and terminology used in this analysis are described below.

- **Aesthetic Resource:** An aesthetic resource is any element, or group of elements, that is visually pleasing or interesting. A community's aesthetic resources include its natural setting, the architectural quality of its buildings, the vitality of its landscaping, and the views of these resources. The degree to which these resources are present in a community is subject to personal interpretation. However, it is possible to qualify certain resources as having aesthetic characteristics and establish general guidelines for assessing the aesthetic impacts of new development.
- **Glare:** Glare refers to a continuous or periodic intense light that may cause eye discomfort or be blinding to humans.
- **Light Source:** A light source is a device that produces illumination, including incandescent bulbs, fluorescent and neon tubes, halogen and other vapor lamps, and reflecting surfaces or refractors incorporated into a lighting fixture. Any translucent enclosure of a light source is considered to be part of the light source.
- **Sensitive View:** Sensitive views are generally those associated with designated vantage points and public recreational uses, but the term can be more broadly applied to encompass any valued public vantage point. Sensitivity level has to do with the (1) intensity of use of a visual resource, (2) visibility of the visual resource and (3) importance of the visual resource to users.
- **Vantage Point:** A vantage point is a particular point of observation.
- **Visual Character and Quality:** Visual character and quality refers to the aesthetic character or quality of a streetscape, building, group of buildings, or other man-made or natural feature that creates an overall impression of an area. For example, a pleasing streetscape with trees, and well-kept residences and yards are resources that create a pleasing impression of an area. In general, concepts of visual character and quality can be organized around four basic elements: (1) site utilization; (2) buildings and structures; (3) landscaping; and (4) signage. Adverse effects on visual quality can include the loss of aesthetic features or the introduction of contrasting

features that could contribute to a decline in overall visual character. In addition, the degree of access to a visual resource contributes to the value of that resource so that an adverse visual quality effect can also occur if access to a visual resource is restricted.

The analysis of the relevant visual impacts here focuses on changes in the visual character of the project site that would result from implementation of a proposed project. This would include the visual compatibility of onsite and adjacent uses, changes to viewpoints where visual changes would be evident, and the introduction of new sources of light and glare. Impacts to the existing environment in and around the project site are identified by the contrast between the project site's visual setting before and after implementation of the proposed Project. Although few standards exist to define perceptions of aesthetic value, the degree of visual change can be described in terms of visual contrast. The visual contrast of pattern elements[1] within visual environments can be described based on four aspects of pattern character:[2] dominance, scale, diversity, and continuity.

Visual changes to an existing setting could result in a positive or a negative perception of the proposed Project, depending on the viewer. Viewer sensitivity is a combination of visual quality changes and viewer response to those changes. Viewer sensitivity to a project varies depending on familiarity with existing views, the sense of ownership of these views, and the activities viewers perform in relationship to those views. Visual perception is the act of seeing or recognizing an object and can be affected by physical conditions such as distance and speed. As an observer's distance increases from an object, the ability to see the details of the object decreases. Similarly, as an observer's speed increases, the sharpness of lateral vision declines and the observer tends to focus along the line of travel. Therefore, the physical location of the viewer and the duration of the view would affect viewer exposure. All of these factors potentially affect perception and reaction to visual changes.

Potential impacts of the proposed Project on area viewpoints are analyzed by evaluating project impacts from three viewing distance zones, as explained below.

- **Foreground Views.** These views include elements that are seen at a close distance and that dominate the entire view. These vantage points are generally 500 feet or less from a project site, depending on the scale of the project, surrounding topography, and other prominent physical features in the project vicinity.
- **Middleground Views.** These views include elements that are seen at a moderate distance and that partially dominate the view. These vantage points are generally located between 500 feet and 1 mile from the project site.
- **Background Views.** These views include elements that are seen at a long distance and typically comprise horizon-line views that are part of the overall visual composition of the area. These vantage points are generally farther than 1 mile from the project site.

Light and Glare. The analysis of light and glare identifies the location of light-sensitive land uses and describes the existing ambient conditions on the project site and in the project vicinity. The analysis describes the proposed Project's light and glare sources and the extent to which project

[1] Pattern elements are primary attributes of a visual landscape and include form, line, color, and texture.
[2] Pattern character refers to the visual relationships of pattern elements.

lighting, including any potential illuminated signage, would spill from the project site onto adjacent light-sensitive areas. The analysis also describes the affected street frontages, the direction in which the light would be focused, and the extent to which the proposed Project would illuminate sensitive land uses. It also considers the potential for sunlight to reflect off of windows and building surfaces (glare). Glare can be produced during evening and nighttime hours by artificial light sources, such as illuminated signage and vehicle headlights. Glare-sensitive uses generally include residences and transportation corridors (i.e., roadways).

4.1.3 Environmental Setting

Regional Visual Character. Visual resources in the regional viewshed include views of the Santa Ana Mountains and the distant San Gabriel Mountains, which can be seen from various points throughout the City, including the project site.

Neighborhood Visual Character. The visual character immediately surrounding the project site reflects a developed, urban area that consists of residential, commercial/retail, hotel, light industrial, and institutional uses. The Los Alamitos Race Course is located immediately north and northeast of the project site. The Race Course grandstand and associated light standards are visible from the project site. The light standards are comparable in height to the grandstand. The Residence Inn Hotel located to the east of the project site is approximately 48 feet in height. Cottonwood Church, located to the west of the project site, is approximately 50 feet in height. Residential and commercial uses located south of the project site are one or two stories in height and are varied in terms of architectural style and color.

Project Site Visual Character. The project site is relatively flat with a slight slope to the west/southwest and minor berms along Katella Avenue. It is currently vacant and unimproved. Existing onsite vegetation consists of non-native ornamental vegetation associated with the former golf course. As shown on Figure 3.3, Existing Vegetation Area, in Chapter 3.0, Project Description, this vegetation is located in an approximately 1.5-acre area along the southerly and southeasterly boundaries of the project site. The row of non-native trees along the southerly boundary of the project site shields views of much of the project site from vehicles and pedestrians traveling along Katella Avenue. The project site can be viewed from its western boundary along Enterprise Drive. Visual diversity currently exists because the undeveloped project site contrasts with the adjacent commercial, hotel, church, and racetrack uses. Visual continuity of the project site is relatively low because views of the project site are generally interrupted and vary according to vantage point.

Existing Views. The following discussion describes several views of the project site from adjacent public roadways. Photographs were taken to analyze the various views that currently exist and that could be affected by the proposed Project. Figure 4.1.1, View Location Map, indicates the vantage point from which each view photograph was taken and illustrates the representative view from that location.

Figures 4.1.2 through 4.1.5 contain four photographs of the existing project site, as referenced in the following discussion, and are provided at the end of the section. No views from the north or east have

been included because the proposed senior residential community and commercial/retail improvements would not be visible from Cerritos Avenue or Walker Street to the north and east.

- **View 1: View from Enterprise Drive (Figure 4.1.2):** View 1 shows a view of the project site facing northeast from the west side of Enterprise Drive. This vantage point was selected because it represents the view of the project site for motorists traveling north on Enterprise Drive along the western boundary of the project site. In addition, View 1 and View 2 (described below) illustrate views of the project site from Cottonwood Church, which is located on the west side of Enterprise Drive.

  As shown on Figure 4.1.2, View 1 depicts the roadway and sidewalks in the foreground, the project site and Los Alamitos Race Course facilities (including a portion of the barn area and the grandstand) in the middleground, and the sky and distant views of the San Gabriel Mountains in the background.

- **View 2: View from Enterprise Drive (Figure 4.1.3):** View 2 shows a view of the project site facing southeast from the sidewalk along Enterprise Drive, across the street from the project site. As shown, much of the existing project site consists of undeveloped land, with berms and vegetation along the southerly and southeasterly boundaries. This vantage point was selected because it represents the view of the project site for motorists traveling south on Enterprise Drive along the western boundary of the project site. In addition, this view illustrates the view from the Cottonwood Church site on the west side of Enterprise Drive.

  As shown on Figure 4.1.3, View 2 consists of roadway and sidewalks in the foreground; the project site, the Residence Inn Hotel and other existing commercial buildings, ancillary facilities related to the Los Alamitos Race Course, and ornamental trees in the middleground; and the sky in the background.

- **View 3: View from the corner of Enterprise Drive and Katella Avenue (Figure 4.1.4):** View 3 shows a view of the southern boundary of the project site along Katella Avenue. This vantage point was selected because it depicts the berms and vegetation at the southern boundary of the existing project site along Katella Avenue and because it shows the portion of the project site where the proposed commercial/retail improvements would be developed. The ornamental street trees and shrubs along Katella Avenue currently shield views of the project site from the south.

  As shown on Figure 4.1.4, View 3 consists of the sidewalk in the foreground. Trees and shrubs dominate the middleground view, but a small portion of the Residence Inn Hotel is visible on the left side of the photograph, and a portion of Katella Avenue and existing commercial buildings located south of Katella Avenue are visible on the right side of the photograph. The sky and distant views of the Santa Ana Mountains are the background.

- **View 4: View from Katella Avenue (Figure 4.1.5):** View 4 shows a view of the project site facing north from the south side of Katella Avenue. This vantage point was selected because it represents the view of the project site from a public viewpoint south of the project site.

  As shown on Figure 4.1.5, View 4 consists of the roadway and existing public sidewalk in the foreground, a fence, vegetation and berms along the southern boundary of the project site in the middleground, and the sky in the background.

Existing Lighting and Glare. Nighttime lighting that is present in the vicinity of the project site consists of street lights and vehicle headlights on nearby roadways, building facade and interior lighting, and pole-mounted lighting in the parking areas on adjacent sites. The most significant existing nighttime light source in the project vicinity is the light standards that illuminate the racetrack at the Los Alamitos Race Course.

4.1.4 Regulatory Setting

Amended Specific Plan/Zoning Ordinance. The Amended Specific Plan establishes design guidelines for land uses proposed as part of the proposed Project. All buildings and open space areas included as part of the proposed Project would be consistent with design guidelines, lighting standards, and landscaping design guidelines established in the Amended Specific Plan, except where the Amended Specific Plan references applicable design standards, if any, in the City's Zoning Ordinance (Appendix I to the City's Municipal Code). In addition, the Zoning Ordinance sets forth exterior lighting standards, including the following:

- **Section 3.11.060.B (Exterior Features):** The level of parking lot light projected onto any ground or wall surface shall not be less than two (2) footcandles nor more than five (5) footcandles at the base of the light fixture. Building-mounted decorative lights shall not exceed five (5) footcandles measured five (5) feet from the light source.
- **Section 3.11.060.C (Security Lighting):** Security lighting shall provide a minimum of two (2) footcandles and a maximum of three (3) footcandles at the ground level of the entrance.
- **Section 3.11.060.D (Shielding of Light Source):** Where the light source is visible from outside the project boundary, shielding shall be required to reduce glare so that neither the light source nor its image from a reflective surface shall be directly visible from any point beyond the property line. This requirement shall not apply to traffic safety lighting or public street lighting.
- **Section 3.14.050.C.4 (Required Improvements for Off-Street Parking Areas):** The level of parking lot light shall not exceed one footcandle at a site's property lines.

4.1.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, implementation of the proposed Project would have a significant aesthetic impact if it would:

Threshold 4.1.1: Have a substantial adverse effect on a scenic vista;

Threshold 4.1.2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State-designated scenic highway;

Threshold 4.1.3: Substantially degrade the existing visual character or quality of the site and its surroundings; or

Threshold 4.1.4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The analysis in the Initial Study (Appendix A) determined that the proposed Project's impacts with respect to Thresholds 4.1.1 and 4.1.2 would be clearly insignificant and unlikely to occur. Therefore, the aesthetic impacts relating to those thresholds are not considered further in this Draft EIR.

4.1.6 Project Impacts

Threshold 4.1.3: Substantially degrade the existing visual character or quality of the site and its surroundings.

Construction.

Less than Significant Impact. As described in Chapter 3.0, Project Description, of this Draft EIR, the proposed Project includes the development of a senior residential community and commercial/retail uses on the project site. Construction activities typically result in site disturbance, movement of construction equipment, import and export of materials, views of incomplete buildings, and other activities that generally contrast with the existing aesthetic character of an area. Construction activities would be visible from Katella Avenue and Enterprise Drive. Grading and construction of new buildings and installation of landscaping would be temporarily disruptive. Construction would occur over an approximately 34-month period, but because of the short-term nature of construction activities, it would not substantially affect the permanent visual character or quality of the project site or the surrounding area. Furthermore, during demolition, grading, and construction activities, the project site would be surrounded by construction fencing to minimize temporary visual impacts. Therefore, construction impacts related to visual character would be temporary and less than significant.

Operation.

Less than Significant Impact. As described above, the visual character immediately surrounding the project site is varied and representative of a fully built-out urban area containing a mix of industrial, institutional and commercial/retail uses (including hotels). There is no distinguishable or consistent architectural theme.

Views. The following is a discussion of the visual changes that would occur at the identified public vantage points as a result of the proposed Project.

- **View 1: View from Enterprise Drive.** As described above, View 1 (Figure 4.1.2) is a view of the project site facing northeast from the west side of Enterprise Drive. Following the development of the proposed Project, the portion of the project site visible from this vantage point would include landscaping, a perimeter wall, a portion of the senior residential community, and the project vehicular entry from Enterprise Drive. The foreground view of the street and sidewalk would still be visible. Project landscaping along Enterprise Drive would also be visible and would consist of trees and shrubs

beyond the sidewalk. The perimeter trees would screen views of the one- and two-story senior homes that would be in the middleground. The existing middleground view of the undeveloped project site and views of the Los Alamitos Race Course facilities would be replaced with views of the landscaped entry to the senior residential community, landscaping along Enterprise Drive, and limited views of residential structures. Project landscaping and structures would obscure views of the distant San Gabriel Mountains, but background views of the sky would remain.

- **View 2: View from Enterprise Drive.** View 2 depicts a view of the project site facing southeast from the west side of Enterprise Drive. Following the development of the proposed Project, the portion of the project site shown in this view would include a portion of the senior residential community and the commercial/retail improvements. The foreground view of the street and sidewalk would still be visible. Project landscaping along Enterprise Drive would also be visible and would consist of trees and shrubs beyond the sidewalk. The perimeter wall and trees would screen views of the one- and two-story senior homes and commercial/retail buildings that would be in the middleground. The existing middleground view of the Los Alamitos Race Course facilities and the Residence Inn Hotel and other commercial buildings would be replaced by views of landscaping along Enterprise Drive, limited views of residential structures, and views of the commercial/retail structures. The background view of the sky would not change.
- **View 3: View from the Corner of Enterprise Drive and Katella Avenue.** View 3 shows a view of the southern boundary of the project site along Katella Avenue facing east. The existing berms and trees along Katella Avenue at the southern boundary of the project site would be removed as part of the proposed Project. Following the development of the proposed Project, the portion of the project site shown in this view would include the commercial/retail improvements. Conceptual elevations depicting the typical architectural design of the commercial/retail buildings are provided on Figure 3.10, and the landscape plan for the commercial/retail portion of the proposed Project is provided on Figure 3.13. The commercial/retail improvements would feature a hardscape plaza, including a water feature, seating, and signage for the commercial tenants, near the corner of Katella Avenue and Enterprise Drive. The plaza would provide a gathering place and a focal point for vehicles and pedestrians viewing the project site from Enterprise Drive and Katella Avenue. The height of the commercial/retail buildings would not exceed 39 feet and would be somewhat screened from view by trees and other plantings in the 20-foot landscaped buffer along Enterprise Drive and Katella Avenue. The background view of the sky would not change.
- **View 4: View from Katella Avenue.** View 4 depicts a view of the project site facing north from Katella Avenue. The existing berms and trees along Katella Avenue at the southern boundary of the project site would be removed as part of the proposed Project. Following the development of the proposed Project, the portion of the project site shown in this view would include the commercial/retail improvements and related vehicular entrances. The foreground view of the street and sidewalk would still be visible, but it would be enhanced by the addition of several perimeter screen trees and a 20-foot landscaped buffer along the project site's southern border. Conceptual elevations depicting the typical architectural design of the commercial/retail structures are provided on Figure 3.10 and the landscape plan for the commercial/retail portion of the proposed

Project is provided on Figure 3.13. Background views of existing Los Alamitos Race Course facilities north of the project site and the distant San Gabriel Mountains are currently screened from view at this vantage point due to the vegetation along the southern boundary of the project site, and would continue to be screened by the proposed perimeter screen trees and landscaped buffer, as well as the proposed commercial/retail and senior residential improvements. The existing middleground/foreground views of undeveloped land and ornamental trees along the southern boundary of the project site would be replaced by partially screened views of the commercial/retail buildings. The sky would be visible in the background to a greater degree following project implementation because of the lower height of the landscaping.

Impact Analysis. Implementation of the proposed Project would result in the improvement of vacant, undeveloped land with a low-rise senior residential community and several neighborhood commercial/retail buildings, thereby altering the visual character of the project site. The proposed Project has been designed to create an attractive, low-density, mixed-use development, including single-family homes for seniors and neighborhood commercial/retail uses, on a site that has been vacant and unused for many years.

As shown in the architectural elevations provided on Figures 3.8, 3.9, and 3.10, the architectural design of the proposed buildings includes materials, colors, and finishes that are reflective of the Santa Barbara and Spanish Colonial architectural styles, which are characterized by neutral colors and a variety of materials, such as tile, cement, plaster, and wood. The inclusion of low-scale, single-family homes (as compared to large multifamily buildings) and distribution of the commercial/retail space among five buildings would result in modest scale and massing of the proposed Project.

The senior residential community's buildings would be one or two stories, with a maximum height of 30 feet, which is substantially lower than the maximum building height of 55 feet allowed under the Amended Specific Plan. Similarly, the proposed commercial/retail buildings along Katella Avenue would not exceed 39 feet in height, which is well below the maximum height of 99 feet allowed under the Amended Specific Plan.

The proposed buildings would also be compatible with the scale, height and massing of the existing residential and commercial/retail uses in the surrounding area. The low-density senior residential community would be similar in scale to the existing single-family neighborhoods in Cypress north of Cerritos Avenue and in Los Alamitos south of Katella Avenue. The commercial/retail buildings would be compatible with the existing development along both sides of Katella Avenue.

The proposed Project would include substantial landscaping to help create a pleasing aesthetic effect. As shown on Figure 3.12, Conceptual Landscape Plan–Residential, and Figure 3.13, Conceptual Landscape Plan–Commercial, trees and shrubbery would be planted along the southern and western boundaries of the project site to provide a landscaped buffer to screen the project site from surrounding uses and enhance the visual quality of its borders. The landscaping plan for the senior residential community includes a mix of ornamental trees and shrubbery. A mixture of trees and shrubs would be located at the entryway, along the

private loop road in the senior residential community, and along walkways throughout the development. In addition, the proposed senior amenity center would include substantial landscaping, including a community garden and citrus and fruit trees. Pedestrian paths and landscaping on the project site would enhance the architectural character of the onsite buildings and open space areas. As shown on Figure 3.13, Conceptual Landscape Plan–Commercial, the landscaping plan for the commercial/retail area includes a mix of trees and shrubs that would be located throughout the parking areas. In addition, trees would line the vehicular and pedestrian entryways along Katella Avenue.

Based on the discussion above, the proposed Project would make a positive contribution to the aesthetic value of the project site and the aesthetic character of the surrounding area with the development of new improvements that incorporate attractive and creative design elements and features. The proposed Project would be compatible with, and complement, existing development in the project area. The single-family nature and height (one to two stories) of the proposed buildings in the senior residential community are similar to the nature and height of homes in the existing single-family neighborhoods north of Cerritos Avenue and south of Katella Avenue. The design, scale, height, and massing of the proposed commercial/retail buildings is consistent with that of other commercial and institutional buildings along Katella Avenue, including the buildings in the Cottonwood Church complex and the Residence Inn Hotel. The proposed Project would significantly increase the amount and quality of landscaping and streetscape on and adjacent to the project site, and would include new street trees and landscaping along Enterprise Drive, the east side of which currently does not include any trees or landscaping.

Overall, development of the proposed Project and associated landscaping would visually “fill in” the existing, unused project site and would represent an extension and reflection of the surrounding urban environment, thereby creating a needed visual connection between the project site and the surrounding area. Similarly, the proposed Project would improve the visual cohesiveness of the area by converting an otherwise unused site into an active component of the community.

The proposed Project’s buildings include a variety of surface materials and colors to create horizontal and vertical articulation, create visual interest, and reduce building scales. In particular, the use of multiple residential and commercial/retail buildings with various plane breaks and color tones would break up the scale and massing of the proposed Project.

In addition, the proposed Project is consistent with the applicable goals and policies in the City’s Land Use Element related to visual resources. The proposed Project includes a 25-foot setback along Katella Avenue, of which 20 feet would be landscaped in accordance with the Specific Plan, with a landscape buffer separating the senior residential and commercial/retail uses to ensure a sensitive transition between commercial and residential uses (Policy LU 2.1). The entire proposed Project is designed to reflect high-quality architectural design and site planning, as refined in the City’s site plan review process (Policy LU 4.2).

Determining the potential significance of a project’s impact on visual character involves some degree of subjective judgment. While the proposed Project would change the visual character of the project site, its height, design, massing, and scale would be compatible with

and enhance the existing urban uses in the surrounding area that reflect its aesthetic character. Moreover, as stated above, views of the proposed Project from Enterprise Drive and Katella Avenue would be screened by the proposed perimeter screen trees and landscaped buffers. The commercial/retail component would include a 25-foot setback along Katella Avenue, of which 20 feet would be landscaped in accordance with the Amended Specific Plan. In addition to the required landscaped setback along Katella Avenue and the 10-foot landscaped setback along Enterprise Drive, the plaza area, parking lot medians, and landscape buffer separating the senior residential and commercial/retail uses would be designed with a similar landscape theme and contain a variety of tree and plant species.

For these reasons, the completed Project would not substantially degrade the existing visual character or quality of the project site and its surroundings, and the proposed Project's impact would therefore be less than significant.

Threshold 4.1.4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Construction.

Less than Significant Impact. Construction activities would occur only during daylight hours. Any construction-related illumination during evening and nighttime hours would be used for safety and security purposes only and would occur only for the duration required for the temporary construction process. Light resulting from construction activities would not substantially impact sensitive uses, substantially alter the character of surrounding uses or interfere with the performance of offsite activities. In addition, construction activities are not anticipated to result in flat, shiny surfaces that would reflect sunlight or cause other natural glare. Minor glare from sunlight on construction equipment and vehicle windshields is not anticipated to impact visibility in the area because (1) relatively few construction vehicles and pieces of construction equipment would be used on the project site, and (2) the construction site would be fenced and shielded from pedestrian and vehicular views. In addition, construction vehicles would not be operating at night and thus would not create nighttime sources of glare. Therefore, construction of the proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, and light and glare impacts associated with construction would be less than significant.

Operation.

Less than Significant Impact. Existing sources of light in the project vicinity include headlights on nearby roadways, building facade and interior lighting, pole-mounted lighting in the parking areas of adjacent developments, and lighting associated with the Los Alamitos Race Course. Adjacent residential areas, public facility uses (i.e., Cottonwood Church and nearby McAuliffe Middle School), commercial uses (including the four-story Residence Inn Hotel), and the Los Alamitos Race Course currently emit light and glare along Enterprise Drive and Katella Avenue. Lighting from existing distant development within the City also contributes to the background lighting in the project vicinity. The project site itself contains no existing light sources.

The proposed Project would introduce new sources of light to the project site that are typical of residential and commercial/retail development projects. The lighting proposed as part of the proposed Project includes street lights along interior roadways and sidewalks, bollard lighting along pedestrian walkways, and light poles in commercial parking areas, common areas, and at the entry drives (see Figures 3.14 and 3.15, Conceptual Lighting Plans, in Chapter 3.0, Project Description). Accent uplights would also be provided to highlight landscaping in the recreation areas. The proposed senior residential community would be lighted at night as needed for security and safety purposes.

The proposed lighting sources would be similar to other lighting sources in the project vicinity and would not generate artificial light levels that are out of character with the surrounding area, which is densely developed and characterized by a high degree of human activity and ambient light during the day and night. In addition, as described in Regulatory Compliance Measure AES-1 (see Section 4.1.7, below), all exterior lighting would be shielded and/or directed toward the areas to be lit in order to avoid light spillover onto adjacent sensitive uses. Project lighting would also meet all applicable lighting standards in the Cypress Zoning Ordinance. As required by Section 3.11.060.B (Exterior Features) of the Zoning Ordinance, the level of parking lot light projected onto any ground or wall surface shall not be more than 5 footcandles at the base of the light fixture and building-mounted decorative lights shall not exceed 5 footcandles measured 5 feet from the light source. In accordance with Section 3.11.060.C (Security Lighting), security lighting shall provide a maximum of 3 footcandles at the ground level of the project entrances. Pursuant to Section 3.11.060.D (Shielding of Light Source), where a project light source is visible from outside the project boundary (other than public street lighting), the light source shall be shielded to reduce glare so that neither the light source nor its image from a reflective surface shall be directly visible from any point beyond the property line. Finally, as required by Section 3.14.050.C.4 (Required Improvements for Off-Street Parking Areas), the level of parking lot light shall not exceed 1 footcandle at the boundaries of the project site.

Although the proposed Project would increase the overall intensity of onsite land uses and associated lighting, the increase in lighting would not result in substantial increases in light intensity at offsite locations. In addition, light intensity diminishes rapidly as an observer moves away from the light source. As such, the intensity of project-related lighting would be concentrated onsite with little potential to create perceptible changes in ambient lighting intensity at offsite, light-sensitive locations.

Daytime glare can result from natural sunlight reflecting from a shiny surface that would interfere with the performance of an offsite activity, such as the operation of a motor vehicle. Reflective surfaces can be associated with window glass and polished surfaces. The proposed buildings incorporate plane breaks and would primarily be constructed with non-reflective materials (i.e., neutral colors and a variety of materials, such as tile, cement, plaster, and wood). Vinyl windows would be used on all residential windows. No “mirrored” or highly reflective glass would be used. Therefore, these materials would not have the potential to produce a substantial degree of glare. Furthermore, vehicles traveling on Katella Avenue and Enterprise Drive would not be in a direct line of sight to receive reflected sunlight due to the presence of the trees and landscaping lining the southern and western boundaries of the project site. Landscaping would

largely obstruct views of the commercial/retail component of the proposed Project, preventing impacts related to glare for passing motorists.

Nighttime lighting and glare sources from the proposed Project could also include lighting from illuminated signage and vehicle headlights. Similar to daytime glare, nighttime glare would be reduced due to the obstruction from the proposed landscaping. The nighttime glare produced by the signage, exterior lighting, and vehicular headlights would be similar to the existing nighttime glare produced by the surrounding commercial, residential and institutional uses and would not result in enough glare to be considered substantial or affect nighttime views.

For these reasons, with adherence to the regulatory standards described in Regulatory Compliance Measure AES-1, the proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the surrounding urban area, and project impacts would be less than significant.

4.1.7 Regulatory Compliance Measure

The proposed Project would comply with the following applicable regulatory standards, which would reduce impacts related to visual character or light and glare:

Regulatory Compliance Measure AES-1: **Lighting.** Project lighting shall meet all applicable lighting standards in the Cypress Zoning Ordinance. As required by Section 3.11.060.B (Exterior Features) of the Zoning Ordinance, the level of parking lot light projected onto any ground or wall surface shall not be more than 5 footcandles at the base of the light fixture and building-mounted decorative lights shall not exceed 5 footcandles measured 5 feet from the light source**.** In accordance with Section 3.11.060.C (Security Lighting), security lighting shall provide a maximum of 3 footcandles at the ground level of the project entrances. Pursuant to Section 3.11.060.D (Shielding of Light Source), where a project light source is visible from outside the project boundary (other than public street lighting), the light source shall be shielded to reduce glare so that neither the light source nor its image from a reflective surface shall be directly visible from any point beyond the property line. Finally, as required by Section 3.14.050.C.4 (Required Improvements for Off-Street Parking Areas), the level of parking lot light shall not exceed 1 footcandle at the boundaries of the project site.

4.1.8 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measure AES-1, the proposed Project would result in less than significant impacts related to visual character or light and glare, and no mitigation is required.

4.1.9 Cumulative Impacts

As shown in Table 4.0.A and illustrated on Figure 4.0.1 of this Draft EIR, two projects are planned in visual proximity to the project site and both are within the area governed by the Amended Specific Plan. The first is Related Project No. 1, the approved but unbuilt portion of the Cottonwood Church complex, which includes 245,843 square feet of church facilities, 28,000 square feet of specialty retail use, and 33,600 square feet of community college facilities and would be located to the west across Enterprise Drive. The second is Related Project No. 2, an approved retail/commercial project that includes 122,556 square feet of major retail use, 21,000 square of retail/restaurant use, and 9,350 square feet of sit-down restaurant use and would be located to the east at the northwest corner of Katella Avenue/Winners Circle. The balance of the related projects would not cause cumulative visual impacts because these developments are either not visible from the project site, due to the distance and/or existing intervening development, or are located at such a distance that they would not figure prominently in views that include the project site.

With respect to visual quality and character, these two nearby related projects would be similar in height, scale, and design to the proposed Project and would generally reflect the existing urban fabric and character in the project area. The height, scale, and design of the buildings approved as part of Related Project Nos. 1 and 2 have been reviewed by the City's Design Review Committee and determined to be consistent with the development standards contained in the Amended Specific Plan and compatible with surrounding uses.

With respect to Related Project No. 1, the architectural design for the Cottonwood Church grounds and buildings would minimize the visual impacts of the project by incorporating design features and standards that would be contemporary in appearance and would provide a unified style consistent with the surrounding developments. Buildings would not have massive, unbroken walls or other monotonous forms with varying heights and rooflines. When viewed from ground level, the plaster and stone facades and other exterior finishes would be broken up visually with the use of glazing of both storefront and selective clerestory window placements, as well as building plane articulation. The articulation in building surfaces and roof edges combined with the extension of trellises and beams would enhance the aesthetic value of the church complex buildings. The color palette would reflect natural tones and complementary finishes and accents in compliance with the applicable design guidelines in the Amended Specific Plan.[1]

With respect to Related Project No. 2, the proposed buildings have been designed to be compatible with existing commercial buildings in the project vicinity. The design includes a textured plaster finish with stone veneers, metal awnings, and metal arbor structures, as well as vertical and horizontal reveal lines. Related Project No. 2's buildings would range from 20 to 38 feet in height. One of

[1] City of Cypress, Initial Study/Mitigated Negative Declaration for the Cottonwood Christian Center Project, January 2004.

Related Project No. 2's buildings would feature an architectural projection that would extend the height to 41 feet. [1]

Therefore, the development of Related Project Nos. 1 and 2 in combination with the proposed Project would not substantially degrade the existing character or quality of the environment because the project area is already highly urbanized, and these related projects are well designed and compatible with one another and the existing buildings in the surrounding area. Therefore, the proposed Project's potential cumulative impact with respect to visual character would be less than significant.

With regard to light and glare, the project site is located within a highly urbanized community adjacent to a major arterial street, with urban lighting characteristics exhibiting relatively high ambient nighttime light levels. As such, the proposed Project and nearby related projects, including Related Project Nos. 1 and 2 (which would include typical land uses for the project area) would not substantially alter the existing light and glare currently experienced in the area. In addition, cumulative lighting would not be expected to interfere with the performance of offsite activities given the relatively high ambient nighttime artificial light levels already present. Furthermore, the related projects are also required to adhere to applicable City requirements regarding lighting (as discussed above), which would minimize the cumulative light and glare impact. Therefore, the cumulative light and glare impacts associated with the proposed Project and the relevant related projects would be less than significant, and the proposed Project's contribution to a potentially significant cumulative light and glare impact would not be cumulatively considerable.

4.1.10 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to visual character or light and glare.

[1] City of Cypress, Agenda Report for Joint Public Hearing Regarding Conditional Use Permit No. 2007-13, Design Review Committee Permit No. 2007-07, and Specific Plan Amendment No. 2007-01, April 28, 2008.

LSA

LEGEND

- View Location

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FEET

SOURCE: Google Earth

FIGURE 4.1.1

Barton Place

View Location Map

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FIGURE 4.1.2

Barton Place

View 1

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FIGURE 4.1.3

Barton Place

View 2

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FIGURE 4.1.4

Barton Place

View 3

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FIGURE 4.1.5

Barton Place

View 4

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4.2 AIR QUALITY

4.2.1 Introduction

This section describes the potential air quality impacts for the proposed Project and specifically addresses short-term impacts during construction, including fugitive dust and equipment emissions, long-term emissions associated with operation of the proposed Project (including vehicular travel and stationary equipment), and how potential impacts correlate to human health. The analysis in this section is based in part on the *Air Quality Technical Report: The Barton Place Project*, prepared by ENVIRON International Corporation, April 2015 (Air Quality Report), which is contained in Appendix B to this Draft EIR.

4.2.2 Methodology

The technical analysis in the Air Quality Report utilized the California Emission Estimator Model version 2013.2.2 (CalEEMod) to quantify the criteria pollutant emissions for both construction and operation of the proposed Project. The maximum daily emissions are calculated for the criteria pollutants. Air dispersion modeling of construction emissions was performed using methods recommended by regulatory agencies, including the United States Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD).

Furthermore, the Air Quality Report focuses on the potential change in air quality due to implementation of the proposed Project. The proposed Project would result in criteria pollutant emissions from construction and operational sources. Construction activities would generate emissions at the site from off-road construction equipment, and on roadways as a result of construction-related truck hauling, vendor deliveries, and worker commuting. Operational activities would also generate emissions at the project site from miscellaneous onsite sources, such as natural gas combustion for cooking, heating, and landscaping equipment, and from operational-related traffic.

To calculate the criteria pollutant emissions from the proposed Project, ENVIRON relied on emissions guidance from government-sponsored organizations, energy surveys by other consulting firms, the traffic study prepared by Kimley-Horn and Associates, and emissions modeling software. ENVIRON utilized CalEEMod®[1] to quantify the criteria pollutant emissions and present emissions inventories.

CalEEMod® is a statewide program designed to calculate both criteria and greenhouse gas (GHG) emissions from development projects in California. This model was initially developed under the auspices of the SCAQMD and received input from other California air districts. It is currently supported statewide for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the United States Environmental

[1] California Air Pollution Control Officers Association (CAPCOA). 2013. California Emissions Estimator Model. Version 2013.2.2. Available at: http://www.caleemod.com/. Accessed: November 2013.

Protection Agency (USEPA) AP-42 emission factors;[1] CARB's on-road and off-road equipment emission models, such as the EMission FACtor model (EMFAC) and the Off-road Emissions Inventory Program model (OFFROAD); and studies commissioned by California agencies, such as the California Energy Commission (CEC) and the California Department of Resources Recycling and Recovery (CalRecycle).

CalEEMod® is based on CARB-approved off-road and on-road mobile-source emission factor models (OFFROAD and EMFAC, respectively). It is designed to calculate construction and operational emissions for land use development projects and allows for the input of project-specific information. OFFROAD2011[2] is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). EMFAC2011[3] is an emissions factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles, haul trucks).

CalEEMod® provides a platform to calculate both construction emissions and operational emissions from a development project. It calculates both the daily maximum and annual average for criteria pollutants as well as total or annual GHG emissions. The model also provides default values for water and energy use. Specifically, the model performs the following calculations:

- Short-term construction emissions associated with demolition, site preparation, underground utility installation, grading, building, coating, and paving from off-road construction equipment; on-road mobile equipment associated with workers, vendors, delivery and hauling; fugitive dust associated with grading, demolition, truck loading, and roads; and volatile emissions of reactive organic gases (ROGs) from architectural coating and paving.
- Operational emissions associated with the fully built-out development project, such as on-road mobile vehicle traffic generated by the land uses, fugitive dust associated with roads, volatile emissions of ROGs from architectural coatings, off-road emissions from landscaping equipment, volatile emissions of ROGs from consumer products and cleaning supplies, wood stoves and hearth usage, natural gas usage in the buildings, electricity usage in the buildings, water usage by the land uses, and solid waste disposal by the land uses.

In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined. ENVIRON used project-specific inputs and relevant model default factors for the Orange County (County) area, which is within the SCAQMD jurisdiction for the emission inventory. The assessment methodology utilized in the Air Quality Report complies with SCAQMD requirements.

For further information regarding the methodology, refer to Section 3.2, Criteria Pollutant Methodology and Emission Inventories, in the Air Quality Report. Additional details regarding the

[1] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: http://epa.gov/ttnchie1/ap42/. Accessed: February 2013.

[2] CARB. 2007. Off Road Mobile Source Emission factors. Available at: http://www.arb.ca.gov/msei/msei.htm. Accessed: September 2013.

[3] CARB. 2010. EMFAC 2007 Release. Available at: http://arb.ca.gov/msei/onroad/latest_version.htm. Accessed: February 2013.

specific methodologies used by CalEEMod® can be found in the CalEEMod® User's Guide and associated appendices.[1] The CalEEMod® output files for the proposed Project are provided for reference in Appendix A to the Air Quality Report.

4.2.3 Environmental Setting

The City is part of the South Coast Air Basin (SCAB) and is under the jurisdiction of SCAQMD. Background information about climate, meteorological conditions, and regional air quality conditions in the SCAB and local air quality conditions in the vicinity of the project site is provided below.

Climate/Meteorology. Air quality in the SCAB is affected not only by various emission sources (mobile and industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall, etc. The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the SCAB the worst air pollution problem in the nation.

The SCAB is a coastal plain characterized by connecting broad valleys and low hills, delineated by the Pacific Ocean as its southwestern border, and fringed by high mountains that form the inland portion of its border. The region lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The resulting climate is mild and tempered by cool ocean breezes. It maintains moderate temperatures and comfortable humidity, and precipitation is typically limited to a few storms during the winter wet season. This weather pattern is fairly predictable. However, periods of extremely hot weather, winter storms, or Santa Ana winds do exist.

Although the SCAB has a semi-arid climate, air near the earth's surface is generally moist due to the presence of a shallow marine layer. With very low average wind speeds, there is a limited ability to disperse air contaminants horizontally. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions for air pollution, as this is a period of higher temperatures and more sunlight, which results in ozone (O_3) formation.

Air pollutant emissions within the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawnmowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

[1] CAPCOA. 2013. California Emissions Estimator Model User's Guide. Version 2013.2.2. February. Available at: http://www.caleemod.com/. Accessed: November 2013.

Air Pollution Constituents and Attainment Status. The CARB coordinates and oversees both State and federal air pollution control programs in California. The CARB oversees the activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the USEPA and local air districts. The CARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by the CARB and USEPA to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified based on air quality data for the most recent three calendar years, which is then compared with the ambient air quality standards (AAQS). Areas with concentrations of criteria pollutants that are below the levels established by the AAQS are considered attainment areas. If the concentration of one or more criteria pollutants in a geographic area is found to exceed the regulated or "threshold" level for one or more of the AAQS, the area may be classified as a nonattainment area. Additional restrictions, as required by the USEPA, are imposed on nonattainment areas if the air quality data for an area is incomplete and does not support a designation of attainment or nonattainment. In such cases, the area may be designated as unclassified. Nonattainment-transitional is a subcategory of the nonattainment designation. An area may be designated nonattainment/transitional to signify that the area is close to attaining the standard for a certain criteria pollutant. The air quality data are also used to monitor progress in attaining air quality standards. Table 4.2.A lists the attainment status for criteria pollutants in the SCAB.

Air Pollution and Potential Health Effects. Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere.

These pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in air quality within the SCAB. The criteria air pollutants for which national and/or State standards have been promulgated (see Table 4.2.C, below) and which are most relevant to current air quality planning and regulation in the SCAB include O_3, respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. In addition, the State has established a standard for the regulation of vinyl chloride (VC) in the SCAB. Toxic air contaminants (TACs) are also of concern in the SCAB. Each of these is briefly described below.

Ozone. O_3, a component of smog, is formed in the atmosphere, rather than being directly emitted from pollutant sources. O_3 forms as a result of volatile organic compounds (VOCs) and nitrogen oxides (NO_X) reacting to the presence of sunlight in the atmosphere. O_3 levels are highest in warm-weather months. VOCs and NO_X are termed "O_3 precursors" and their emissions are regulated in order to control the creation of O_3. O_3 damages lung tissue and reduces lung function. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems (e.g., asthmatics), but also healthy children and adults. O_3 can cause health effects such as chest discomfort, coughing, nausea, respiratory tract and eye irritation, and decreased pulmonary function.

Table 4.2.A: NAAQS and CAAQS Attainment Status

Pollutant	Averaging Period	Orange County Attainment Status	
		California Standard[1]	Federal Standard[2]
Ozone (O_3)	1-Hour	Nonattainment	N/A
	8-Hour	Nonattainment	Extreme Nonattainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment
	Annual	Nonattainment	N/A
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	N/A	Nonattainment
	Annual	Nonattainment	Nonattainment
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance[3])
	8-Hour	Attainment	Attainment (Maintenance[3])
Nitrogen Dioxide (NO_2)	1-Hour	Nonattainment[4]	Unclassified/Attainment
	Annual	Nonattainment[4]	Unclassified/Attainment
Lead	30-Day	Attainment[4]	N/A
	Rolling 3-Month Average	N/A	Attainment[5]
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Attainment
	3-Hour	N/A	Attainment
Hydrogen Sulfide (H_2S)	1-Hour	Unclassified	N/A
Vinyl Chloride	24-Hour	No Information Available	N/A
Sulfates	24-Hour	Attainment	N/A
Visibility-Reducing Particles	8-Hour	Unclassified	N/A

Sources: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B); CARB, Area Designations Maps/State and National (2013); The Green Book of Nonattainment Areas for Criteria Pollutants, USEPA (2013); and EPA Region 9 Air Quality Maps, USEPA (2014).

1 The California standard attainment status is based on CARB's website (www.arb.ga.gov/desig/adm/adm.htm).

2 The federal standard attainment status is based on the USEPA Green Book and Region 9 Air Quality Maps.

3 Maintenance areas are areas that were once designated nonattainment but later met the standard and were re-designated as attainment. To ensure the air quality in this area continues to meet the NAAQS, the State is required to develop and implement a Maintenance State Implementation Plan for the federal 1-hour and 8-hour CO standards.

4 Attainment status is for 2013.

5 The southern portion of Los Angeles County is in nonattainment.

CAAQS = California Ambient Air Quality Standards
CARB = California Air Resources Board
N/A = Not applicable/no standard
NAAQS = National Ambient Air Quality Standards
USEPA = United States Environmental Protection Agency

Particulate Matter. Particulate matter consists of solid and liquid particles of dust, soot, aerosols, and other matter small enough to remain suspended in the air for a long period of time. Respirable particulate matter (PM_{10}) refers to particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (i.e., microns [µm]), and fine particulate matter ($PM_{2.5}$) refers to particulate matter with an aerodynamic diameter less than or equal to 2.5 µm. Particles smaller than 10 µm (i.e., PM_{10}) and $PM_{2.5}$ represent that portion of particulate matter thought to represent the greatest hazard to public health. PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and are associated with a variety of negative health effects. Exposure to particulate matter can aggravate existing respiratory conditions, increase respiratory symptoms and disease,

decrease long-term lung function, and possibly cause premature death. The segments of the population that are most sensitive to the negative effects of particulate matter in the air are the elderly, individuals with cardiopulmonary disease, and children. Aside from adverse health effects, particulate matter in the air causes reduced visibility and damage to paints and building materials.

A portion of the particulate matter in the air comes from natural sources, such as windblown dust and pollen. Man-made sources of particulate matter include fuel combustion, automobile exhaust, field burning, cooking, tobacco smoking, factories, and vehicle movement on, or other man-made disturbances of, unpaved areas. Secondary formation of particulate matter may occur in some cases where gases like sulfur oxides (SO_X) and NO_X interact with other compounds in the air to form particulate matter. In the SCAB, both VOCs and ammonia are also considered precursors to $PM_{2.5}$. Fugitive dust generated by construction activities can be a major source of suspended particulate matter.

The secondary creators of particulate matter, SO_X and NO_X, are also major precursors to acidic deposition (acid rain). While SO_X is a major precursor to particulate matter formation, NO_X has other environmental effects. NO_X reacts with ammonia, moisture, and other compounds to form nitric acid and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles penetrate into sensitive parts of the lungs and can cause or worsen respiratory disease. NO_X has the potential to change the composition of some species of vegetation in wetland and terrestrial systems; to create the acidification of freshwater bodies; to impair aquatic visibility; to create eutrophication of estuarine and coastal waters; and to increase the levels of toxins harmful to aquatic life.

Carbon Monoxide. CO is an odorless, colorless gas that is toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in Orange County are automobiles and other mobile sources. The health effects associated with exposure to CO are related to its interaction with hemoglobin once it enters the bloodstream. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Nitrogen Dioxide. NO_2 is a reddish-brown to dark brown gas with an irritating odor. NO_2 forms when nitric oxide reacts with atmospheric oxygen. Most sources of NO_2 are man-made; the primary source of NO_2 is high-temperature combustion. The primary sources of NO_2 associated with the proposed Project are off-road construction equipment and on-road vehicles. The emissions of NO_X are used to determine NO_2 impacts.

NO_2 may produce adverse health effects such as nose and throat irritation, coughing, choking, headaches, nausea, stomach or chest pains, and lung inflammation (e.g., bronchitis, pneumonia). Effective April 12, 2010, the USEPA set a new 1-hour NO_2 standard at 0.10 part per million (ppm) (188 micrograms per cubic meter [$\mu g/m^3$]). To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average must not exceed 0.1 ppm. The USEPA cited evidence that short-term NO_2 exposures could contribute to adverse respiratory effects, including increased asthma symptoms, worsened control of asthma, and an increase in respiratory illnesses and symptoms. The USEPA also identified that NO_2 concentrations on or near major

roads can be approximately 30 to 100 percent higher than concentrations in the surrounding community, which could contribute to health effects for at-risk populations, including people with asthma, children, and the elderly.

Sulfur Dioxide. SO_2 is formed when fuel containing sulfur (typically coal and oil) is burned and during other industrial processes. The term "sulfur oxides" accounts for distinct but related compounds, primarily SO_2 and sulfur trioxide. Higher SO_2 concentrations are usually found in the vicinity of large industrial facilities. The physical effects of SO_2 include temporary breathing impairment, respiratory illness, and aggravation of existing cardiovascular disease. Children and the elderly are most susceptible to the negative effects of exposure to SO_2.

Lead. Lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing the metal is the primary source of emissions of lead, which is primarily a regional pollutant. Lead affects the brain and other parts of the body's nervous system. Exposure to lead in very young children impairs the development of the nervous system, kidneys, and blood forming processes in the body.

Volatile Organic Compounds. VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as TACs. While there are no specific VOC AAQS, VOC is a prime component (along with NO_X) of the photochemical processes by which such criteria pollutants as O_3, NO_2, and certain fine particles are formed. They are thus regulated as "precursors" to formation of those criteria pollutants.

Vinyl Chloride. VC is a chemical building block, or monomer, used in the production of polyvinyl chloride (PVC). PVC is used to make materials, including pipes, used in the construction, packaging, electrical, and transportation industries. Major sources of VC include PVC production and fabrication facilities and, at the other end of PVC's lifecycle, as PVC deteriorates, landfills and publicly owned treatment works. VC is carcinogenic. VC is primarily of concern as a carcinogenic TAC at hot spots. It is regulated as a TAC to allow implementation of health-protective control measures at levels below the ambient standard.

Hydrogen Sulfide. Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the State standard could result in exposure to a very disagreeable odor.

For the proposed Project, six criteria pollutants were evaluated—NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and O_3—using VOCs[1] and NO_X as surrogates. These pollutants were analyzed because they are

[1] The emissions of VOCs and ROGs are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOCs.

considered to be pollutants of concern based on the type of emission sources associated with construction and operation of the proposed Project, and are thus included in this assessment. Because the ambient concentrations of lead, VC, H_2S, and visibility-reducing particles are very low and the proposed Project would not include industrial production facilities or generate substantial amounts of exhaust, lead, VC, H_2S, and visibility-reducing particles are not considered to be pollutants of concern for the proposed Project and are not analyzed below.

Toxic Air Contaminants. TACs are chemicals generally referred to as those contaminants known or suspected to cause serious health problems, but do not have a corresponding AAQS because their effects tend to be local rather than regional. There are hundreds of air toxics, and exposure to these pollutants can cause or contribute to cancer or noncancer health effects such as birth defects, genetic damage, and other adverse health effects. Effects on human health may be both chronic (i.e., of long duration) or acute (i.e., severe but of short duration). Acute health effects are attributable to sudden exposure to high quantities of air toxics. These effects can include nausea, skin irritation, respiratory illness, and, in some cases, death. Chronic health effects usually result from low-dose, long-term exposure from routine releases of air toxics. The effect of major concern for this type of exposure is cancer, which typically requires a latency period of 10 to 30 years after exposure to develop.

Diesel particulate matter (DPM), which is emitted in the exhaust from diesel engines, is listed by the State as a TAC. DPM has historically been used as a surrogate measure of exposure for all diesel exhaust emissions. DPM consists of fine particles ($PM_{2.5}$), including a subgroup of ultrafine particles (i.e., particles with a diameter less than 0.1 μm). Collectively, these particles have a large surface area, which makes them an excellent medium for absorbing organics. The visible emissions in diesel exhaust include carbon particles, or "soot." Diesel exhaust also contains a variety of harmful gases and cancer-causing substances.

Exposure to DPM may be a health hazard, particularly to children, whose lungs are still developing, and the elderly, who may have other serious health problems. DPM levels and resultant potential health effects may be higher in close proximity to heavily traveled roadways with substantial truck traffic or near industrial facilities. According to the CARB, DPM exposure may lead to the following adverse health effects: (1) aggravated asthma; (2) chronic bronchitis; (3) increased respiratory and cardiovascular hospitalizations; (4) decreased lung function in children; (5) lung cancer; and (6) premature deaths for people with heart or lung disease.
In the vicinity of the project site, the potential risk from naturally occurring asbestos is low. Orange County is not among the counties found to have serpentine and ultramafic rock in their soils, the presence of which is related to naturally occurring asbestos. In addition, no serpentine or ultramafic rock has been found in the vicinity of the project site in the past 10 years. Therefore, the potential risk of encountering naturally occurring asbestos during construction is low.

Regional Air Quality. Both the State and the federal government have established health-based AAQS for the criteria air pollutants. The State and federal AAQS are shown in Table 4.2.C.

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climate is

interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. Meteorological conditions and topography affect the dispersion of pollutants and make the SCAB susceptible to air pollution. The extent and severity of the air pollution problem in the SCAB is also affected by man-made influences, such as development patterns and lifestyle.

The greatest air pollution impacts throughout the SCAB occur from June through September. This condition is generally attributed to the high emissions, as well as light winds and shallow vertical atmospheric mixing, which reduce dispersion. Pollutant concentrations in the SCAB vary with location, season, and time of day. O_3 concentrations, for example, tend to be higher in the inland valleys than either along the coast or in the far inland areas of the SCAB and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in Southern California. However, the SCAB still fails to meet federal standards for O_3 and $PM_{2.5}$.

In 2008, SCAQMD released an SCAB-wide air toxics study, Multiple Air Toxics Exposure Study (MATES-III).[1] The MATES-III study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The study set out to estimate the cancer risk from toxic air emissions throughout the SCAB by conducting a comprehensive monitoring program, updating the emissions inventory of TACs, and modeling emissions to characterize health risks for residents throughout the region. The study calculated an average carcinogenic risk from air pollution in the SCAB of approximately 1,200 in 1 million over a 70-year duration. Mobile sources (e.g., cars, trucks, trains, ships, aircraft) represent the greatest contributors. Approximately 85 percent of the risk was attributed to DPM emissions and approximately 10 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde). Approximately 5 percent of all carcinogenic risk was attributed to stationary sources (which include industries and certain other businesses, such as dry cleaners and chrome plating operations).

On April 1, 2015, the SCAQMD released a MATES IV Draft Final Report. This study showed a dramatic reduction (70 percent on average) in the level of DPM measured at the 10 monitoring sites compared to MATES III. The study also concluded that the average carcinogenic risk from air pollution in the SCAB is approximately 418 in 1 million (a 65 percent overall reduction from MATES III) based on monitoring. Mobile sources (e.g., cars, trucks, trains, ships, aircraft) account for 90 percent of the air toxics risk, and DPM accounts for 68 percent of the air toxics risk.[2]

Local Air Quality. The SCAQMD maintains ambient air quality monitoring stations throughout the SCAB. The Central Orange County air monitoring station (Station No. 3176) is located approximately 6.5 miles east of the project site and is the closest station. The Central Orange County air monitoring station monitors CO, NO_2, O_3, PM_{10}, and $PM_{2.5}$. However, SO_2 is not monitored at this station. As a result, the SO_2 concentrations from the South Coastal Los Angeles County station are shown in Table 4.2.B) since this monitoring station is the next closest (approximately 8 miles to the west) to the project site with such data.

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1 SCAQMD. MATES III. Available at: http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iii. Accessed: April 13, 2015.

2 SCAQMD. 2015. Draft Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin. Available at: http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=4.

Table 4.2.B lists the ambient air quality monitored in the vicinity of the project site for the most recent 5 years of published data (2009 to 2013) at the Central Orange County monitoring station for CO, NO_2, O_3, PM_{10}, and $PM_{2.5}$, and at the South Coastal Los Angeles County station for SO_2. Table 4.2.B shows the following:

- O_3 levels exceeded the State 1-hour standard in 2009 and 2010; the State 8-hour standard in 2009, 2010, and 2011; and the federal 8-hour standard in 2009 and 2010.
- CO levels were below the State and federal standards.
- NO_2 levels were below the State and federal standards.
- PM_{10} levels exceeded the State 24-hour standard in 2009, 2011, and 2013, and the State annual standard in 2009 through 2013; PM_{10} levels were below the federal 24-hour standard.
- SO_2 levels were below the State and federal standards.
- $PM_{2.5}$ levels were below the State and federal annual standards, but exceeded the federal 24-hour standard in 2009, 2011, 2012, and 2013.

As part of the MATES-III Study, the SCAQMD prepared a series of maps that show regional trends in estimated outdoor inhalation cancer risk from toxic emissions as part of an ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The MATES-III map is the most recently available map to represent existing conditions near the project site. Based on the interactive map, the average cancer risk around the project site was approximately 1,280 in 1 million. As discussed earlier, the SCAQMD released MATES IV Draft Final Report on April 1, 2015. Based on the SCAQMD's MATES IV cancer risk interactive map, the average cancer risk around the project site is approximately 380 in 1 million, approximately 70 percent below the cancer risk level of 1,280 in 1 million in the MATES III study.[1,2]

Surrounding Uses. To the north of the project site are one-story horse barns associated with the Los Alamitos Race Course, which are occupied by quarter horses, thoroughbred horses, and associated equipment. To the east of the project site is a surface parking area for the Los Alamitos Race Course, a small two-story church, and a four-story Residence Inn Hotel. To the south, on the far side of Katella Avenue, are commercial and multi-family uses, behind which are single-family residences. To the west is Enterprise Drive, with the Cottonwood Church campus beyond.

1 SCAQMD. 2014. MATES IV Carcinogenic Risk Interactive Map. Available at: http://www3.aqmd.gov/webappl/OI.Web/OI.aspx?jurisdictionID=AQMD.gov&shareID=73f55d6b-82cc-4c41-b779-4c48c9a8b15b.

2 SCAQMD. 2008. MATES III Carcinogenic Risk Interactive Map. Available at: http://www3.aqmd.gov/webappl/matesiii/.

Table 4.2.B: Air Quality Data for the Nearest SCAQMD Monitoring Stations

Pollutant	2009	2010	2011	2012	2013
Ozone (O_3)[1] – Central Orange County					
Maximum concentration 1-hour period, ppm	**0.093**	**0.104**	0.088	0.079	0.084
Maximum concentration 8-hour period, ppm	**0.077**	**0.088**	**0.072**	0.067	0.070
Annual 4th-highest 8-hour maximum over 3 years	0.068	0.060	0.064	0.065	0.063
Days of exceedances, California Standard Concentration 1-hour period	0	1	0	0	0
Days of exceedances, California Standard Concentration 8-hour period	2	1	1	0	0
Days of exceedances, National Standard Concentration 8-hour period	1	1	0	0	0
Carbon Monoxide (CO) – Central Orange County					
Maximum concentration 1-hour period, ppm	3	3	NM	NM	NM
Maximum concentration 8-hour period, ppm	2.7	2.0	2.1	2.3	2.6
Annual 4th-highest 8-hour maximum over 3 years	0	0	N/A	N/A	N/A
Days of exceedances, California Standard Concentration 1-hour period	0	0	0	0	0
Days of exceedances, California Standard Concentration 8-hour period	0	0	N/A	N/A	N/A
Days of exceedances, National Standard Concentration 8-hour period	0	0	0	0	0
Nitrogen Dioxide (NO_2) – Central Orange County					
Maximum concentration 1-hour period, ppm	0.070	0.073	0.074	0.067	0.082
98th percentile daily maximum concentration 1-hour period, ppm	0.060	0.061	0.061	0.054	0.059
Annual Arithmetic Mean (AAM), ppm	0.018	0.018	0.017	0.015	0.018
Number of exceedances, California Standard Concentration 1-hour period	0	0	0	0	0
Exceed California Standard AAM?	No	No	No	No	No
Number of exceedances, National Standard Concentration 1-hour period	0	0	0	0	0
Exceed National Standard AMM?	No	No	No	No	No
Sulfur Dioxide (SO_2)[2] – South Los Angeles County Coastal					
Maximum concentration 1-hour period, ppm	0.02	0.0400	0.0148	0.0222	0.0218
99th percentile daily maximum concentration 1-hour period, ppm	NM	NM	0.0107	0.0143	0.0101
Maximum concentration 24-hour period, ppm	0.005	0.0060	NM	NM	NM
AAM, ppm	NM	NM	NM	NM	NM
Number of exceedances, California Standard Concentration 1-hour period	0	0	0	0	0
Number of exceedances, California Standard Concentration 24-hour period	0	0	N/A	N/A	N/A
Number of exceedances, National Standard Concentration 1-hour period	N/A	N/A	0	0	0
Number of exceedances, National Standard Concentration 24-hour period	0	0	N/A	N/A	N/A
Exceed National Standard AMM?	N/A	N/A	N/A	N/A	N/A
Respirable Particulate Matter (PM_{10}) – Central Orange County					
Maximum concentration 24-hour period, µg/m^3	**63**	43	**53**	48	**77**
AAM, ppm	**30.9**	**22.4**	**24.8**	**22.4**	**25.4**
Number of exceedances, California Standard Concentration 24-hour period	1	0	2	0	1
Exceed California Standard AAM?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Table 4.2.B: Air Quality Data for the Nearest SCAQMD Monitoring Stations

Pollutant	2009	2010	2011	2012	2013
Number of exceedances, National Standard Concentration 24-hour period	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)[3] – Central Orange County					
Maximum concentration 24-hour period, µg/m^3	**64.6**	31.7	**39.2**	**50.1**	**37.8**
98th percentile concentration 24-hour period, ppm, µg/m^3	32.1	25.2	28.1	24.9	22.7
AAM, µg/m^3	11.8	10.2	11.0	10.81	10.09
Number of exceedances, National Standard Concentration 24-hour period	4	0	2	4	1
Exceed California Standard AAM?	No	No	No	No	No
Exceed National Standard AAM?	No	No	No	No	No

Sources: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B); Historical Data by Year, SCAQMD (2015); Ambient Air Quality Standards. CARB (2014).
Note: **Bold** values are monitoring data that exceed the standards. Standards are shown in Table 4.2.C.
[1] The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard.
[2] USEPA adopted the new SO_2 standards of 75 ppb for the 99th percentile of the 1-hr daily maximum concentrations over 3 years in 2010.
[3] USEPA adopted the new $PM_{2.5}$ annual average standard of 12.0 µg/m^3 in 2012.
CARB = California Air Resources Board
µg/m^3 = micrograms per cubic meter
N/A = information not available
NM = pollutants were not monitored
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
ppb = parts per billion
ppm = parts per million
SCAQMD = South Coast Air Quality Management District
USEPA = United States Environmental Protection Agency

The Air Quality Element of the City's General Plan states that sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (i.e., sensitive receptors) who are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes.

The multi-family and single-family residences south of the project site are considered sensitive receptors. Other land uses in close proximity to the project site include the Residence Inn Hotel, located immediately east of the project site, and the Cottonwood Church, located west of the project site. The Cottonwood Church is being considered a sensitive receptor because it is approved for a daycare facility that has yet to be constructed to the west of the project site. In addition, the Residence Inn Hotel was used as a receptor location to evaluate the worst-case impacts from the proposed Project to other receptors, as it is the nearest adjacent property. Figure 4.2.1 illustrates the locations of the sensitive receptors described above in relation to the project site.

LSA

FIGURE 4.2.1

N

Barton Place

Sensitive Receptors for Air Quality Analysis

SOURCE: ENVIRON

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Existing Project Site Emissions. The project site was previously part of the Cypress Golf Club, which closed permanently in 2004. Following the closure of the Golf Club, the golf course was demolished, the site was regraded, and all vegetation was removed, except for some eucalyptus and pepper trees and other vegetation along the southerly and easterly boundaries of the project site. The project site is unimproved and is not currently utilized for any land use or activity. Therefore, there are no existing emissions from the project site.

4.2.4 Regulatory Setting

Federal Regulations and Policies.

National Ambient Air Quality Standards. The USEPA is responsible for implementation of the federal Clean Air Act (CAA). The CAA was first enacted in 1955 and has been amended numerous times in subsequent years, most recently in 1990. At the federal level, the USEPA is responsible for implementation of some portions of the CAA (e.g., certain mobile-source and other requirements). Other portions of the CAA (e.g., stationary-source requirements) are implemented by State and local agencies.

Under the authority granted by the CAA, the USEPA has established national ambient air quality standards (NAAQS), which are periodically updated, to protect the public health and welfare from the effects of air pollution. Table 4.2.C provides a list of the NAAQS currently in effect for SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and lead. O_3 is a secondary pollutant, meaning that it is formed from reactions of "precursor" compounds under certain conditions. The primary precursor compounds that can lead to the formation of O_3 are VOCs and NO_X.

The CAA also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones.

Specific geographic areas designated as nonattainment for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans developed to meet federal requirements are included in an overall program referred to as the SIP.

With respect to federal standards, Table 4.2.A summarizes the attainment status of the SCAB for the pollutants regulated by the NAAQS and California ambient air quality standards (CAAQS). The SCAB, which includes Orange County, is currently designated as attainment or unclassified for the federal 24-hour PM_{10}, CO, and NO_2 standards. The southern portion of Los Angeles County within the SCAB is currently in nonattainment for the federal lead standard. The SCAB is currently designated as nonattainment for the federal O_3 standards ("extreme," or having a design value greater than 0.175 ppm) and nonattainment for the federal $PM_{2.5}$ standards.

Table 4.2.C: Summary of NAAQS and CAAQS

Pollutant	Averaging Period	CAAQS	NAAQS
Ozone (O_3)	1-Hour	0.09 ppm (180 μg/m^3)	—
	8-Hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)
Respirable Particulate Matter (PM_{10})	24-Hour	50 μg/m^3	150 μg/m^3
	Annual Arithmetic Mean	20 μg/m^3	—
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	—	35 μg/m^3
	Annual	12 μg/m^3	12.0 μg/m^3
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8-Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1-Hour[1]	0.18 ppm (339 μg/m^3)	0.100 ppm (188 μg/m^3)
	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)
Lead	30-Day Average	1.5 μg/m^3	—
	Rolling 3-Month Average	—	1.5 μg/m^3
Sulfur Dioxide (SO_2)	1-Hour[2]	0.25 ppm (655 μg/m^3)	0.075 ppm (196 μg/m^3)
	3-Hour[3]	—	0.5 ppm (1300 μg/m^3)
	24-Hour	0.04 ppm (105 μg/m^3)	—
Hydrogen Sulfide	1-Hour	0.03 ppm (42 μg/m^3)	—
Vinyl Chloride	24-Hour	0.01 ppm (26 μg/m^3)	—
Sulfates	24-Hour	25 μg/m^3	—
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer (visibility of 10 miles or more due to particles when relative humidity is less than 70 percent)	—

Source: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B).
Footnotes:
1 To attain the federal 1-hour NO_2 standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average must not exceed the threshold.
2 To attain the federal 1-hour SO_2 standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average must not exceed the threshold.
3 This is a secondary standard.
μg/m^3 = micrograms per cubic meter
CARB = California Air Resources Board
CAAQS = California ambient air quality standards
mg/m^3 = milligrams per cubic meter
NAAQS = national ambient air quality standards
ppm = parts per million

The USEPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the SCAB.

Heavy-Duty Engines and Vehicles Fuel Efficiency Standards. On August 9, 2011, the USEPA and the National Highway Traffic Safety Administration (NHTSA) announced fuel economy and greenhouse gas (GHG) standards for medium- and heavy-duty trucks, which apply to vehicles from model years 2014–2018. The USEPA and NHTSA have adopted standards for carbon

dioxide (CO_2) emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this program will reduce GHG emissions and fuel consumption for affected vehicles by 9 percent to 23 percent over the 2010 baselines. These emissions reductions were not included in the proposed Project emissions inventory due to the difficulty in quantifying the reductions consistent with other analysis assumptions. Excluding these reductions results in a more conservative (i.e., higher) proposed Project emissions inventory. While this regulation focuses on the reduction of GHG emissions, compliance with this regulation would also help reduce criteria air pollutants.

State Regulations and Policies.

California Ambient Air Quality Standards (CAAQS). The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the CAAQS by the earliest practicable date. The CARB, a part of the California Environmental Protection Agency (Cal/EPA), is responsible for the coordination and administration of both State and federal air pollution control programs within California. The CARB has been granted jurisdiction over a number of air pollutant emission sources that operate in the State. Specifically, the CARB has the authority to develop emission standards for on-road motor vehicles, as well as for stationary sources and some off-road mobile sources. In turn, the CARB has granted authority to the regional air pollution control and air quality management districts to develop stationary-source emission standards, issue air quality permits, and enforce permit conditions. Table 4.2.C includes the CAAQS currently in effect for each of the criteria pollutants as well as other pollutants recognized by the State. The CAAQS are generally as stringent as, and in several cases more stringent than, the NAAQS; however, in the case of short-term standards for NO_2 and SO_2, the CAAQS are less stringent than the NAAQS.

With respect to State standards, as shown above in Table 4.2.A, the SCAB is currently in attainment or unclassified for the State lead, CO, SO_2, H_2S, VC, sulfates, and visibility-reducing particles standards. However, the SCAB is currently designated as nonattainment for the State O_3, NO_2, PM_{10}, and $PM_{2.5}$ standards.

Airborne Toxic Control Measures. CARB has promulgated Mobile and Stationary Source Airborne Toxic Control Measures (ATCMs) for the purpose of reducing TACs from a variety of sources. Each ATCM is codified in the California Code of Regulations (CCR). Section 2485 of Chapter 10 of CCR Title 13 (13 CCR 10 Sec. 2485) prohibits diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways from idling the vehicle's primary diesel engine for greater than 5 minutes at any location. Exceptions are allowed for certain circumstances, such as engine idling during bus loading, military training, and traffic conditions. CARB's ATCM related to limitations on engine idling on diesel-fueled commercial vehicles is included as Regulatory Compliance Measure AQ-1.

Regional Regulations and Policies.

South Coast Air Quality Management District. Together, the SCAQMD and the CARB are responsible for ensuring compliance with all State and federal air quality standards within the jurisdiction of the SCAQMD. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange and Los Angeles Counties, except for the Antelope Valley, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The SCAB is a subregion of the SCAQMD jurisdiction.

In order to meet these standards, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs). The 2012 AQMP incorporates the latest scientific and technological information (such as updated emissions inventories) and planning assumptions, including the SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (2012–2035 RTP/SCS). The 2012 AQMP also includes updates to federal requirements, implementation of new technology measures, and continued development of compliance approaches.

The AQMP provides emissions inventories, ambient monitoring results, meteorological data, and air quality modeling tools. It also provides policies and measures to guide local agencies in achieving federal standards. The AQMP also establishes strategy for controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The SCAQMD adopts rules and regulations to implement the AQMP. Construction of the proposed Project would be required to comply with SCAQMD Rules 403 and 1113 (Regulatory Compliance Measures AQ-2 and AQ-3, respectively). SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from onsite earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. SCAQMD Rule 1113 limits the VOC content of architectural coatings.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with new development projects within the SCAB. Instead, in November 1993, the SCAQMD published the *California Environmental Quality Act (CEQA) Air Quality Handbook* to assist lead agencies in evaluating the potential air quality impacts of proposed projects. The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in EIRs.

The SCAQMD also recommends using approved models such as CalEEMod to calculate emissions from development projects. It has adopted land use planning guidelines that consider impacts to sensitive receptors from facilities that emit TACs. The SCAQMD recommends the same siting distances as the CARB (e.g., a 500-foot siting distance for sensitive land uses near high-traffic-volume roadways). The SCAQMD's guidance introduces policies that rely on design and distance to minimize emissions and lower potential health risks for sensitive land uses. The SCAQMD's guidelines are voluntary initiatives recommended for consideration by local planning agencies.

Southern California Association of Governments. SCAG is the MPO for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally designated MPO for the Southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, and air quality. Pursuant to California Health and Safety Code 40460(b), SCAG has the responsibility for preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. SCAG is also responsible under the CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans. With regard to air quality planning, SCAG has prepared the 2012–2035 RTP/SCS, which addresses regional development and growth forecasts.

The SCAQMD and SCAG are jointly responsible for preparing the AQMP for the SCAB. In particular, the 2012 AQMP is based on demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for its 2012 RTP, which forms part of SCAG's 2012–2035 RTP/SCS. Thus, consistency with the planning assumptions contained within the RTP/SCS demonstrates consistency with SCAQMD's 2012 AQMP. SCAG's 2012–2035 RTP/SCS was adopted in April 2012. The goals and policies of the RTP/SCS that reduce vehicle miles traveled (VMT) focus on transportation and land use planning that include building infill projects, locating residents closer to where they work and play, and designing communities so there is access to high-quality transit service. The 2012–2035 RTP/SCS is expected to reduce per-capita transportation emissions by 9 percent by 2020 and 16 percent by 2035.

Pursuant to Government Code Section 65080(b)(2)(K), SCAG's SCS does not: (i) regulate the use of land, (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it.

Local Regulations and Policies.

City of Cypress General Plan. The Air Quality Element of the City's General Plan is intended to protect public health and welfare by implementing measures that allow the SCAB to attain federal and State air quality standards. To achieve this goal, the Air Quality Element sets forth a number of programs to reduce current pollutant emissions and to require new development to include measures to comply with air quality standards. The Air Quality Element identifies goals and policies to reduce the generation of pollutants. It also recognizes that air quality is a regional issue affecting the entire SCAB. Thus, most of the goals and policies in the Air Quality Element apply generally to the City, but not necessarily to individual development projects.

4.2.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist,* implementation of the proposed Project would have a significant adverse impact on air quality if it would:

Threshold 4.2.1: Conflict with or obstruct implementation of the applicable air quality plan;

Threshold 4.2.2: Violate any air quality standard or contribute to an existing or projected air quality violation;

Threshold 4.2.3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

Threshold 4.2.4: Expose sensitive receptors to substantial pollutant concentrations; or

Threshold 4.2.5: Create objectionable odors affecting a substantial number of people.

The Initial Study (Appendix A) determined that the proposed Project's impact with respect to Threshold 4.2.5 would be clearly insignificant and unlikely to occur. Therefore, the air quality impacts relating to that threshold is not considered further in this Draft EIR.

As stated in Appendix G to the *CEQA Guideline*s, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make determinations about a project's impacts. This Draft EIR uses the adopted thresholds of the local air quality management district. In the context of the questions above from Appendix G to the *CEQA Guidelines,* the SCAQMD has established thresholds of significance to assess the impacts of project-related construction and operation emissions on regional and local ambient air quality. These thresholds of significance are presented in Table 4.2.D and discussed below.

SCAQMD Criteria.

Construction Emission Thresholds.

Regional. As shown in Table 4.2.D, construction of the proposed Project would result in significant impacts on regional air quality if the maximum daily construction emissions as shown in the table are exceeded.

Localized. Construction of the proposed Project would result in significant impacts on local air quality if the maximum onsite daily localized construction emissions exceed the Localized Significance Thresholds (LSTs) adopted by the SCAQMD, as listed in Table 4.2.D.

Operational Emission Thresholds.

Regional. As shown in Table 4.2.D, operation of the proposed Project would result in significant impacts on regional air quality if the annual VOC emissions exceed 10 tons per year or the maximum daily emissions specified in the table are exceeded.

Table 4.2.D: SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds (lbs/day)		
Pollutant	**Construction**	**Operation**
NO_x	100	55
VOCs	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Construction LSTs (lbs/day)		
NO_x	183	
CO	1,253	
PM_{10}	13	
$PM_{2.5}$	7	
TACs Threshold		
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard Index ≥ 1.0 (project increment)	
Ambient Air Quality Standards for Criteria Pollutants		
NO_2 1-Hour Average Annual Arithmetic Mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	
PM_{10} 24-Hour Average Annual Average	10.4 μg/m^3 (construction); 2.5 μg/m^3 (operation) 1.0 μg/m^3	
$PM_{2.5}$ 24-Hour Average	10.4 μg/m^3 (construction); 2.5 μg/m^3 (operation)	
CO 1-Hour Average 8-Hour Average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	

Source: *Air Quality Technical Report: The Barton Place Project,* ENVIRON (April 2015) (Appendix B).
μg/m^3 = micrograms per cubic meter
CO = carbon monoxide
lbs/day = pounds per day
MT = metric tons
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns in diameter
ppm = parts per million
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
TACs = toxic air contaminants
VOCs = volatile organic compounds

Localized. Operation of the proposed Project would result in significant impacts on local air quality if the maximum onsite daily localized operational emissions exceed the LSTs adopted by the SCAQMD, as listed in Table 4.2.D.

Toxic Air Contaminant Thresholds. As shown in Table 4.2.D, the proposed Project would result in a significant TAC impact if the carcinogenic or TAC emissions results exceed the maximum incremental cancer risk of 10 in 1 million or an acute or chronic hazard index of 1.0. For projects with a maximum incremental cancer risk between 1 in 1 million and 10 in 1 million, a project could have a significant impact if the cancer burden exceeds 0.5 excess cancer cases.

4.2.6 Project Impacts

Threshold 4.2.1: Conflict with or obstruct implementation of the applicable air quality plan

Less than Significant Impact. The *CEQA Air Quality Handbook* indicates that consistency with the SCAG 2012 AQMP is affirmed when a project: (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation; and (2) is consistent with the growth assumptions in the AQMP. As described further under Threshold 4.2.2 below, and shown in Tables 4.2.E through 4.2.I, the proposed Project would result in short-term construction and long-term pollutant emissions that are less than the emissions thresholds established by the SCAQMD; therefore, the proposed Project would not increase the frequency or severity of any air quality standard violation or cause a new air quality standard violation.

The proposed Project is consistent with the applicable population, housing, and employment growth projections in the AQMP. The 2012 AQMP was prepared to accommodate growth and to reduce the high levels of pollutants within the areas under the jurisdiction of the SCAQMD. Projects that are considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the 2012 AQMP. The proposed Project is consistent with the SCAG population, housing, and employment projections applicable to the project site. According to SCAG's 2012–2035 RTP/SCS, Orange County's population, households, and employment are forecast to increase by approximately 92,300 residents, 20,700 households, and 670 jobs, respectively, between 2015 and 2019. The proposed Project will result a net increase of 440 residents (0.5 percent of SCAG's projection for the County) and 244 households (1.2 percent of SCAG's projection for the County). Therefore, the proposed Project would not conflict with the 2012 AQMP and, as such, would not jeopardize attainment of CAAQS and NAAQS in the area under the jurisdiction of the SCAQMD.

In addition, the proposed Project is consistent with the General Plan. The land use designation for the project site in the Land Use Element of the General Plan is "Specific Plan," and the General Plan references and describes the Amended Specific Plan and its various Planning Areas, including Planning Areas 6 and 9. The Amended Specific Plan permits senior housing and a variety of commercial/retail uses within Planning Areas 6 and 9, which include the project site. The proposed Project would develop a 244-unit senior residential community that includes approximately 47,876 square feet of neighborhood-serving restaurants, retail stores, and other commercial uses. These uses are consistent with the Amended Specific Plan and, therefore, the General Plan. Furthermore, the

proposed Project is consistent with the Air Quality Element of the General Plan because it, among other things, allows easy access to the commercial/retail land uses through its mixed-use design and the proximity of the residential and commercial uses; reduces vehicle emissions by increasing internal capture between residential and retail segments; complies with energy efficiency measures that promote conservation through Title 24; and complies with the adopted attainment standards for the SCAB.

Therefore, construction and operation of the proposed Project would not have a significant short- or long-term impact on the region's ability to meet State and federal air quality standards. The proposed Project would be consistent with the SCAQMD's AQMP and would not conflict with or obstruct implementation of the applicable air quality plan.

Threshold 4.2.2: Violate any air quality standard or contribute to an existing or projected air quality violation

Construction Impacts.

Regional Construction Impacts.

Less than Significant Impact. The regional maximum daily construction emissions, including both onsite and offsite emissions, are summarized in Table 4.2.E. The construction emissions estimates include reductions associated with Regulatory Compliance Measures AQ-1, AQ-2, and AQ-3 (as described in Section 4.2.7).

Table 4.2.E: Summary of Criteria Air Pollutant Construction Emissions

	Maximum (lbs/day)					
	VOCs	**NO_X**	**CO**	**SO_2[1]**	**PM_{10} Total**	**$PM_{2.5}$ Total**
Onsite Emissions	20	54	39	0.1	2.8	2.0
Offsite Emissions	3	41	34	0.1	3.7	1.2
Maximum Daily Emissions	23	94	73	0.2	6.5	3.3

Source: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B).

[1] This analysis conservatively assumes that all SO_X is emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this analysis.

NO_X = nitrogen oxides
CO = carbon monoxide
SO_x = sulfur oxides
SO_2 = sulfur dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns in diameter
lbs/day = pounds per day
VOCs = volatile organic compounds

The emissions calculations also include the use of USEPA Tier 2 or above certified construction equipment for the grading phases, as set forth in Regulatory Compliance Measure AQ-4 described in Section 4.2.7 below.

Table 4.2.F compares the regional maximum daily construction emissions against SCAQMD's construction mass daily significance thresholds to determine whether the proposed Project's construction emissions would significantly impact the regional air quality. As shown in Table 4.2.F, the regional daily emissions for construction are less than the SCAQMD mass daily significance thresholds for all criteria air pollutants. For all of the criteria pollutants (except NO_X) the proposed Project's emissions are substantially less than the significance thresholds. Therefore, construction activities associated with the proposed Project would not violate any air quality standard or substantially contribute to an existing or projected air quality violation. The proposed Project's regional construction emissions would result in a less than significant air quality impact.

Table 4.2.F: Comparison of Regional Construction Emissions to SCAQMD Emissions Thresholds

	Maximum (lbs/day)					
	VOCs	**NO_X**	**CO**	**SO_2[1]**	**PM_{10} Total**	**$PM_{2.5}$ Total**
Maximum Daily Emissions	23	94	73	0.2	6.5	3.3
SCAQMD Threshold	75	100	550	150	150	55
Above Threshold?	No	No	No	No	No	No

Source: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B).

[1] This analysis conservatively assumes that all SO_X is emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this analysis.

NO_X = nitrogen oxides
CO = carbon monoxide
SO_x = sulfur oxides
SO_2 = sulfur dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns in diameter
lbs/day = pounds per day
SCAQMD = South Coast Air Quality Management District
VOCs = volatile organic compounds

Localized Impacts from Onsite Construction Activities.

Less than Significant Impact. The localized impacts from the daily emissions associated with onsite construction activities were evaluated at nearby sensitive receptor locations following the SCAQMD's LST methodology, which uses onsite mass emissions rate look-up tables and project-specific modeling. SCAQMD provides LSTs applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. Since development projects typically result in negligible construction and long-term operation SO_2 emissions, SCAQMD does not provide an LST for this pollutant. There is also no ambient standard or SCAQMD LST for VOCs, since VOCs are not a criteria pollutant. VOCs are classified as a precursor pollutant, and only a regional emissions threshold has been established.

LSTs represent the proposed Project's maximum emissions that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS. LSTs for each pollutant are developed for each source receptor area and distance to the nearest sensitive receptor based on the ambient concentrations of that pollutant. The LSTs for PM_{10} and $PM_{2.5}$ were derived based on requirements in SCAQMD Rule 403, Fugitive Dust. For

each source receptor area, a project's localized air quality impact can be determined using the mass rate look-up tables. SCAQMD provides LST mass rate look-up tables for projects with active construction areas that are less than or equal to 5 acres. While the mass rate LST are designed for sites/activity for 5 acres or less, the mass rate LST can be more stringently used for larger parcels, such as the proposed Project.

In Table 4.2.G, the maximum daily onsite construction emissions are more stringently compared to the SCAQMD mass rate LSTs for a project less than or equal to 5 acres using the receptor area of Central Orange County, and for the shortest receptor distance of 25 meters, to cover the Residence Inn Hotel adjacent to the project site. The hotel is approximately 20 meters from the edge of the project site; however, as stated in the LST guidance, "The closest receptor distance on the mass rate LST look-up tables is 25 meters. 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." The analysis shows that the construction emissions will not exceed the mass rate LSTs for 25 meters; thus, the proposed Project's construction emissions will not exceed the ambient air quality significance thresholds established by the SCAQMD. The proposed Project's construction emissions would result in less than significant impacts related to ambient air quality.

Table 4.2.G: Comparison of Onsite Construction Emissions to LSTs

	Maximum (lbs/day)[1]			
	NO_X[2]	**CO**	**PM_{10} Total[3]**	**$PM_{2.5}$ Total[3]**
Onsite Emissions	54	39	3	2
SCAQMD LST	183	1,253	13	7
Above Threshold?	No	No	No	No

Source: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B).

1 Emissions calculated using CalEEMod® version 2013.2.2.

2 The USEPA 1-hour NAAQS for NO_X is lower than the current SCAQMD standard (188 μg/m^3 compared to 339 μg/m^3). By applying this ratio to the screening threshold of 183 lbs/day, an equivalent NAAQS threshold would be 101 lbs/day, which is still greater than the calculated onsite emissions.

3 PM_{10}/$PM_{2.5}$ emissions are controlled by watering the construction site three times per day (estimated to reduce emissions by 50 percent), as well as limiting vehicle speeds on unpaved surfaces, applying non-toxic soil stabilizers or replacing ground cover, and sweeping paved roads at the end of the work day.

μg/m^3 = micrograms per cubic meter
CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance threshold
NAAQS = national ambient air quality standards
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns in diameter
SCAQMD = South Coast Air Quality Management District
USEPA = United States Environmental Protection Agency

The proposed Project would be required to comply with the provisions of SCAQMD Rule 403 regarding fugitive dust control measures (Regulatory Compliance Measure AQ-2) and Rule 1113 limiting the VOC content of architectural coatings (Regulatory Compliance Measure AQ-3) during construction. Onsite NO_X emissions are also presented in Table 4.2.G

for the federal 1-hour NO_2 NAAQS, since this threshold was introduced after the mass rate LSTs were published. As a conservative approximation, the screening mass rate threshold for the federal 1-hour NO_2 NAAQS would be at least 45 percent lower than that estimated by SCAQMD. This estimate is based on a ratio of the federal threshold (188 µg/m^3) to the 1-hour NO_2 SCAQMD/CAAQS threshold (339 µg/m^3), on which the NO_2 mass rate LST is based. Since the federal threshold is based on the 98th percentile and on a 3-year average, this is a conservative estimate. As shown in Table 4.2.G, maximum localized construction emissions for onsite sensitive receptors would not exceed any of the SCAQMD-recommended LSTs or the threshold corresponding to the federal 1-hour NO_x NAAQS.

Therefore, localized construction emissions resulting from the proposed Project would result in a less than significant air quality impact.

Toxic Air Contaminants.

Less than Significant Impact. The off-road diesel construction equipment used during grading and excavation activities would emit TAC emissions during construction of the proposed Project. Based on the SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "Individual Cancer Risk," which is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk assessment. Because the construction duration would last less than 3 years, and because the phases that would require the most heavy-duty diesel vehicle usage (e.g., grading) would last for a much shorter period of time (e.g., 3 months), the proposed Project's construction would not result in a long-term (i.e., 70-year) substantial source of TAC emissions. In addition, the SCAQMD CEQA guidance does not require a health risk assessment for short-term construction emissions. It is, therefore, neither necessary nor meaningful to evaluate long-term cancer impacts from construction activities that occur over a relatively short duration. There would also be no residual emissions after construction. As such, the proposed Project's construction TAC emission impact would be less than significant.

Correlation of Potential Impacts to Human Health Effects.

Less than Significant Impact. The health effects associated with the criteria pollutants are summarized above in Section 4.2.3. The criteria pollutants evaluated as part of the proposed Project's air quality analysis are identified by the USEPA due to the concern regarding health effects from these pollutants. The NAAQS were established to protect public health, including the health of at-risk populations such as people with pre-existing heart or lung disease (such as asthmatics), children, and older adults. These thresholds were established by the USEPA based on numerous studies regarding the relationship of health effects and particulate matter concentrations. The SCAQMD has established both regional significance thresholds and LSTs as the basis for evaluating individual projects under CEQA. These significance thresholds were derived to inform the public when air quality emissions may be significant due to the potential health effects of these criteria pollutants, consistent with how

the USEPA has suggested these pollutants be regulated (i.e., in relationship to the CAA and the NAAQS).

The proposed Project's maximum daily construction emissions are well below the SCAQMD significance thresholds for all criteria pollutants, and the maximum daily onsite construction emissions are well below the SCAQMD LSTs for NO_X, CO, and PM_{10} and $PM_{2.5}$. Therefore, the criteria pollutant emissions associated with the construction of the proposed Project will not cause additional daily exceedances of local, State, or federal air pollution standards. The proposed Project is not expected to emit any pollutants at a level sufficient to impact local human health, or create a level of adverse air concentrations that would force nearby residents to modify their activities in a meaningful way. Construction emissions associated with the proposed Project are not expected to cause residents in the area to experience a material increase in respiratory illness or other health symptoms associated with air emissions. Additionally, construction would not limit residents from engaging in normal outdoor activities. Construction emissions associated with the proposed Project are minor and well below established health-protective thresholds of significance.

Operational Impacts.

Regional Operational Impacts.

Less than Significant Impact. The regional maximum daily operational emissions of the proposed Project are summarized in Table 4.2.H. The operational emissions estimates include reductions associated with compliance with Title 24 (Regulatory Compliance Measure NRG-1).

Table 4.2.H: Summary of Operational Criteria Air Pollutant Emissions

	(lbs/day)					
	ROG	**NOx**	**CO**	**SO_2[1]**	**PM_{10}**	**$PM_{2.5}$**
Area	16	0.2	20	0.001	0.4	0.4
Energy	0.3	2	1	0.01	0.2	0.2
Traffic	10	18	86	0.2	17	4.8
Total	**26**	**20**	**108**	**0.3**	**18**	**5.4**

Source: *Air Quality Technical Report: The Barton Place Project,* ENVIRON (April 2015) (Appendix B).

[1] This analysis conservatively assumes that all SO_X is emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this analysis.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns in diameter
ROG = reactive organic gases
SO_x = sulfur oxides
SO_2 = sulfur dioxide

Table 4.2.I compares the regional maximum daily operational emissions against SCAQMD's operational mass daily significance threshold to determine whether the proposed Project's operational emissions would significantly impact the regional air quality. As shown in Table 4.2.I, the regional daily emissions for proposed Project operation are less than the SCAQMD mass daily significance thresholds for all criteria air pollutants. For all of the criteria pollutants, the proposed Project's emissions are substantially less than the significance thresholds. Therefore, operation of the proposed Project would not violate any air quality standard or substantially contribute to an existing or projected air quality violation. The proposed Project's regional operational emissions would result in a less than significant air quality impact.

Table 4.2.I: Comparison of Regional Operational Emissions to SCAQMD Emissions Thresholds

Source	(lbs/day)					
	ROG	**NO_X**	**CO**	**SO_2[1]**	**PM_{10}**	**$PM_{2.5}$**
Total Operational Emissions	26	20	108	0.3	18	5.4
SCAQMD Threshold	55	55	550	150	150	55
Above Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: *Air Quality Technical Report: The Barton Place Project*, ENVIRON (April 2015) (Appendix B).

[1] This analysis conservatively assumes that all SO_X is emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this analysis.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns in diameter
ROG = reactive organic gases
SCAQMD = South Coast Air Quality Management District
SO_x = sulfur $_{oxides}$
SO_2 = sulfur dioxide

Localized Impacts from Onsite Operational Activities.

Less than Significant Impact. The proposed Project does not include an evaluation of ambient air quality impacts for operational emissions because it does not include any of the land uses that typically require such an analysis to be performed based on SCAQMD's LST methodology. As stated in SCAQMD's LST methodology, "[t]he primary emissions from operational activities include, but are not limited to NOx and CO combustion emissions from stationary sources and/or onsite mobile equipment. Some operational activities may also include fugitive $PM_{2.5}$ and PM_{10} dust generating activities such as aggregate operations or earthmoving activities at landfills." The proposed Project is an age-restricted housing project with a retail/commercial component and would not include onsite emission sources such as large stationary-source or onsite aggregate operations that would generate significant amounts of emissions and dust. Therefore, localized impacts from onsite emission sources would be less than significant.

Localized CO Impacts.

Less than Significant Impact. Based on the analysis presented below, a CO "hot spots" analysis is not needed to determine whether a change in the level of service (LOS) of an intersection in the vicinity of the project site would have the potential to result in exceedances of the CAAQS or NAAQS.

CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Accordingly, vehicle emissions standards have become increasingly more stringent. Before the first vehicle emissions regulations, cars in the 1950s were typically emitting about 87 grams of CO per mile. Since the first regulation of CO emissions from vehicles (model year 1966) in California, vehicle emissions standards for CO applicable to light-duty vehicles have decreased by 96 percent for automobiles, and new cold-weather CO standards have been implemented, effective for the 1996 model year. Currently, the CO standard in California is a maximum of 3.4 grams/mile for passenger cars (with provisions for certain cars to emit even less). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SCAQMD region have steadily declined.

The analysis prepared for CO attainment in the SCAB by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the SCAB. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan).[1] As discussed in the 1992 CO Plan, peak CO concentrations in the SCAB are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of the 1992 CO Plan and subsequent plan updates and AQMPs.

In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles during the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Boulevard/Imperial Highway (Lynwood); Wilshire Boulevard/Veteran Avenue (Westwood); Sunset Boulevard/Highland Avenue (Hollywood); and La Cienega Boulevard/Century Boulevard (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was Wilshire Boulevard/Veteran Avenue, which had a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm, which indicates that the most stringent 1-hour CO standard (20.0 ppm) would likely not be exceeded until the daily traffic at the intersection exceeded more than 400,000 vehicles per day.[2] The Los Angeles County Metropolitan Transportation Authority evaluated the LOS in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection in 2004 and found it to be LOS E in the a.m. peak hour and Level F in the p.m. peak hour.

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1 SCAQMD. 1992. *Federal Attainment Plan for Carbon Monoxide.*

2 Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

Following build out of the proposed Project, the highest average daily trips at an intersection would be approximately 83,770 at Katella Avenue/Valley View Street,[1] which is below the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. This daily trip estimate is based on the peak-hour conditions of the intersection. There is nothing unique to SCAB meteorology that would lead to a conclusion that the CO concentrations at Katella Avenue/Valley View Street would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP. Therefore, the proposed Project does not trigger the need for a detailed CO hot spot model and would not cause any new or exacerbate any existing CO hot spots. As a result, potential impacts related to localized mobile-source CO emissions would be less than significant.

Toxic Air Contaminants.

Less than Significant Impact. The CARB has published and adopted the *Air Quality and Land Use Handbook: A Community Health Perspective (ARB Air Quality and Land Use Handbook)*, which provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxics emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities). The SCAQMD adopted similar recommendations in its *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.* Together, the CARB and SCAQMD guidelines recommend siting distances for both the development of sensitive land uses in proximity to TAC sources and the addition of new TAC sources in proximity to existing sensitive land uses.

The primary sources of potential TACs associated with operation of the proposed Project include DPM from delivery trucks associated with the proposed Project's commercial/retail component (e.g., truck traffic on local streets and idling on adjacent streets). However, these activities and the proposed Project's land uses are not considered land uses that generate substantial TAC emissions. Health risk assessments are recommended by the SCAQMD to be conducted for substantial sources of DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units), and the guidance for analyzing mobile-source DPM emissions are also provided by the SCAQMD. According to this guidance, the proposed Project is not considered a substantial source of DPM requiring a health risk assessment since daily truck trips to the project site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. In addition, compliance with Regulatory Compliance Measure AQ-1, which limits diesel-fueled commercial vehicle idling time, would further reduce DPM emissions.

Because the proposed Project would not contain substantial TAC sources and is consistent with CARB and SCAQMD guidelines regarding TAC sources in proximity to existing sensitive land uses, the potential impacts related to TAC emissions would be less than significant.

[1] Kimley-Horn and Associates, Inc. 2015. *Traffic Impact Study for the Barton Place Mixed-Use Project.*

For acute and chronic noncancer hazardous TACs, typical sources include industrial manufacturing processes (e.g., chrome plating, electrical manufacturing, and petroleum refinery). The proposed Project would not include these types of sources, and the quantities of onsite hazardous TACs associated with the proposed Project would be below thresholds that would trigger further study under California Accidental Release Program (CalARP). As such, the proposed Project would not release substantial amounts of TACs, and impacts would be less than significant.

Correlation of Potential Impacts to Human Health Effects.

Less than Significant Impact. Similar to construction, the maximum daily operational emissions associated with the proposed Project are well below the SCAQMD significance thresholds for all criteria pollutants. The localized impacts from onsite emission sources would be less than significant because the proposed Project would not include onsite emission sources that would generate significant amounts of emissions or dust. Therefore, the criteria pollutant emissions associated with the operation of the proposed Project will not cause additional daily exceedances of local, State, or federal air pollution standards. The proposed Project would not emit any pollutants at a level sufficient to impact local human health or create a level of adverse air concentrations that would force nearby residents to modify their activities in a meaningful way. Operational emissions associated with the proposed Project would not cause residents in the area to experience a material increase in respiratory illness or other health symptoms associated with air emissions. Additionally, operation would not limit residents from engaging in normal outdoor activities.

The proposed Project emissions would not exceed any thresholds related to criteria air pollutants and health risk impacts. Therefore, the potential emissions associated with the proposed Project would not violate any air quality standard or contribute to an existing or projected air quality violation.

Threshold 4.2.3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)

The cumulative air quality impacts analysis is based on the guidance provided by the SCAQMD, which uses the same significance thresholds for project-specific and cumulative impacts for all environmental topics analyzed in an EIR. The only case where the significance thresholds for project-specific and cumulative impacts differ is the Hazard Index significance threshold for TAC emissions. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are not considered to be cumulatively significant. Therefore, based on the fact that the proposed Project does not exceed any of the air quality thresholds of significance, the proposed Project would not have a cumulatively considerable impact.

Cumulative Construction.

Less than Significant Impact. The proposed Project's construction-related regional daily emissions are less than the SCAQMD mass daily significance thresholds for all criteria pollutants. Thus, the proposed Project would not result in a cumulatively considerable increase in emissions due to construction-related emissions. Similarly, in terms of localized air quality concentrations of NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$, construction of the proposed Project would have a less than significant impact. Therefore, according to SCAQMD's guidance, the proposed Project's contribution to cumulative localized air quality concentrations of these pollutants would not be cumulatively considerable and is, therefore, less than significant. Likewise, regarding toxic emissions, the greatest potential for construction-related TAC emissions generally involves DPM emissions associated with heavy equipment operations during grading and excavation activities. As discussed above, construction of the proposed Project would have a less than significant impact associated with TAC emissions. Therefore, according to the SCAQMD guidance, the Project's construction-related contribution to toxic emission impacts would not be cumulatively considerable and, therefore, would be less than significant.

Cumulative Operation.

Less than Significant Impact. The proposed Project's operational emissions would be below the SCAQMD's threshold for all criteria pollutant emissions. Thus, the proposed project would not result in a cumulatively considerable increase in emissions due to operation-related emissions. Moreover, the proposed Project is not a substantial source of TAC emissions, as such emissions are typically associated with large-scale industrial, manufacturing, and transportation hub facilities, based on the *CARB Air Quality and Land Use Handbook*. Additionally, the proposed Project would be consistent with the recommended screening-level siting distances for TAC sources, as set forth in the *CARB Air Quality and Land Use Handbook.* Therefore, the proposed Project's operation-related contribution of criteria pollutant emissions or TAC emissions would not be cumulatively considerable and, therefore, would be less than significant.

Projects that do not exceed the project-specific thresholds are not considered to be cumulatively significant. Both proposed Project construction- and operation-related regional daily emissions are less than the SCAQMD mass daily significance thresholds for all criteria pollutants. Therefore, the proposed Project would not have a cumulatively considerable increase in emissions. Additionally, neither the construction nor operation of the proposed Project would have a cumulatively considerable impact related to localized air quality impacts. Therefore, the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under the applicable federal or State AAQS.

Threshold 4.2.4: Expose sensitive receptors to substantial pollutant concentrations

Less than Significant Impact. The proposed Project is an age-restricted housing project with a retail/commercial component. It also contains a recreational/community swimming pool area.

Residential uses are generally considered "sensitive receptors," meaning they are particularly sensitive to the adverse effects associated with environmental impacts (including air pollution). The SCAQMD *CEQA Air Quality Handbook* also identifies recreational areas as a land use that should be considered as a "sensitive receptor."[1]

According to the SCAQMD Facility Information Detail (FIND) web tool, several existing potential sources of TACs are located with 0.25 mile of the project site. As illustrated on Figure 4.2.2, the following existing TAC-emitting sources are located within 0.25 mile of the property lines of the project site:

- Cottonwood Church (1,073 feet)
- Hassan 16/Union Oil Co (76 Gas Station) (989 feet)
- Kohler Rental Power (189 feet)
- Los Alamitos Race Course (627 feet)
- Los Alamitos Race Course (gasoline dispensing) (1,210 feet)
- PMI-Dental Health Plan (1,130 feet)
- Racer Cleaners (841 feet)
- Starting Gate Saloon (804 feet)
- ZZ Construction (1,096 feet)

Of these facilities, the only actively permitted equipment includes a 364-horsepower emergency diesel generator at the Cottonwood Church, the gasoline dispensing facility at the Los Alamitos Race Course, and a 125-horsepower emergency diesel generator at the Los Alamitos Race Course. The gasoline-dispensing facility is located toward the northwestern corner of the racetrack property, more than 1,000 feet from the boundary of the project site, which is much farther than the minimum distance of 300 feet recommended in the *CARB Air Quality and Land Use Handbook* for large gas-dispensing facilities. The diesel generators at the Cottonwood Church and Los Alamitos Race Course are permitted for emergency use only, and are limited to 50 hours of maintenance and testing per year. A screening model conducted with the USEPA's SCREEN3 results in impacts below the single-source thresholds. The cumulative impact of these sources is below the cumulative thresholds. Based on the distance, source type, and location, these sources will not pose a significant health impact to the Project due to emissions of TACs. Therefore, the proposed Project would not expose new sensitive receptors to high concentrations of TACs.

The proposed Project would not locate a sensitive receptor adjacent to a congested roadway or in an area with high background concentrations of CO. An analysis of CO "hot spots" showed that the Project would not cause any significant CO impacts at the most congested intersections. These areas are typically the locations of the highest CO concentrations due to roadway traffic.

[1] SCAQMD *CEQA Air Quality Handbook* (1993), pg. 4-12.

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LEGEND

1 - Cottonwood Church
2 - Hassan 16/Union Oil Co (76 Gas Station)
3 - Kohler Rental Power
4 - Los Alamitos Race Course
5 - Los Alamitos Race Course (gasoline dispensing)
6 - PMI-Dental Health Plan
7 - Racer Cleaners
8 - Starting Gate Saloon
9 - ZZ Construction

N

SOURCE: ENVIRON

FIGURE 4.2.2

Barton Place

TAC-Emitting Sources Located within 1/4 Mile of the Project Site

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The *CARB Air Quality and Land Use Handbook* also recommends siting criteria for sensitive receptors. The recommended minimum distances from sensitive receptors to the relevant sources applicable to the proposed Project are 500 feet from a freeway and 300 feet from a large gas-dispensing facility (or 50 feet from a typical gas-dispensing facility). The proposed Project's sensitive receptors are not within these minimum distances recommended in the handbook.

The proposed Project is evaluated using the land use citing criteria from the SCAQMD's *CEQA Air Quality Handbook* and the *CARB Air Quality and Land Use Handbook*. Based on the distance, source type, and location of the emission sources identified within 0.25 mile of the project site, these permitted sources will not pose a significant health impact to the proposed Project due to emissions of TACs.

In addition, as discussed above under Threshold 4.2.2, the proposed Project would not result in emissions that significantly impact sensitive receptors located around the project site. The analysis applied the localized significance thresholds, set by the SCAQMD, to determine potential impacts on the sensitive receptors nearest to the project site. As shown in Table 4.2.G above, emissions from the proposed Project on nearby sensitive receptors are well below the applicable threshold emission levels.

Therefore, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

4.2.7 Regulatory Compliance Measures

The proposed Project would adhere to the regulatory standards described in the following regulatory compliance measures, the implementation of which is intended to reduce impacts related to air quality:

Regulatory Compliance Measure AQ-1: **Idling of Commercial Vehicles.** The project applicant shall comply with the applicable provisions of Section 2485 of Title 13, Chapter 10, of the California Code of Regulations, that limit idling of diesel-fueled vehicles.

Regulatory Compliance Measure AQ-2: **SCAQMD Rule 403.** The project applicant shall implement fugitive dust control measures in compliance with South Coast Air Quality Management District (SCAQMD) Rule 403 during construction. The project applicant shall include in construction contracts the fugitive dust control measures for SCAQMD Rule 403 compliance, with construction controls being at least as effective as the following:

- Apply water three times daily to all unpaved parking or staging areas, unpaved road surfaces, and active construction areas;

- Maintain soil stabilization of inactive construction areas with exposed soil via water, non-toxic soil stabilizers, or replaced vegetation;
- Minimize track-out emissions by covering all haul trucks or maintaining at least 6 inches of freeboard;
- Suspend earthmoving operations or increase watering to meet Rule 403 criteria if winds exceed 25 miles per hour (mph); and
- Limit vehicle speeds to 15 mph or less in staging areas and on project haul roads.

Regulatory Compliance Measure AQ-3: **SCAQMD Rule 1113.** The project applicant shall comply with SCAQMD Rule 1113 limiting the volatile organic compound (VOC) content of architectural coatings.

Regulatory Compliance Measure AQ-4: During construction, the project applicant shall ensure that United States Environmental Protection Agency (USEPA) Tier 2 or above certified construction equipment for the grading phases (i.e., scrapers, dozers, and tractors/loaders/backhoes) will be used.

Regulatory Compliance Measure NRG-1: **Title 24.** The project applicant shall comply with the applicable provisions of the 2013 Building Energy Efficiency Standards (Title 24).

4.2.8 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measures AQ-1, AQ-2, AQ-3, AQ-4, and NRG-1, the proposed Project's impacts to air quality would be less than significant and no mitigation is required.

4.2.9 Cumulative Impacts

Air pollution is inherently a cumulative type of impact measured across an air basin. The discussion under Threshold 4.2.3, above, includes an analysis of the proposed Project's contribution to cumulative air impacts. To summarize the conclusion with respect to that analysis, the incremental effect of projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively considerable. The proposed Project's construction- and operation-related regional daily emissions are less than the SCAQMD significance thresholds for all criteria pollutants. In addition, adherence to SCAQMD rules and regulations on a project-by-project basis would substantially reduce potential impacts associated with the related projects and basin-wide air pollutant emissions. Therefore, the proposed Project would not have a cumulatively considerable increase in emissions and the proposed Project's cumulative air quality impacts would be less than significant.

4.2.10 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to construction and operational air quality.

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4.3 BIOLOGICAL RESOURCES

4.3.1 Introduction

This section describes the existing biological resources on and in the vicinity of the project site for the proposed Project, the potential impacts of the proposed Project on those resources, and measures to mitigate any potentially significant impacts. Information presented in this section is based in part on information provided in the *Biological Technical Report for Barton Place Project* (Glenn Lukos Associates, Inc., February 2015) (Biological Technical Report) prepared for the proposed Project (Appendix C).

4.3.2 Methodology

Literature Review. Prior to conducting fieldwork, a literature review was conducted to determine the potential occurrence of special-status plant and animal species on or in the immediate vicinity of the project site. The resources examined included: (1) the *Los Alamitos, Anaheim, Long Beach, South Gate, Whittier, La Habra, and Seal Beach, California* United States Geological Survey (USGS) 7.5-minute quadrangles using the California Natural Diversity Data Base (CNDDB); and (2) the California Native Plant Society (CNPS) *Inventory of Rate and Endangered Plants of California*.

Biological Surveys. A number of onsite surveys were conducted in order to identify and analyze the proposed Project's potential impacts on biological resources. The surveys included the following:

- Evaluation of vegetation and/or land use/land cover;
- Performance of site-specific habitat assessments to evaluate the potential presence/absence of special-status species (or potentially suitable habitat);
- Evaluation of potential aquatic resources, specifically, wetlands as defined by the United States Army Corps of Engineers (USACE); and
- Determination of the presence/absence of lakes or streams as defined under Section 404 of the Clean Water Act (CWA) and Section 1600 of the California Fish and Game Code.

Table 4.3.A below provides a summary of the types of surveys conducted and the dates they were conducted.

4.3.3 Existing Environmental Setting

The approximately 33-acre project site was formerly part of a golf course. Following the closure of the Cypress Golf Club in 2004, the project site was regraded to remove vegetation and man-made topographical features and fill in artificial water features. The project site is generally flat, except for an earthen berm planted with ornamental trees along the southerly and southeasterly boundaries. The majority of the project site has been graded and disturbed, and is either unvegetated or vegetated with weedy, non-native, annual grasses and forbs. Due to the urbanization of the surrounding area, no other native habitat is present in the general vicinity of the project site. There are several unpaved service roads that traverse the project site.

Table 4.3.A: Biological Survey Types and Dates

Survey Type	Survey Date
Site Reconnaissance General Botanical Survey Special-Status Plant Habitat Assessment Jurisdictional Determination Focused Survey for Southern Tarplant	11/22/14
General Biological Survey Burrowing Owl Habitat Assessment	12/22/14
Jurisdictional Determination General Biological Survey Focused Survey for Southern Tarplant	12/24/14
Tree Assessment General Biological Survey	01/07/15

Source: *Biological Technical Report for Barton Place Project*, Glenn Lukos Associates, Inc. (February 2015).

Native and Nonnative Plant Species. As described above, the majority of the project site is either unvegetated or vegetated with weedy, non-native, annual grasses and forbs. The approximately 1.5-acre vegetated area along the southerly and southeasterly boundaries of the project site (see Figure 3.3, Existing Vegetation Area) contains ornamental vegetation, including 8 blue gum eucalyptus (*Eucalyptus globulus*), 1 red ironbark tree (*Eucalyptus sideroxylon*), 9 Brazilian pepper (*Schinus terebinthifolius*), 8 Mexican fan palms (*Washingtonia robusta*), 1 European olive (*Olea europa*), 12 lemonscented gum trees (*Corymbia citriodora*), 1 myoporum (*Myoporum laetum*), 1 rubber tree (*Ficus elastica*), 1 weeping fig (*Ficus benjamina*), 1 black willow (*Salix gooddingii*), 1 Chinese elm (*Ulmus parvifolia*), 1 carrotwood tree (*Cupaniopsis anacardiodes*), and a single white mulberry tree (*Morus alba*). There are four blue gum eucalyptus, seven red ironbark trees, and one Brisbane box (*Tratania conferta*) immediately adjacent to the project site that would not be impacted by the proposed Project. These trees, both onsite and offsite, could potentially support nesting birds, although none were observed.

Native and Nonnative Animal Species. A number of animal species were present on the project site during the site surveys. The animal species that were present are typical of those found in developed, suburban areas in Orange County (County). Table 4.3.B lists the native and nonnative animal species observed on the project site during the biological site surveys. As discussed in the Initial Study (see Appendix A), none of the animal species listed on Table 4.3.B are threatened or endangered or have other special status under federal or State law.

Although some animal species listed in Table 4.3.B are expected to periodically move about the project site, it is entirely surrounded by other development and does not function as a wildlife movement corridor or special linkage.

Table 4.3.B: Animal Species Observed Onsite

Scientific Name	Common Name
Elgaria multicarinata	Southern alligator lizard
Sceloporus occidentalis	Western fence lizard
Psaltriparus minimus	Bushtit
Charadrius vociferus	Killdeer
**Columba livia*	rock pigeon
Zenaida macroura	mourning dove
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Zonotrichia leucophrys	White-crowned sparrow
Falco sparverius	American kestrel
Haemorhaus mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Mimus polyglottos	Northern mockingbird
Geothlypis trichas	Common yellowthroat
Setaphaga coronata	Yellow-rumped warbler
Limnodromus scolopaceus	Long-billed dowitcher
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
Turdus migratorius	American robin
Tyto alba	Barn owl
Sayornis nigricans	Black phoebe
Tyrannus verticalis	Western kingbird
**Canis familiaris*	Domestic dog
***Didelphis virginiana*	Virginia opossum
Equus caballus	Domestic horse
***Felis cattus*	Domestic cat
Thomomys bottae	Botta's pocket gopher
Sylvilagus audubonii	Audubon's (desert) cottontail

Source: *Biological Technical Report for Barton Place Project*, Glenn Lukos Associates, Inc. (February 2015).
* = Nonnative animal species

Onsite Aquatic Resources. The project site is currently undeveloped and does not contain any natural lakes, streams, or riparian habitat. The golf course that was previously located on the project site did contain man-made water features that served as storage of irrigation water and as golf course "water hazards." However, these artificial features were removed and the project site was regraded following the closure of the golf course. Ephemeral surface ponding occasionally occurs on the project site as a result of soil disturbance associated with regular disking activities to control weeds. Absent such activities, the soil structure would retain the capacity to drain naturally and such occasional ponding would not occur.

Two areas near the southwest corner of the project site were examined for wetland characteristics. The first area supported a predominance of upland plant species rather than wetland plants. Therefore, it does not meet the minimum criteria for wetlands in accordance with the USACE Arid West Supplement Version 2.0 and is not a wetland pursuant to Section 404 of the CWA. The second area, which is immediately south of the first area, supports a mix of upland and wetland species, including

a predominance of wetland plants. However, soils beneath the second area are not considered hydric. In addition, ephemeral seasonal ponding occurs there due to the ongoing disturbance of the soil profile, and the area does not exhibit wetland hydrology. Therefore, the second area also fails to meet two of the three wetland criteria in accordance with the Arid West Supplement Version 2.0 and is not a wetland pursuant to Section 404 of the CWA.

The California Fish and Game Code defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." The California Department of Fish and Wildlife (CDFW) definition of "lake" includes "natural lakes or man-made reservoirs." The project site does not contain any body of water that meets the definition of a stream or a lake in the California Fish and Game Code and, as such, would not be subject to regulation under Section 1602 of the Fish and Game Code.

4.3.4 Regulatory Setting

Federal Regulations and Policies.

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) governs the take, possession, import, export, transport, selling, purchasing, or bartering of migratory birds and their eggs, parts, and nests. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take while ensuring that take is compatible with protection of the species. Most bird species are protected under the MBTA.

State Regulations and Policies.

California Fish and Game Code. Under the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy any bird or the nests or eggs of any bird species except as otherwise provided in the California Fish and Game Code and its regulations. This code also specifically protects raptors, including owls. The CDFW considers a disturbance that results in nest abandonment or loss of reproductive effort as take. Disturbances of active nesting territories should be avoided during the nesting season.

4.3.5 Thresholds of Significance

In accordance with Appendix G to the *State CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, implementation of the proposed Project would have a significant impact on biological resources if it would:

Threshold 4.3.1: 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 Wildlife or U.S. Fish and Wildlife Service;

Threshold 4.3.2: 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 Wildlife or U.S. Fish and Wildlife Service;

Threshold 4.3.3: Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the CWA, including, but not limited to, marsh, vernal pool, coastal, etc., through direct removal, filling, hydrological interruption, or other means;

Threshold 4.3.4: 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;

Threshold 4.3.5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

Threshold 4.3.6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The analysis in the Initial Study (Appendix A) determined, based in part on the Biological Technical Report, that the proposed Project's impacts with respect to Thresholds 4.3.1 through 4.3.3, 4.3.5, and 4.3.6 would be clearly insignificant and unlikely to occur. Therefore, the biological impacts relating to those thresholds are not considered further in this Draft EIR.

4.3.6 Project Impacts

Threshold 4.3.4: 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. The Initial Study determined, based on the Biological Technical Report, that the proposed Project's impact on candidate, sensitive, or special-status animal species would be clearly insignificant and unlikely to occur. In addition, the Biological Technical Report concluded that the proposed Project would have no impact on the nests of migratory birds if the existing trees in the approximately 1.5-acre ornamental vegetation area are removed outside the avian nesting season (February 1 to August 31). In any event, no bird nests were detected in any of the onsite ornamental trees or four offsite ornamental trees (blue gum eucalyptus) located adjacent to the project site. Therefore, based on current conditions, the proposed Project would not affect any migratory birds and its impact on migratory birds would be less than significant. However, the proposed Project has the potential to impact active migratory bird nests if and to the extent those trees are removed during the avian nesting season (February 1 to August 31) and they contain nests. Mitigation Measure 4.3.1, below, would mitigate any impact to nesting migratory birds should it be necessary to conduct vegetation removal during the nesting season and nests are present.

With implementation of Mitigation Measure 4.3.1, the proposed Project's potential impacts on nesting migratory birds would be less than significant.

The proposed Project would have no impact on the nests of raptors (which are migratory birds) if the existing trees in the 1.5-acre ornamental vegetation area are removed outside the raptor nesting season (February 1 to June 30) and they contain raptor nests. In any event, no raptor nests were detected in any of the onsite ornamental trees or four offsite ornamental trees (blue gum eucalyptus) located adjacent to the project site. Therefore, based on current conditions, the proposed Project would not affect any special-status raptors and the proposed Project's impact on special-status raptors would be less than significant. However, the proposed Project has the potential to impact active raptor nests if and to the extent that (1) those ornamental trees are removed during the raptor nesting season (February 1 to June 30), and (2) special-status or common species of raptors establish nests in the future in any of those ornamental trees prior to their removal. Mitigation Measure 4.3.2, below, would mitigate any impact to nesting raptors should it be necessary to conduct vegetation removal during the nesting season and raptors are present. With implementation of Mitigation Measure 4.3.2, the proposed Project's potential impact on nesting raptors would be less than significant.

With respect to the potential impact on a migratory wildlife corridor, the entire project site is highly disturbed and located within a fully urbanized area. The project site is not located within any local or regional wildlife movement corridor and does not function as a special linkage for wildlife movement. In addition, there are no bodies of water on the project site with native resident or migratory fish. Therefore, the proposed Project exhibits no potential to disrupt a wildlife corridor or in any way disrupt movement of native wildlife.

4.3.7 Mitigation Measures

Mitigation Measure 4.3.1: **Nesting Migratory Birds.** If and to the extent practicable, vegetation removal should be conducted outside the avian nesting season (February 1 through August 31). If and to the extent avoidance of the avian nesting season is not practicable, then a qualified biologist shall conduct a nesting bird survey within 3 days prior to the commencement of grading activity. If active nests are identified, the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.

Mitigation Measure 4.3.2: **Nesting Raptors.** If and to the extent practicable, vegetation removal should be conducted outside of the raptor nesting season (February 1 through June 30). If and to the extent avoidance of the raptor nesting season is not practicable, then a qualified biologist will conduct a survey within 3 days prior to the commencement of grading activity to determine whether nesting raptors are present. If no breeding raptors are present, no additional survey is required. If active nests are identified, the biologist shall (1) establish appropriate buffers that consider the ecology of the species present and the location of grading activities to ensure that disruption of nesting does not occur,

and (2) visit the project site bi-weekly to ensure that no impacts to the nesting raptors occur. The biologist will have the discretion to adjust the buffers (i.e., increase or decrease them) based on the monitoring results.

4.3.8 Cumulative Impacts

The identified related projects include the removal of trees or shrubs where raptors and other migratory and nesting bird species protected by the MBTA and California Fish and Game Code could potentially nest. Similar to the proposed Project, the related projects would be required to comply with the applicable MBTA and CDFW regulations and should be required to comply with mitigation measures similar to Mitigation Measures 4.3.1 and 4.3.2, above, so that the cumulative impact of the proposed Project and related projects on migratory and nesting birds would be less than significant. In any event, with the implementation of Mitigation Measures 4.3.1 and 4.3.2, above, the contribution of the proposed Project's impact on migratory and nesting birds, when considered in conjunction with the related projects, would not be cumulatively considerable.

4.3.9 Level of Significance after Mitigation

The proposed Project would have no significant and unavoidable adverse impacts related to biological resources.

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4.4 GEOLOGY AND SOILS

4.4.1 Introduction

This section provides a discussion of the existing geology and soils setting and an analysis of the proposed Project's potential geology and soils impacts. This section also addresses potential impacts due to the local geology underlying the project site, as well as slope stability, ground settlement, soil conditions, grading, and regional and local seismic conditions. This section summarizes information provided in the *Geotechnical Feasibility and CEQA-Level Assessment 33-acre Parcel Located Northeast of the Intersection of Katella Avenue and Enterprise Drive, City of Cypress, California* (Geotechnical Assessment) (Petra Geosciences, February 23, 2015). This report is included as Appendix D to this Draft EIR.

4.4.2 Methodology

To assess the impacts of the proposed Project with respect to geologic and soil conditions, Petra Geosciences conducted a geotechnical investigation and field explorations, and reviewed previous geotechnical reports prepared by others with respect to the project site. The discussion below describes the scope of the exploration, including methods used during site reconnaissance and the results of pertinent prior explorations, laboratory tests, and engineering analyses.

Background Research and Data Review. Existing geologic literature (i.e., geologic maps, boring logs, and other applicable data) was reviewed by Petra Geosciences.

Site Reconnaissance. A site reconnaissance and a subsurface exploration of the project site were conducted by Petra Geosciences. This included marking exploration and test locations for geology and soils that were analyzed in the Geotechnical Assessment.

Field Investigation. A preliminary field investigation was conducted by Petra Geosciences to identify subsurface conditions on the project site related to soil types, groundwater, liquefaction, corrosive soils, settlement, and the potential need for remedial grading. As part of the field investigation, 14 cone penetrometer test (CPT) soundings, at the locations shown on Figure 4.4.1, were conducted on the project site to a maximum depth of 50 feet below the surface. The information obtained from the CPTs was supplemented by drilling four exploratory borings within the project site to depths ranging from approximately 21.5 feet to 31.5 feet below the surface.

Geotechnical Laboratory Testing/Analysis. Laboratory testing was conducted on soil samples collected during the field investigation. Tests were performed to analyze the soil's moisture content, in-place dry density and moisture content, maximum dry density and optimum moisture content, expansion index, shear strength, consolidation characteristics, grain size distribution, Atterberg limits, and organic content, as well as chemical activity.

Soils, geology, and seismic hazards, as identified in the Geotechnical Assessment, were assessed with respect to significance within the context of Appendix G to the *CEQA Guidelines*.

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Explanation

B-4	Approximate Location of Exploratory Boring (Petra, 2014)
CPT-14	Approximate Location of Cone Penetrometer Test (Petra, 2014)
B-17	Approximate Location of Exploratory Boring (SCG, 2012)
CPT-4	Approximate Location of Cone Penetrometer Test (SCG, 2012)

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SOURCE: Petra Geosciences, Inc.

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FIGURE 4.4.1

Barton Place

Exploration Map
with Cone Penetrometer Test (CPT) Locations

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4.4.3 Environmental Setting

Project Site. The topography of the project site is generally flat, with the highest elevation on the project site (approximately 32 feet above mean sea level [amsl]) at the northeast corner of the property and the lowest elevation (approximately 22 feet amsl) at the southwest corner of the property. Variations in topography occur along the southerly property boundary, where a number of earthen berms, approximately 6 to 12 feet in height, exist as possible remnants of the previous golf course topography. Storm runoff appears to be presently controlled by sheet flow from the dominant high points to low-lying at areas the southwest corner of the project site.

Regional Geology. The project site is located within the Los Angeles Basin, a northwest-trending alluviated lowland situated at the north end of the Peninsular Ranges geomorphic province of coastal Southern California. The Los Angeles Basin is subdivided into four primary structural blocks that are distinguished from one another by contrasting basement rock types and stratigraphy. More specifically, the project site is located within the east-central portion of the Downey Plain, a broad lowland area that comprises a large portion of the Central Block of the Los Angeles Basin. This plain is bounded by the Santa Monica Mountains to the north, the Puente Hills and Santa Ana Mountains to the northeast and east, and a northwest-trending alignment of hills and mesas to the west and southwest.

In the area of the project site, the soils that form this extensive alluvial plain are composed primarily of geologically young materials deposited as a result of sedimentation along the Santa Ana and San Gabriel Rivers, with additional materials contributed from smaller canyons that drain the adjoining upland areas to the northeast.

Local Geology and Subsurface Conditions. The area occupied by the southern portion of the City of Cypress (City) is underlain by unconsolidated, generally fine-grained, Holocene-age alluvial floodplain deposits composed primarily of various combinations of silt, sand, and clay. Underlying these Holocene alluvial deposits are older, semi-consolidated to consolidated Quaternary-age sediments that extend to depths of 2,700 feet to greater than 4,200 feet below the surface.

The subsurface investigation revealed that the project site is underlain predominantly by Quaternary-age alluvial deposits that extend beyond the maximum depth explored (50 feet). These materials consist of interlayered silty sand, sand, sandy silt, clayey silt, clay, and silty clay. The native alluvial materials described above are likely to be capped by several feet of artificial fill in most areas of the project site, and as much as approximately 14 feet of fill in areas of the previous man-made water features associated with the golf course.

Local Groundwater Conditions. Information pertaining to the occurrence of groundwater within inland portions of Orange County has primarily been obtained from borehole logs prepared during installation of the numerous water wells throughout the area. In the City and surrounding areas, groundwater may occur within the upper 40 to 50 feet of Holocene-age sediments. This water typically occurs within thin layers of silty sand and sand at depths of between 5 and 50 feet below the surface. A publication from the California Division of Mines and Geology indicates that the project site is located within an area where shallow groundwater (i.e., groundwater existing at a depth of

40 feet or less below the ground surface) would typically be expected to occur. That publication indicates that the historical high groundwater depth for the project site is approximately 10 feet below the surface.

The CPT sounding data in the Geotechnical Assessment indicate that static groundwater levels on the project site ranged from approximately 8 to 12 feet below the surface at the time of the field investigation. This depth range is consistent with the groundwater depths reported by previous investigations.

Fault Systems and Seismic Conditions. A potentially active fault is defined by the State as a fault with a history of movement within Pleistocene time (between 11,000 and 1.6 million years ago). The active and potentially active faults are capable of producing potentially strong seismic shaking at the project site. It is anticipated that the project site will periodically experience ground acceleration as a result of earthquakes. The closest mapped active fault to the project site is the Newport-Inglewood Fault, located approximately 4.8 miles southwest of the project site. In addition, several other active faults are located in the vicinity of the project site, including the Puente Hills Blind Thrust Fault (12.3 miles to the northeast), the San Joaquin Hills Thrust Fault (11.3 miles to the southeast), the Palos Verdes Fault (12.9 miles to the southwest), and the Whittier Fault (12.9 miles to the northeast).

No portion of the project site or larger study area in the Geotechnical Assessment is located within the boundaries of an "Earthquake Fault Zone," as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act. Furthermore, the Cypress General Plan Safety Element (Safety Element) indicates that no active faults have been identified within City boundaries.

Seismic shaking is characterized by the physical movement of the land surface during and subsequent to an earthquake. Seismic shaking has the potential to cause destruction and damage to buildings and property, including damage resulting from damaged or destroyed gas or electrical utility lines, disruption of surface drainage, blockage of surface seepage and groundwater flow, changes in groundwater flow, dislocation of street alignments, displacement of drainage channels and drains and possible loss of life. In addition, ground shaking can induce several kinds of secondary seismic effects, including liquefaction, differential settlement, and landslides.

The intensity of seismic shaking during an earthquake depends largely on the geologic foundation conditions of the materials composing the upper several hundred feet of the Earth's surface. The greatest amplitudes and longest durations of ground shaking occur on thick, water-saturated, unconsolidated alluvial sediments, which may lead to liquefaction (as further described below). Ground shaking can also cause ground failure or deformation due to lurching and liquefaction.

Surface fault rupture refers to the displacement of the ground surface along a fault, which can occur during strong earthquakes. The potential for seismic hazards at the project site is a consequence of ground shaking caused by events on nearby active faults. However, as previously discussed, the project site is not located within a designated Alquist-Priolo Earthquake Fault Zone, so the possibility for surface fault rupture is low. The project site is, however, located approximately 4.8 miles to the northeast of an earthquake fault zone that has been established around the active traces of the Newport-Inglewood Fault.

Liquefaction and Lateral Spreading. Liquefaction occurs when saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong ground motion during an earthquake. Intervals of loose sand may, therefore, be subject to liquefaction if these materials are or were to become submerged and also exposed to strong seismic ground shaking. Seismic ground shaking of relatively loose, granular soils that are saturated or submerged can cause the soils to liquefy and temporarily behave as a dense fluid. This loss of support can produce local ground failure such as settlement or lateral spreading that may damage overlying improvements.

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or "unconfined" face such as an open body of water, channel, or excavation. In soils, this movement is generally due to failure along a weak plane and is often associated with liquefaction.

As discussed in the Geotechnical Assessment, the project site is located within a Liquefaction Hazard Zone, as designated by the California Geological Survey. This zone extends well beyond the project site and encompasses all of the land area within the boundaries of the City of Cypress, as well as large portions of the adjacent Cities of Los Alamitos, Garden Grove, Stanton, Anaheim, and Buena Park. The Safety Element identifies the project site as an area at a potentially high risk of liquefaction.

Subsidence. The phenomenon of widespread land sinking, or subsidence, is generally related to substantial overpumping of groundwater or petroleum reserves from deep underground reservoirs. Like most of northern Orange County, the City lies atop the Orange County Groundwater Basin (Orange County Basin). Although slight subsidence has been observed elsewhere in the Orange County Basin in Santa Ana (likely due to groundwater withdrawal) and in the Huntington Beach area (likely due to oil withdrawal), there is no recent history of subsidence in the project vicinity.[1] Groundwater levels and storage in the Orange County Basin are managed by the Orange County Water District (OCWD) in a manner that reduces the potential for land subsidence to occur.

Compressible/Collapsible Soils. Compressible soils are soils that consolidate when exposed to new loading, such as artificial fill or foundation loads. Soil collapse occurs when soils substantially decrease in volume following an increase in moisture content. The results of the subsurface investigation within the project site, as well as investigations conducted for previous reports, indicate that the majority of the project site is underlain by fill soil that extends to depths of 2 to 4 feet below the surface. In localized areas, this fill may extend as deep as 8 feet.

Portions of the project site that were previously occupied by man-made golf course lakes have been backfilled with up to 14.5 feet of artificial fill. This material is classified as engineered fill and is not likely to be subject to the same degree of compressibility as undocumented fill material.

[1] Metropolitan Water District of Southern California, Groundwater Assessment Study, Chapter IV – Groundwater Basin Reports, Orange County Basins – Orange County Basin, September 2007: http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/groundwater/PDFs/OrangeCountyBasins/OrangeCountyBasin.pdf (accessed April 8, 2015).

During the subsurface investigation, the presence of soft and potentially compressible native alluvial soils was noted in the southwest corner of the project site. The potentially soft layers were noted from a depth of approximately 7 feet to a depth of approximately 25 feet below the existing ground surface.

4.4.4 Regulatory Setting

State Policies and Regulations.

Alquist-Priolo Earthquake Fault Zoning Act (1972). The Alquist-Priolo Earthquake Fault Zoning Act of 1972 and updates (California Public Resources Code [PRC], Section 2621, et seq.) is the principal California State guidance to prevent the construction of habitable structures on the surface trace of active earthquake faults. If an active fault is found, a structure for human occupancy must be set back from the fault (generally 50 feet). The Alquist-Priolo Earthquake Fault Zoning Act only addresses the hazard of surface fault rupture; it does not consider other earthquake hazards. There are no known earthquake fault zones on or in the near vicinity of the project site; therefore, regulations recommended by the California Geological Survey (CGS) for investigations conducted in such zones do not specifically apply.

Seismic Hazard Mapping Act (1990). The Seismic Hazard Mapping Act (SHMA) was adopted by the State in 1990 to address the potential hazards posed by secondary effects of seismic activity, including strong ground shaking, soil liquefaction, and associated ground failure and seismically induced landslides. The CGS prepares and provides local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The seismic hazard zones are referred to as “zones of required investigation” because site-specific geological investigations are required for construction projects located within these areas. Before a project can be permitted, a geologic investigation, evaluation, and written report must be prepared by a licensed geologist to demonstrate that the potential hazards can be successfully mitigated.

Local Policies and Regulations.

City of Cypress Municipal Code. Building and construction in the City are subject to the regulations of the City of Cypress Municipal Code. California Code of Regulations (CCR), Title 24, Part 2, the California Building Code (CBC) (2013), provides minimum standards for building design in the State. Local codes are permitted to be more restrictive than Title 24, but not less restrictive. The procedures and limitations for the design of structures are based on site characteristics, occupancy type, configuration, structural system height, and seismic design category. The seismic ratings used in the CBC are derived from the International Building Code specifications. Most of coastal Southern California, including the project site, is located in Seismic Design Category D. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in the California Occupational Safety and Health Administration (Cal/OSHA) regulations (CCR, Title 8). In addition, the proposed Project would adhere to the regulatory standards described in Regulatory Compliance Measure GEO-1, which includes the seismic and building standards in the City's Building Code, which adopt the CBC with amendments and modifications.

4.4.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist,* the proposed Project would have a significant impact on geology and soils if it would:

Threshold 4.4.1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist, or based on other substantial evidence of a known fault;

ii) Strong seismic ground shaking;

iii) Seismic-related ground failure, including liquefaction; or

iv) Landslides;

Threshold 4.4.2: Result in substantial soil erosion or the loss of topsoil;

Threshold 4.4.3: 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 off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

Threshold 4.4.4: 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; or

Threshold 4.4.5: 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.

The analysis in the Initial Study (Appendix A) determined that the proposed Project's impacts with respect to Thresholds 4.4.1.i, 4.4.1.iv, 4.4.2, 4.4.4, and 4.4.5 would be clearly insignificant and unlikely to occur. Therefore, the geology and soils impacts relating to those thresholds are not considered further in this Draft EIR.

4.4.6 Project Impacts

Threshold 4.4.1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

ii) Strong seismic ground shaking.

Less than Significant Impact with Mitigation Incorporated. As with all of Southern California, the project site is subject to strong ground motion resulting from earthquakes on nearby faults. There are several faults in the vicinity of the project site that are capable of producing strong ground motion, including the Newport-Inglewood Fault, the Puente Hills Blind Thrust Fault, the San Joaquin Hills Thrust Fault, the Palos Verdes Fault, and the Whittier Fault. During an earthquake along any of these faults or other faults in the region, seismically induced ground shaking would be expected to occur.

The severity of the shaking would be influenced by the magnitude of the earthquake, the distance of the project site to the seismic source, the soil conditions, the depth to groundwater, and the duration of the seismic event.

Peak ground acceleration (PGA) is a measure of earthquake acceleration on the ground and an important input parameter for earthquake engineering. Based on the Geotechnical Assessment, a design-level PGA of 0.401 g has been calculated for the project site. This acceleration is consistent with other areas in this region of California that are underlain by similar geologic materials and indicates that strong seismic ground shaking generated by seismic activity is considered a potentially significant impact that may affect people or structures associated with the proposed Project.

Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations of the Geotechnical Assessment, which stipulates appropriate seismic design provisions that shall be implemented with project design and construction. Mitigation Measure 4.4.1 requires confirmation of the appropriateness and effectiveness of the recommendations in addressing the geotechnical and soils concerns based on the final design and specifications for the proposed Project and, as needed, modifications to those recommendations. The proposed Project would adhere to the adopted City's Building Code, including the seismic standards therein, consistent with Regulatory Compliance Measure GEO-1. With the implementation of Mitigation Measure 4.4.1 and adherence to the regulatory standards described in Regulatory Compliance Measure GEO-1, potential project impacts related to seismic ground shaking would be reduced to a less than significant level.

iii) Seismic-related ground failure, including liquefaction.

The secondary effects of seismic activity that are typically considered as potential hazards to a particular site include several types of ground failure. The general types of ground failure that can occur as a consequence of severe ground shaking include landsliding, ground subsidence, ground lurching, and shallow ground rupture, as well as liquefaction-induced vertical settlement, lateral spreading, and surface manifestation of liquefaction. The probability of the occurrence of each type of ground failure depends on the severity of the earthquake, distance from the causative fault, topography, soil and groundwater conditions, and other factors. Of these seismically induced ground failure modes, liquefaction-induced settlement and surface manifestation appear to be the only potential concerns with respect to the proposed Project.

Liquefaction can cause settlement of the ground surface, settlement and tilting of engineered structures, flotation of buoyant buried structures, and fissuring of the ground surface. Assessment of liquefaction potential for a particular site requires knowledge of a number of regional and site-specific parameters, including the estimated design earthquake magnitude, the distance to the assumed causative fault, and the associated probable peak horizontal ground acceleration at the site, subsurface stratigraphy, and soil characteristics. Parameters such as distance to causative faults and estimated probable peak horizontal ground acceleration were determined using published references and online computer programs by the United States Geological Survey (USGS). Stratigraphy and soil characteristics were determined by means of a site-specific subsurface investigation combined with appropriate laboratory analysis of representative samples of onsite soils.

An analysis was performed using data from the 14 CPT soundings conducted at the project site. As previously discussed, groundwater was observed at depths of between 8 and 12 feet below the ground surface. This depth is generally consistent with published maps that indicate the historic high groundwater level in the vicinity of the project site. In accordance with the current standards of practice, the historical high groundwater level was assumed at 8 feet below the surface for purposes of the liquefaction analysis. Therefore, there is potential for liquefaction on the project site.

Liquefaction–Induced Total Settlement.

Less than Significant Impact with Mitigation Incorporated. Many jurisdictions, including the Counties of Orange and Los Angeles, allow structural fortification of slabs and footings to mitigate the adverse effect of up to 4 inches of liquefaction-induced total settlement. Guidelines published by the CGS also suggest that structural mitigation is acceptable where vertical displacements of less than 4 inches are predicted (CGS Special Publication 117A, page 54). If liquefaction-induced settlement would exceed 4 inches, some form of ground improvement is required to reduce the potential total settlement to 4 inches or less. Typical ground improvement techniques include compaction grouting, installation of stone columns, and construction of reinforced earth zones beneath proposed structural areas.

Based on the results of the Geotechnical Assessment, the maximum estimated dynamic free-field total settlement was calculated to be approximately 2.7 inches for all but one of the exploratory CPT locations within the project site. This is well within the commonly accepted limitations of structural mitigation described above (i.e., 4 inches). This limit was only exceeded in the area of exploration point CPT-1 (see Figure 4.4.1), where approximately 4.5 inches of liquefaction-induced total settlement is predicted. CPT-1 is located in the northwestern corner of the project site, where a portion of the senior residential community would be developed) and where approximately 4.5 inches of liquefaction-induced total settlement is possible. In this area, the incorporation of a ground improvement technique or soil reinforcement would be required to reduce the amount of predicted dynamic total settlement to 4 inches or less.

The predicted liquefaction-induced total settlement with respect to most of the project site would be addressed by incorporating post-tensioned and/or strengthened concrete mat-type foundation systems into the design of the project buildings (Project Design Feature GEO-1). With the incorporation of Project Design Feature GEO-1, the potential adverse effects of liquefaction-induced total settlement would be less than significant throughout most of the project site, except that the predicted liquefaction-induced settlement in the area represented by CPT-1 (in the northwestern corner of the project site), where a portion of the senior residential community would be developed, would exceed 4 inches and therefore require mitigation.

Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations in the Geotechnical Assessment, which outlines specific recommendations (including ground improvement or soil reinforcement) to reduce the predicted liquefaction-induced settlement level on the northwestern corner of the project site to commonly accepted limits. With implementation of Mitigation Measure 4.4.1, the proposed Project's impact with respect to liquefaction-induced total settlement would be less than significant.

Liquefaction–Induced Differential Settlement.

Less than Significant Impact. As discussed in the Geotechnical Assessment, the maximum differential settlement between exploratory points within the project site is approximately 2.5 inches over a horizontal span of 400 feet, with a corresponding equivalent angular distortion ratio of approximately 1:1,920. This value is within the commonly accepted construction tolerance of 1:480 when appropriate structural design features (e.g., a fortified foundation system) are used for residential and low-rise commercial buildings.

For the proposed residential and commercial foundation systems, the potential effect of liquefaction-induced differential settlement would be reduced to an acceptable level of risk through the implementation of Project Design Feature GEO-1 (incorporation of properly designed and constructed post-tensioned or strengthened concrete mat foundation systems into the project design). This is due to the fact that such strengthened foundation systems provide increased rigidity over conventional building foundations and are thus capable of tolerating a greater amount of angular distortion without losing structural integrity. Therefore, the proposed Project would have a less than significant impact with respect to liquefaction-induced differential settlement.

Surface Manifestation of Liquefaction.

Less than Significant Impact with Mitigation Incorporated. As discussed in the Geotechnical Assessment, the project site is subject to surface manifestation of liquefaction, which could cause the foundations of the project buildings to lose a portion of their available bearing capacity during a strong seismic event. The post-tensioned concrete foundation systems that are included as Project Design Feature GEO-1 would provide an added degree of rigidity over what would typically be afforded by a conventionally reinforced foundation. The design of the foundation systems would be required to comply with applicable State and local laws and ordinances, including Chapter 16, Structural Design, of the CBC, as adopted by the City in its Municipal Code (Regulatory Compliance Measure GEO-1). Although the incorporation of strengthened foundation designs in compliance with applicable State and local laws and ordinances would reduce the proposed Project's impact related to surface manifestation of liquefaction, such impact would remain potentially significant.

Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations in the Geotechnical Assessment, including remedial grading, to reduce the proposed Project's impact related to surface manifestation of liquefaction. Remedial grading would include excavation and recompaction of near-surface soils. In order to provide adequate support for the proposed new engineered fills, structural foundations, and exterior site improvements, the existing ground surfaces should be over-excavated and the excavated material replaced as properly compacted, engineered fill. With implementation of Mitigation Measure 4.4.1, the proposed Project's impact with respect to surface manifestation of liquefaction would be less than significant.

Threshold 4.4.3: 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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

Less than Significant Impact with Mitigation Incorporated. The results of the subsurface investigation within the project site, as well as previous investigations, indicate that the majority of the site is underlain by fill soil. Given the previous nonstructural use of the project site, it is unlikely that most of the onsite fill materials (with the exception of the fill soil in the previous man-made golf course lake areas) were placed in accordance with current grading standards and certified by a geotechnical professional. Therefore, the future settlement behavior of the existing onsite fill (beyond the former lake boundaries) under the loading conditions during operation of the proposed Project cannot be accurately predicted and is considered unsuitable for support of the proposed buildings and associated site improvements.

During the subsurface investigation of the project site, soft and potentially compressible soils were identified in the southwest corner of the project site (in the area of CPT-8, as shown on Figure 4.4.1) at a level generally below the present groundwater levels. Based on the conceptual grading plan, proposed finished grades within this area may be raised as much as 7 feet in localized areas to establish the planned finished grade elevation. As a result, subsidence due to consolidation of compressible subsurface soils may exceed local design tolerances of the proposed commercial buildings and associated exterior improvements. Additional subsidence, and the attendant risk of structural collapse, could potentially occur if the proposed commercial buildings would impose foundation loads that are greater than what is typical for a single-story, wood-framed, or light-gauge steel retail building.

Given the essentially flat topography of the project site and the land around it, and that no landslides have been recorded within City boundaries, the Initial Study (Appendix A) determined the proposed Project's impact with respect to landslides would be clearly insignificant and unlikely to occur. Therefore, this topic is not further evaluated in this Draft EIR.

As discussed in detail under Threshold 4.4.1 above, (a) with the implementation of Mitigation Measure 4.4.1 and the incorporation of Project Design Feature GEO-1, the proposed Project's impact with respect to liquefaction-induced total settlement and surface manifestation of liquefaction would be less than significant; (b) with the incorporation of Project Design Feature GEO-1, the proposed Project's impact with respect to liquefaction-induced differential settlement would be less than significant; and (c) with the implementation of Mitigation Measure 4.4.1 and adherence to the regulatory standards described in Regulatory Compliance Measure GEO-1, the proposed Project's impact with respect to surface manifestation of liquefaction would be less than significant.

Provided that design and remedial grading, ground improvement (as necessary), and design of building foundation systems are performed in accordance with the applicable requirements in the CBC (adopted by the City as its Building Code with certain amendments), current standards of practice in the area, and the site-specific recommendations to be provided in the comprehensive design-phase geotechnical report, excessive settlement resulting from compression of existing undocumented fill and low-density native alluvial soils on the project site (except in the area of exploration point CPT-8) would be reduced to a less than significant level.

With respect to the area of CPT-8, Mitigation Measure 4.4.1 requires the project applicant to comply with the recommendations in the Geotechnical Assessment, including reducing building foundation loadings, remedial grading, ground improvement (as necessary), or bypassing the potentially compressible soils by means of a deep foundation system (such as caissons or driven piles) to reduce excessive settlement resulting from compression of existing unsuitable fill and the compressible soils in the southwestern corner of the project site. With the implementation of Mitigation Measure 4.4.1, the proposed Project's impact with respect to unstable soils in the area of CPT-8 would be less than significant.

The project site is not considered to have a potential risk for lateral spreading based on the soil types underlying it. Therefore, no impact related to lateral spreading would occur, and no mitigation is required.

4.4.7 Mitigation Measures

The following mitigation measure would reduce potential impacts related to seismic ground shaking, liquefaction, and compressible/collapsible soils to a less than significant level.

Mitigation Measure 4.4.1: **Compliance with the Recommendations in the Project Geotechnical Assessment.** Prior to the issuance of a grading permit, the project applicant shall submit a final geotechnical assessment, subject to review and approval by the City Engineer, or designee, indicating that design, grading, and construction shall be performed in accordance with the then-applicable requirements of the City's Municipal Code, the requirements of the project geotechnical consultant set forth in the final geotechnical assessment, and the following requirements:

1. For the area represented by CPT-1 where the maximum estimated liquefaction-induced total settlement is 4.5 inches, employ a polymer geogrid-reinforced soil zone beneath the residential structures in conjunction with a post-tensioned slab or strengthened concrete mat foundation to address potential liquefaction-induced total settlement. Conduct appropriate remedial grading, including excavation and recompaction of near-surface soils, together with a post-tensioned or strengthened mat foundation, to address potential surface manifestation of liquefaction.
2. To address potential unstable soil in the area of CPT-8, reduce building foundation loadings, pre-compress the soils using a temporary soil surcharge prior to construction, implement a localized ground improvement program such as compaction grouting, stone columns, or construction of a polymer geogrid-reinforced soil zone, or bypass the potentially compressible soils by means of a deep foundation system (such as caissons or driven piles), as determined in the final geotechnical assessment.

4.4.8 Regulatory Compliance Measures and Project Design Features

The proposed Project would be required to adhere to the regulatory standards described in the following regulatory compliance measure:

Regulatory Compliance Measure GEO-1: **Compliance with Seismic and Building Standards in Building Code.** Prior to issuance of the first building permit for the proposed buildings, the City Engineer, Building Official, or their designee, and the project soils engineer shall review the building plans to verify that the structural design conforms to the requirements of the Geotechnical Assessment and the City's Building Code. Structures and retaining walls shall be designed in accordance with and applicable sections of the City's Building Code.

The following Project Design Feature, identified in Chapter 3.0 of this Draft EIR and listed below, has been incorporated into the project design to reduce or lessen potential impacts related to geology and soils.

Project Design Feature GEO-1: **Foundation Systems.** The design of the project buildings will incorporate post-tensioned and/or strengthened concrete mat-type foundation systems.

4.4.9 Cumulative Impacts

Typically, geology and soils impacts are specific to a particular project site and there is little, if any, cumulative relationship between the development of a proposed project and development within a larger cumulative area. Moreover, while seismic conditions are regional in nature, seismic impacts on a given project site are site-specific. For example, development within the project area would not alter geologic events or soil features/characteristics (such as ground shaking, seismic intensity, or soil expansion or compression). Therefore, the proposed Project would not affect the level of intensity at which a seismic event on an adjacent site is experienced.

Even if it were appropriate to evaluate cumulative geology and soils impacts, the only related projects in proximity to the project site that could potentially be relevant with respect to cumulative geotechnical impacts would be Related Project Nos. 1 and 2. Related Project No. 1 is the approved retail/commercial project on a 13-acre site located east of the project site and includes 122,556 square feet of major retail use, 21,000 square feet of retail/restaurant uses, and 9,353 square feet of sit-down restaurant use. Related Project No. 2 is the unbuilt portion of the approved Cottonwood Church complex located just west of the project site, which includes approximately 245,843 square feet of church use, 28,000 square feet of specialty retail use, and 33,600 square feet of community college use.

Related Project No. 2 was developed on a portion of the former Cypress Golf Club. Due to the similarities in geologic conditions of the project site and Related Project No. 2, the *Geotechnical Feasibility Study Report for the Cottonwood Christian Center at Los Alamitos Race Course* was

reviewed for information regarding potential geotechnical issues in the project vicinity. This report confirmed that construction of Related Project No. 2 was feasible from a geotechnical standpoint upon incorporation of design and construction recommendations. Mitigation recommendations and construction design parameters were identified due to the presence of near-surface alluvial soils, artificial fill, high groundwater levels, and clayey soils.

No geotechnical analysis was available with respect to Related Project No. 1. However, given that the site is located in proximity to the project site and Cottonwood Church, it is reasonably expected that this site has similar geotechnical characteristics and raises similar geotechnical concerns. Therefore, similar mitigation and regulatory compliance are required for this related project to mitigate and minimize potential geologic and soil impacts.

In any event, given that neither of the related project sites is immediately adjacent to the project site, it is not anticipated that the development of either of them would have any geotechnical impact on the project site or the buildings that would be constructed as part of the proposed Project. Therefore, the proposed Project and the applicable related projects would not have the potential to cause cumulatively significant adverse impacts related to geology and soils.

4.4.10 Level of Significance after Mitigation

The proposed Project would have no significant and unavoidable impacts related to geology and soils.

4.5 GREENHOUSE GAS EMISSIONS

4.5.1 Introduction

This section provides a discussion of global climate change (GCC), existing regulations pertaining to GCC, and an analysis of greenhouse gas (GHG) emissions associated with the short-term construction impacts and the long-term operational impacts of the proposed Project. This analysis is based in part on the *Greenhouse Gas Technical Report* (ENVIRON, April 2015) prepared for the proposed Project and included in Appendix E.

4.5.2 Methodology

The *Greenhouse Gas Technical Report* quantitatively analyzes the GHG emissions associated with construction and operation of the proposed Project.

The GHG emissions inventory for the proposed Project includes the following sources of emissions: energy use associated with residential and non-residential buildings, mobile sources, area sources, solid waste, water and wastewater, construction, and vegetation changes. The ongoing operational emissions consist of the first five categories, while the one-time emissions are associated with the construction and vegetation changes. The *Greenhouse Gas Technical Report* includes the direct emissions associated with the proposed Project as well as the indirect emissions that may result from the proposed Project. These indirect emissions are associated with electricity generation, the energy used in supplying potable water, and emissions associated with solid waste disposal. The electrical power for the proposed Project will be supplied by Southern California Edison (SCE). Accordingly, indirect GHG emissions from electricity usage associated with the proposed Project are calculated using the SCE carbon-intensity factors adjusted for mandated renewable energy requirements.

The impact analysis uses the California Emission Estimator Model version 2013.2.2 (CalEEMod®) to quantify the GHG emissions for the proposed Project. CalEEMod® is a statewide software program designed to calculate both criteria and GHG emissions from development projects in California. At this time, the South Coast Air Quality Management District (SCAQMD) does not have an adopted numeric threshold to determine the significance of the proposed Project's GHG emissions. Similarly, SCAQMD has not adopted a methodology to quantitatively analyze GHG emissions for residential mixed-use developments similar to the proposed Project.[1] Therefore, the analysis that follows uses an industry standard methodology, which is a percentage reduction from "Business-As-Usual" (BAU) threshold to determine whether the proposed Project would have a significant GHG impact.

The BAU threshold was established in the following manner. The California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, called for the State to achieve 1990 levels of GHG emissions by 2020. Between 2008 and 2014, the California Air Resources Board (CARB) set forth emission calculations and GHG target reduction percentages to achieve the mandates of AB 32. CARB first adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan) in 2009. The Scoping Plan set a GHG emissions reduction target of approximately 28.5 percent below BAU in year 2020. CARB went through a series of actions that essentially

[1] SCAQMD has adopted interim significance thresholds for industrial sources of 10,000 metric tons of carbon dioxide equivalents per year. The Board adopted these December 5, 2008. These thresholds are not applicable to the proposed Project because it is not an industrial source of CO_2 emissions.

ratcheted down the GHG reduction targets from 28.5 to 21.7 to 15.8 percent below BAU. CARB made these adjustments based on changes in economic conditions and additional scientific information regarding climate change. In May 2014, CARB approved the First Update to the Climate Change Scoping Plan (Updated Scoping Plan). As further discussed below, the Updated Scoping Plan recalculated GHG emission levels and again reduced the GHG target to approximately 15.3 percent.[1,2,3] Although CARB's approximately 15.3 percent target is the most current threshold, not all agency models have been updated to account for this recent change. Therefore, to present a conservative analysis, this Draft EIR uses the 15.8 percent reduction from the BAU threshold to determine whether the proposed Project could have a significant GHG emission impact.

The *Greenhouse Gas Technical Report* used Project-specific inputs for the CalEEMod when such data were available. Otherwise, CalEEMod default factors for the Orange County area that is within the SCAQMD jurisdiction for the GHG emissions inventory are used. The Project-specific inputs include a construction schedule and equipment list, operational traffic trips, and operational Project Design Features. The analysis also relied on data in the *Traffic Impact Study for the Barton Place Mixed-Use Project in the City of Cypress* (Kimley-Horn and Associates, Inc., April 2015) prepared for the proposed Project. Additional discussion regarding methodology, modeling, and inputs used to estimate emissions are presented in Sections 3.1 though Section 3.1.2 of the *Greenhouse Gas Technical Report*.

4.5.3 Existing Environmental Setting

Project Site and City Conditions. The City is located within the South Coast Air Basin (SCAB). Climate within the SCAB is determined by its terrain and geographical location. The SCAB is a coastal plain characterized by connecting broad valleys and low hills and delineated by the Pacific Ocean as the southwestern border and fringed by high mountains that form the inland portion of its border. The region lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The resulting climate is mild and tempered by cool ocean breezes. It maintains moderate temperatures and comfortable humidity, and typically limits precipitation to a few storms during the winter wet season. This weather pattern is fairly predictable. However, periods of extremely hot weather, winter storms, or Santa Ana winds do exist.

Although the SCAB has a semi-arid climate, air near the earth surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited ability to disperse air contaminants horizontally. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions for air pollution, as this is a period of higher temperatures and more sunlight, which results in ozone (O_3) formation.

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1 California Air Resources Board, *Status of Scoping Plan recommended Measures*. July 25, 2011. (Available at http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf. accessed March 11, 2015).

2 California Air Resources Board. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document* (Available at http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf. accessed March 11, 2015).

3 California Air Resources Board. *Climate Change Scoping Plan First Update, Discussion Draft for Public Review and Comment*. October 2013 (Available at http://www.arb.ca.gov/cc/scopingplan/2013_update/discussion_draft.pdf, accessed March 11, 2015).

The project site was previously part of the Cypress Golf Club, which permanently closed in 2004. Following the closure of the Golf Club, the golf course was demolished and the site was regraded and all vegetation was removed, except for some eucalyptus and pepper trees and other vegetation along the southerly and easterly boundaries of the project site. The project site is unimproved, is not currently utilized for any land use or activity, and does not currently produce GHG emissions. It is relatively flat, with elevations ranging between approximately 22 feet in the southwest corner and 32 feet in the northeast corner of the site.

Global Climate Change Conditions. GCC is the observed increase in the average temperature of the earth's atmosphere and oceans, along with other significant changes in climate (such as precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but GCC is used here because it conveys that there are other climatic changes, in addition to rising temperatures, that are considered as part of global climate change.

GCC refers to any change in measures of weather (such as temperature, precipitation, or wind) lasting for an extended period of time (decades or longer). GCC may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric[1] temperature of 0.36 degree Fahrenheit (°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, and changes in wind patterns or the more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Sacramento Delta.

The prevailing scientific opinion on GCC is that "most of the warming observed over the last 50 years is attributable to human activities."[2] Increased amounts of carbon dioxide (CO_2) and other GHGs is the primary cause of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.[3]

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1 The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

2 IPCC, 2013. *Fifth Assessment Report.*

3 The temperature on earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse allows heat from sunlight in and reduces the amount of heat that escapes, GHGs like CO_2, CH_4, and N_2O in the atmosphere keep the earth at a relatively even temperature. Without the greenhouse effect, the earth would be a frozen globe; thus, although an excess of GHGs results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:[1]

- CO_2
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons **(**PFCs)
- Sulfur hexafluoride (SF_6)

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While GHGs produced by human activities include naturally occurring GHGs such as CO_2, CH_4, and N_2O, some gases, such as HFCs, PFCs, and SF_6, are completely new to the atmosphere. Certain other gases, such as water vapor, are short-lived in the atmosphere compared to the GHGs that remain in the atmosphere for significant periods of time, thereby contributing to GCC in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this analysis, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

Rising Ocean Levels. GCC effects of rising ocean levels, more intense coastal storms, and warmer water temperatures may increasingly threaten the coastal region. Under the higher warming scenario, the Intergovernmental Panel on Climate Change (IPCC) anticipates that ocean levels will rise 4 inches to 30 inches by 2100. Based on information included in *The Impacts of Sea-level Rise on the California Coast* (Pacific Institute, March 2009),[2] under the medium to medium-high GHG emissions scenarios, the mean sea level along the California coast could rise 3.28 feet to 4.59 feet by 2100. These forecasts provide an "order of magnitude" perspective regarding the potential effects of GCC; however, the accuracy of the forecasts is not yet known, and there is an even greater level of uncertainty for shorter-term forecasts. Regardless, based on the location of the project site, the proposed Project would not be significantly affected by rising ocean levels associated with GCC.

Primary Greenhouse Gases. The following discussion summarizes the characteristics of the six primary GHGs.

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1 The GHGs listed are consistent with the definition in AB 32 (Government Code 38505), as discussed later in this section.

2 Pacific Institute, California Climate Change Center, *The Impacts of Sea-Level Rise on the California Coast* (March 2009).

Carbon Dioxide. In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The earth maintains a natural carbon balance, and when concentrations of CO_2 are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO_2 to the atmosphere. Natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO_2. Consequently, the gas is building up in the atmosphere. The concentration of CO_2 in the atmosphere has risen approximately 30 percent since the late 1800s.[1]

In 2002, CO_2 emissions from fossil fuel combustion accounted for approximately 98 percent of human-made CO_2 emissions and approximately 83.3 percent of California's overall GHG emissions (carbon dioxide equivalent [CO_2e]). The transportation sector accounted for California's largest portion of CO_2 emissions, with gasoline consumption making up the greatest portion of these emissions. Electricity generation was California's second-largest category of GHG emissions.

Methane. CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands and oceans. Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (burning of coal, oil, natural gas, etc.). Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California, followed by enteric fermentation (emissions from the digestive processes of livestock).[2] Agricultural processes such as manure management and rice cultivation are also significant sources of human-made CH_4 in California. It is estimated that over 60 percent of global CH_4 emissions are attributable to human-related activities.[3] As with CO_2, the major removal process of atmospheric CH_4—a chemical breakdown in the atmosphere—is not keeping pace with source emissions, and CH_4 concentrations in the atmosphere are, therefore, increasing.

Nitrous Oxide. N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California.

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1 California Environmental Protection Agency (CalEPA). 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. March.

2 CARB, Greenhouse Gas Inventory Data – 1990 to 2004. http://www.arb.ca.gov/cc/inventory/data/data.htm (accessed May 2015).

3 IPCC, 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.*

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. HFCs are primarily used as substitutes for O_3-depleting substances, such as hydrochlorofluorocarbons (HCFCs), that are regulated under the Montreal Protocol.[1] HFCs are used as refrigerants, aerosol propellants, solvents, and fire retardants. The main source of emissions is use as refrigerants, such as in air conditioning systems found in buildings and vehicles. PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry, which is active in California, leads to greater use of PFCs.

Emissions Sources and Inventories. An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing GCC. This section summarizes the latest information on global, national, California, and regional GHG emission inventories. However, because GHGs persist for a long period of time in the atmosphere accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

Global Emissions. Worldwide emissions of GHGs in 2004 totaled 27 billion metric tons (MT) of CO_2e per year (CO_2e/yr).[2] Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

United States Emissions In 2008, the United States emitted approximately 7 billion MT of CO_2e, or approximately 25 MT of CO_2e per person. Of the six major sectors nationwide—electric power industry, transportation, industry, agriculture, commercial, and residential—the electric power industry and transportation sectors combined account for approximately 62 percent of the GHG emissions. The majority of the electric power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2006, total United States GHG emissions rose approximately 14.5 percent.[3]

State of California Emissions. According to CARB emission inventory estimates, California emitted approximately 474 million metric tons (MMT) of CO_2e emissions in 2008.[4] This large number is due primarily to the sheer size of California compared to other states. By contrast, California has the fourth-lowest per-capita CO_2 emission rate from fossil fuel combustion in the

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1 The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for O_3 depletion.

2 Combined total of Annex I and Non-Annex I Country CO_2e emissions. UNFCCC, 2007. *Greenhouse Gas Inventory Data.* Information available at http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php and http://maindb.unfccc.int/library/view_pdf.pl?url=http://unfccc.int/resource/docs/2005/sbi/eng/18a02.pdf.

3 United States Environmental Protection Agency (EPA). 2010. The 2010 U.S. Greenhouse Gas Inventory Report. http://www.epa.gov/climatechange/emissions/usinventoryreport.html (accessed May 2015).

4 CARB, Greenhouse Gas Inventory Data – 1990 to 2004. http://www.arb.ca.gov/cc/inventory/data/data.htm (accessed May 2015).

country due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.[1]

The California Environmental Protection Agency (CalEPA) Climate Action Team (CAT)[2] stated in its March 2006 report that the composition of gross climate change pollutant emissions in California in 2002 (expressed in terms of CO_2e) was as follows:

- CO_2 accounted for 83.3 percent;
- CH_4 accounted for 6.4 percent;
- N_2O accounted for 6.8 percent; and
- HFCs, PFC, and SF_6 accounted for 3.5 percent.[3]

CARB estimates that transportation was the source of approximately 38 percent of the State's GHG emissions in 2011, followed by industrial sources at 21 percent and electricity generation (both in-State and out-of-State) at 19 percent. The remaining sources of GHG emissions were residential and commercial activities at 10 percent, agriculture at 7 percent, high-global-warming-potential (GWP) gases at 3 percent, and recycling and waste at 2 percent.[4]

CARB is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of GHGs emitted to and removed from the atmosphere by human activities in the State of California and supports the AB 32 Climate Change Program. CARB's current GHG emission inventory covers the years 1990–2004 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, agricultural lands). The emission inventory estimates are based on the actual amount of all fuels combusted in the State, which accounts for over 85 percent of the GHG emissions in California.

Regional Emissions. Existing GHG emissions for the SCAG region were calculated for construction sources, mobile sources, natural gas consumption, and electricity generation. GHG emissions for 2009 were estimated to be approximately 176.79 MMT of CO_2e. Transportation and energy (i.e., electricity use and natural gas consumption) accounted for approximately 47 and 52 percent of emissions, respectively. Construction activity accounted for approximately 1 percent of GHG emissions.

1 CEC, 2007. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 – Final Staff Report, publication # CEC-600-2006-013-sf, Sacramento, CA, December 22, 2006; and January 23, 2007, update to that report.

2 CAT is a consortium of representatives from state agencies that have been charged with coordinating and implementing GHG emission reduction programs that fall outside of CARB's jurisdiction.

3 CalEPA. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature.* March.

4 CARB, 2013. http://www.arb.ca.gov/cc/inventory/data/data.htm (October 2013).

4.5.4 Regulatory Setting

The following discussion includes a description of the federal, State, regional, and local policies and regulations applicable to the proposed Project with respect to GCC and GHG emissions.

Federal Regulations and Policies. The federal government has historically taken a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the CAA.

Supreme Court Ruling in Massachusetts et al. v. Environmental Protection Agency. The federal government's approach to addressing GCC was challenged in *Massachusetts et al. v. Environmental Protection Agency*, 549 US 497 (2007). In this decision, the United States Supreme Court held that the EPA was authorized by the CAA to regulate CO_2 emissions from new motor vehicles. The Court did not mandate that the EPA enact regulations to reduce GHG emissions, but found that the only instances in which the EPA could avoid taking action were if it found that GHGs do not contribute to GCC or if it offered a "reasonable explanation" for not determining that GHGs contribute to GCC.

On December 7, 2009, the EPA issued an "endangerment finding" under the CAA, concluding that GHGs threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG pollution. These findings provided the basis for adopting new national regulations to mandate GHG emission reductions under the CAA. The EPA's endangerment finding paved the way for federal regulation of GHGs.

Under the Consolidated Appropriations Act of 2008 (House Resolution [HR] 2764), Congress has established mandatory GHG reporting requirements for some emitters of GHGs. In addition, on September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires annual reporting to the EPA of GHG emissions from large sources and suppliers of GHGs, including facilities that emit 25,000 MT or more per year of GHGs.

Mobile Sources.

EPA and NHTSA Joint Rulemaking for Vehicle Standards. In response to the *Massachusetts et al. v. EPA*, the federal government issued an Executive Order (EO) on May 14, 2007, directing the EPA, the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008.

On October 10, 2008, the National Highway Traffic Safety Administration (NHTSA) released a final Environmental Impact Statement, which analyzed proposed interim standards for passenger cars and light trucks in model years 2011–2015. The NHTSA issued a final rule for model year 2011 on March 30, 2009.

On May 7, 2010, the EPA and the NHTSA issued a final rule regulating fuel efficiency and GHG pollution from motor vehicles for cars and light-duty trucks for model years 2012–

2016. On May 21, 2010, the Office of the President issued a memorandum to the Secretaries of Transportation and Energy and the Administrators of the EPA and the NHTSA calling for establishment of additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and the NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal GHG and fuel economy standards for model year 2017–2025 light-duty vehicles. The agencies proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. California has announced its support of this national program. The final rule was adopted in October 2012, and the NHTSA intends to set standards for model years 2022–2025 in a future rulemaking. The GHG benefit of federal vehicle standards is not directly quantified in the GHG analysis because the more stringent California vehicle standards discussed below are quantified in the *Greenhouse Gas Technical Report*.

Heavy-Duty Engines and Vehicles Fuel Efficiency Standards. In addition to the regulations applicable to cars and light-duty trucks, on August 9, 2011, the EPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which applies to model year 2014–2018 vehicles. The EPA and the NHTSA have adopted standards for CO_2 emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this program will reduce GHG emissions and fuel consumption for affected vehicles by 9 to 23 percent over the 2010 baselines. This federal standard was published after the release of CARB's mobile emissions inventory model (i.e., EMFAC2011) used in the *Greenhouse Gas Technical Report*. These emissions reductions were conservatively not included in the project emissions inventory due to the difficulty in quantifying the reductions consistent with other analysis assumptions. Therefore, the GHG analysis conservatively does not incorporate the GHG benefit of this federal standard.

Energy Independence and Security Act. On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. Among other key measures, EISA would do the following, which would aid in the reduction of both mobile and non-mobile national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel by 2022.
2. Prescribe or revise standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards for energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.
3. While superseded by the NHTSA and EPA actions described above, EISA also set mpg targets for cars and light trucks and directed the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and to create a separate fuel economy standard for work trucks.

Additional provisions of EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research into carbon capture, international energy programs, and the creation of "green jobs." EISA helps reduce energy-related GHG emissions in general. The GHG benefit of this Act, however, is not quantified in the *Greenhouse Gas Technical Report* because the equivalent and more stringent State energy regulations discussed below (e.g., the renewable energy portfolio standard) is quantified as part of the GHG analysis.

State and Regulations and Policies.

Assembly Bill 32 (Statewide GHG Reductions). The California Global Warming Solutions Act of 2006 (AB 32) was signed into law in September 2006. The law instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. Based on CARB's initial calculations, California would be required to reduce GHG emissions by approximately 28.5 percent below BAU predictions of year 2020 GHG emissions to achieve this goal. CARB staff calculated 2020 BAU GHG emissions represent the emissions that would be expected to occur in the absence of any GHG reduction actions. AB 32 required CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG reductions. The key milestones set forth in AB 32, were met by CARB.

First, on December 11, 2008, CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan established an overall framework to reduce California's GHG emissions for various categories of emissions. CARB initially determined that achieving the 1990 emission level would require a reduction of GHG emissions of approximately 28.5 percent to achieve the 2020 emissions levels requirement in the absence of new laws and regulations.

Second, CARB released revised estimates of the expected 2020 emission reductions in consideration of the economic recession and the availability of updated information from development of measure-specific regulations. Incorporation of revised estimates in consideration of the economic recession reduced the projected 2020 emissions from 596 MMT of CO_2e to 545 MMT of CO_2e. Under this scenario, achieving the 1990 emissions level would require a reduction of GHG emissions of 118 MMT of CO_2e, or approximately 21.7 percent (down from 28.5 percent), to achieve 2020 emissions levels in the BAU condition. The 2020 AB 32 baseline was also updated to account for measures incorporated into the inventory, including AB 1493 ("the Pavley Standard") (vehicle model years 2009–2016) and the RPS (12 to 20 percent). Inclusion of these measures further reduced the 2020 baseline to 507 MMT of CO_2e. As a result, based on both the economic recession and the availability of updated information from development of measure-specific regulations, CARB determined in 2011 that achieving the 1990 emission level would require a reduction of GHG emissions of 80 MMT of CO_2e, or approximately 15.8 percent (down further from 21.7 percent), to achieve 2020 emissions levels in the BAU condition.

Third, on May 22, 2014, CARB approved the Updated Scoping Plan. It describes California's progress towards AB 32 goals, stating that "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32." Based on the revised estimates of expected 2020 emissions identified in the 2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document (CARB 2011) and the updated 1990 emissions levels identified in the 2014 First Update to the Climate Change Scoping Plan (CARB 2014), achieving the 1990 emission level would require a reduction of 78 MMT of CO_2e, which equates to a reduction of approximately 15.3 percent to achieve the 2020 emissions levels in the BAU condition. Thus, the First Update to the Climate Change Scoping Plan essentially establishes a 15.3 percent reduction from the BAU threshold of significance for measuring potential GHG impacts.

In certain jurisdictions, including the City of Cypress, CARB models (including CalEEMod) have not been fully updated to account for the most recently adopted 15.3 percent threshold[1]. Therefore, to present a conservative analysis, the *Greenhouse Gas Technical Report* and this Draft EIR use a 15.8 percent threshold to determine whether the proposed Project could have a significant GHG emissions impact.

Senate Bill 375 and SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Senate Bill (SB) 375 provides for a new planning process to coordinate land use planning, Regional Transportation Plans (RTPs), and funding priorities in order to help California meet the GHG reduction goals established in AB 32.

The Scoping Plan, adopted by CARB in December 2008, relies on the requirements of SB 375 to implement the carbon emissions reductions anticipated from land use decisions. On September 23, 2010, CARB adopted regional targets for the reduction of GHGs applying to the years 2020 and 2035. For the area under SCAG's jurisdiction (including the project site, CARB adopted regional targets for reduction of GHG emissions by 8 percent for 2020 and 13 percent for 2035. On February 15, 2011, CARB approved the final targets.

SCAG's SCS is included in the SCAG 2012–2035 RTP/SCS. The goals and policies of the RTP/SCS that reduce VMT focus on transportation and land use planning, including building infill projects, locating residents closer to where they work and play, and designing communities so there is access to high-quality transit service. The 2012–2035 RTP/SCS is expected to reduce per-capita transportation emissions by 9 percent by 2020 and 16 percent by 2035.[2] In June 2012, CARB accepted SCAG's determination that the Final RTP/SCS would meet the region's GHG reduction target.

Renewable Portfolio Standards (SB 1078, SB 107, and SB X1-2). Established in 2002 under SB 1078, and accelerated in 2006 under SB 107 and again in 2011 under SB X1-2, California's Renewable Portfolio Standards (RPSs) require retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of their total retail sales by

1 *First Update to the Climate Change Scoping Plan*, Table 5, CALEPA, CARB, May 2014.
2 SCAG. 2012-2015 RTP/SCS, Chapter 1, page 27. http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf (accessed June 2015).

2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. As interim measures, the RPS requires 20 percent of retail sales to be sourced from renewable energy by 2013, and 25 percent by 2016. Initially, the RPS provisions applied to investor-owned utilities, community choice aggregators, and electric service providers. SB X1-2 added, for the first time, publicly owned utilities to the entities subject to RPS. The expected growth in RPS to meet the standards in effect in 2008 is not reflected in the BAU calculation in the AB 32 Scoping Plan, as discussed below. In other words, the Scoping Plan's BAU 2020 does not take credit for implementation of RPS that occurred after its adoption. The RPS is quantitatively incorporated into the *Greenhouse Gas Technical Report's* analysis of the proposed Project's GHG emissions.

Mobile Source Reductions (AB 1493). AB 1493 ("the Pavley Standard") required CARB to adopt regulations to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks in model years 2009–2016. The bill also required the California Climate Action Registry to develop and adopt protocols for the reporting and certification of GHG emissions reductions from mobile sources for use by CARB in granting emission reduction credits.

CARB has adopted an approach to passenger vehicles (cars and light trucks) by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light-duty trucks used by customers, employees of, and deliveries to the proposed Project. The Pavley Standard is quantitatively incorporated into the *Greenhouse Gas Technical Report's* analysis of the proposed Project's GHG emissions.

Low Carbon Fuel Standard. EO S-01-07 (January 18, 2007) requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB. The LCFS is quantitatively incorporated into the *Greenhouse Gas Technical Report*'s analysis of the proposed Project's GHG emissions.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars Program, a new emissions-control program for model years 2017–2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

The program also requires car manufacturers to offer for sale an increasing number of zero-emission vehicles (ZEVs) each year, including battery electric, fuel cell, and plug-in hybrid electric vehicles. In December 2012, CARB adopted regulations allowing car manufacturers to comply with California's GHG emissions requirements for model years 2017–2025 through compliance with the EPA's GHG requirements for those same model years. The Advanced Clean Cars Program is quantitatively incorporated into the *Greenhouse Gas Technical Report*'s analysis of the proposed Project's GHG emissions.

Transportation Fuel: Phased-In Cap-and-Trade Compliance Obligation. Pursuant to AB 32, CARB was allowed, but not required, to include among mechanisms intended to reduce GHG emissions a "system of market-based declining annual aggregate emission limits." On October 20, 2011, CARB adopted the final cap-and-trade regulation (California Code of Regulations [CCR] Title 17, Subchapter 10, Article 5). The program will impose a "cap" on the total GHG emissions from covered entities in the State, and the quantity of emissions allowed under the cap will decrease each year, ultimately reaching the goal of returning statewide GHG emissions to 1990 levels by 2020. The quantity of allowed emissions actually increases between 2014 and 2015, but that is to account for the addition of the fuel importers and distributors and additional electricity importers to the program as discussed below. The net effect is to reduce overall GHG emissions.

The cap-and-trade program started on January 1, 2012, and will proceed in "compliance phases," the first of which began on January 1, 2013. The *Greenhouse Gas Technical Report* does not incorporate the benefits of GHG emissions reductions based on cap-and-trade compliance obligations applicable to transportation fuel suppliers.

Green Building Code (Title 24 CCR). Energy conservation standards for new residential and commercial buildings were most recently revised in 2013 (Title 24 CCR Part 6 [also known as the California Energy Code]). In general, Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2012 Appliance Efficiency Regulations (Title 20 CCR §1601–1608), dated October 2012, were adopted by the CEC on January 12, 2012, and became effective February 1, 2013. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. The implementation of these regulations will reduce GHG emissions by reducing energy demand.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Code) (Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24 CCR) and has been adopted by the City of Cypress, with modification, as part of the City's Building Code.

The CEC adopted changes to the 2013 Building Energy Efficiency Standards contained in Title 24 CCR Part 6 and associated administrative regulations in Part 1 (collectively referred to here as the Standards). The 2013 Building Energy Efficiency Standards are 25 percent more efficient than previous standards for residential construction and 30 percent better for nonresidential construction. The GHG reduction from BAU due to compliance with Title 24 is quantitatively incorporated into the *Greenhouse Gas Technical Report*'s analysis of the proposed Project's GHG emissions.

California Integrated Waste Management Act of 1989. The California Integrated Waste Management Act of 1989 (Public Resources Code Sections 40000 et seq.) requires each jurisdiction's Source Reduction and Recycling Element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; and (2) diversion of 50 percent of all solid waste

on and after January 1, 2000, through source reduction, recycling, and composting facilities. Additionally, jurisdictions are not prohibited from implementing source reduction, recycling, and composting activities designed to exceed these requirements.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by 2020 and annually thereafter. CalRecycle published a discussion document in May 2012 titled California's New Goal: 75 Percent Recycling, which identifies concepts that CalRecycle believes would assist the State in reaching the 75 percent goal by 2020. The *Greenhouse Gas Technical Report's* analysis considers compliance with the applicable portions of AB 341.

Executive Order S-3-05. In June 2005, EO S-3-05, established the following GHG emission reduction targets for California: (1) by 2010, reduce GHG emissions to 2000 levels; (2) by 2020, reduce GHG emissions to 1990 levels; and (3) by 2050, reduce GHG emissions to 80 percent below 1990 levels.

The extent to which GHG emissions from traffic to and from the project site will change in the future depends on the quantity (e.g., number of vehicles, average daily mileage) and quality (i.e., carbon content) of fuel that will be available and required to meet both regulatory standards and residents' needs. Renewable power requirements, the LCFS, and vehicle emissions standards will all decrease GHG emissions per unit of energy delivered or per VMT.

A recent study has shown that in order to meet the 2050 target, aggressive technologies in the transportation and energy sectors (such as electrification, advanced batteries, and efficient biofuels) would likely be required. Similarly, wholesale shifts in energy technology and more aggressive regulations, both of which are not currently in place, would likely be required to achieve the 2050 goals. Also, there are currently no adopted methods or regional targets for agencies to use for such impact analysis. Moreover, the EO applies to statewide policymaking; hence, analyzing a single residential mixed-use project within that context is not informative. The potential GHG impacts associated with a single project (similar to the proposed Project) are not analogous to the impacts that could result from the implementation of recommendations contained within long-range planning documents or policies. Therefore, analyzing the proposed Project's impacts relative to EO S-3-05 is inappropriate for CEQA purposes.

Regional Regulations and Policies.

South Coast Air Quality Management District Policies.

GHG Thresholds. The SCAQMD is responsible for comprehensive air pollution control in the South Coast Air Basin (SCAB), which includes Los Angeles and Orange Counties, as well as the urbanized portions of Riverside and San Bernardino Counties, including the project site. SCAQMD works directly with SCAG, county transportation commissions, and local governments, and cooperates actively with all federal and State government agencies to regulate air quality.

On December 5, 2008, SCAQMD adopted an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency. As to all other projects where the SCAQMD is not the lead agency, to date, only an interim threshold of 10,000 MT of CO_2e per year for industrial stationary-source projects has been adopted. For all other projects, the SCAQMD has not adopted a GHG significance threshold for use in the SCAB. Therefore, the analysis that follows uses an industry standard methodology, which is a percentage reduction from the BAU threshold to determine whether the proposed Project would have a significant GHG impact.

Criteria Pollution Regulations. The SCAQMD administers air quality regulations that control the emission of criteria pollutants and maintain or seek to achieve air quality standards for criteria pollutants and Toxic Air Contaminants (TACs) set by the CAA and the California Clean Air Act (CCAA). Unlike GHGs, criteria pollutants and TACs have localized rather than global impacts. The SCAB is home to approximately half the population of the State of California, and is the second most populated area in the United States and one of the worst in the country for air pollution. The goal of reducing criteria and TAC pollutants can sometimes have the co-benefit effect of reducing GHG emissions (for example, through zero-emission technologies). However, some methods of reducing criteria and TAC pollutants may in fact increase the amount of GHG emissions because the technologies increase energy use.

Local Regulations and Policies.

City of Cypress. The City of Cypress has not adopted laws, plans, policies, regulations, or significance thresholds for analyzing GHG emissions at this time. The City relies on the thresholds of significance in Appendix G to the *CEQA Guidelines*, CARB standards regarding BAU reductions, guidance from the SCAQMD, and industry standards to analyze impacts related to GHG emissions.

4.5.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, implementation of the proposed Project would have a significant impact if it would:

Threshold 4.5.1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

Threshold 4.5.2: Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As discussed above, the SCAQMD has not adopted a numeric threshold for determining the significance of construction or operational GHG impacts from a residential/commercial project. Neither has the City adopted a GHG threshold of significance. Therefore, per industry standards, this Draft EIR uses a conservative 15.8 percent reduction of GHG emissions from BAU (consistent with AB 32 and CARB calculations) to determine whether the proposed Project has a significant GHG emission impact. Accordingly, the significance of GHG impacts is assessed by analyzing consistency

with AB 32 and by quantitatively evaluating the proposed Project's GHG emissions reduction compared to a BAU projection.

4.5.6 Project Impacts

Threshold 4.5.1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment

Construction and operation of the proposed Project would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during operation of the proposed Project. Typically, more than 80 percent of the total energy consumption takes place during the use of buildings, and less than 20 percent of energy is consumed during construction.[1]

The *Greenhouse Gas Technical Report* considered construction activities and subcategories of GHG operational emissions, including area sources, energy use, water and wastewater, solid waste, and mobile sources. For each subcategory, the analysis compares the emissions associated with the proposed Project against those for the BAU scenario. The calculated emissions by subcategory are summed for the impact analysis to provide the total emissions reduction of the proposed Project (i.e., the difference between the total project emissions and BAU emissions from all source categories) toward achieving the applicable GHG reduction target of 15.8 percent. As demonstrated below, the proposed Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment because it would achieve an emission reduction of 16.5 percent below BAU, which is approximately 0.7 percent better than the 15.8 percent emission reduction threshold of significance established by CARB.

Construction.

Less than Significant Impact. GHG emissions that could be generated on the project site would occur over the short term from construction activities and would consist primarily of emissions from equipment exhaust. Construction activities produce combustion emissions from various sources, such as site grading, utility engines, onsite heavy-duty construction vehicles, equipment hauling materials to and from the project site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from onsite construction activities would vary daily as construction activity levels change.

Construction of the proposed Project is anticipated to occur in nine phases from 2016 through 2018. The major construction phases would include:

- **Site Preparation (Phase 1),** which involves clearing vegetation (grubbing and tree/stump removal) prior to grading;
- **Grading (Phase 2),** which involves the cut and fill of land to ensure the proper base and slope for the construction foundation and installing wet and dry utilities;

[1] United Nations Environment Programme (UNEP), 2007. *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris, France.

- **Paving (Phase 2),** which involves the laying of concrete or asphalt such as in parking lots or roads;
- **Building Construction (Phases 3–9),** which involves the construction of structures and buildings; and
- **Architectural Coating (Phases 3–9),** which involves the application of coatings to both the interior and exterior of buildings or structures.

The *Greenhouse Gas Technical Report* used CalEEMod® to calculate construction emissions based on the construction schedule, off-road equipment lists, and equipment specifications, and daily trip counts for workers, vendors, and haul trucks identified for the proposed Project. The analysis was based on a mix of Project-specific values, including the numbers and types of equipment that will be used in the construction of the proposed Project as well as the durations of the different construction phases. The construction specifics (e.g., horsepower and load factor) and number of worker, vendor, and hauling trips were based on CalEEMod® default data. To be conservative, each piece of equipment was assumed to be operated for 6 days per week and 6 hours per day during a given phase duration.

Construction generates on-road vehicle exhaust, evaporative, and dust emissions from personal vehicles for worker and vendor commuting, and trucks for soil and material hauling and delivery. These emissions are based on the number of trips and vehicle miles traveled (VMT) along with emission factors from EMFAC2011. The Project-specific estimates and CalEEMod® default values were used to calculate construction on-road trips and VMT in the *Greenhouse Gas Technical Report*.

As presented in Table 4.5.A, total GHG emissions from all construction phases of the proposed Project for off-road and on-road emissions are 717 and 2,263 MT of CO_2e, respectively. Phase 2, which includes grading, utility installation, and paving activities, will generate the largest amount of GHG emissions due to a higher level of construction activities. Total GHG emissions from the construction activities are 2,981 MT of CO_2e. When amortized over a 30-year lifetime, which is consistent with AQMD methodology and guidance, the construction GHG emissions are 99 MT of CO_2e/year. To provide a conservative analysis, the *Greenhouse Gas Technical Report* did not assign any GHG reduction percentages to the construction emissions associated with off-road construction and on-road vehicle emissions for the proposed Project. Therefore, there is no GHG reduction from BAU associated with construction activities. As shown in Table 4.5.B below, the proposed Project satisfies CARB's GHG reduction percentages by reducing operational GHG sources and without taking credit for potential GHG reductions related to construction activities.

Table 4.5.A: Short-Term GHG Construction Emissions

Construction Phase	Sub-Phase	CO_2e Emissions (MT)		
		Equipment	Vehicles	Total
Phase 1	Site Preparation	11	0.4	11
Phase 2	Grading Phase 1	173	245	418
	Grading Phase 2	33	117	150
	Grading Phase 3	10	39	49
	Utilities	63	5	69
	Paving	30	5	35
Phase 3	Building Construction	54	267	321
	Architectural Coatings	4	8	12
Phase 4	Building Construction	53	260	314
	Architectural Coatings	4	8	12
Phase 5	Building Construction	53	259	312
	Architectural Coatings	4	8	12
Phase 6	Building Construction	53	258	312
	Architectural Coatings	4	8	12
Phase 7	Building Construction	52	251	305
	Architectural Coatings	4	8	11
Phase 8	Building Construction	52	251	303
	Architectural Coatings	4	8	11
Phase 9	Building Construction	52	251	303
	Architectural Coatings	4	8	11
	Total	**717**	**2,263**	**2,981**
			30-Year Amortized	**99**

Source: *Greenhouse Gas Technical Report* (April 2015).
Notes: (1) Total construction GHG emissions = 2,981 MT of CO_2e.
(2) Numbers in table may not appear to add up correctly due to rounding to two significant digits.
CO_2e = carbon dioxide equivalent MT = metric tons

Operation.

Less Than Significant Impact. There would be long-term emissions associated with operation of the proposed Project. Project operation would result in direct and indirect GHG emissions related to mobile, area, and energy sources (Table 4.5.B). Mobile sources would include vehicle trips associated with onsite facilities and customers/visitors to the project site. Area-source emissions would be associated with activities such as landscaping and maintenance, natural gas for heating, and other sources. Increases in energy source emissions would also occur at offsite utility providers as a result of demand for electricity, natural gas, and water by the residential and commercial uses associated with the proposed Project. As indicated in Table 4.5.B, direct and indirect GHG emissions of CO_2e related to operation of the proposed Project total 3,771 MT of CO_2e.

Table 4.5.B: Long-Term Operational Greenhouse Gas Emissions

Category	CO_2e Emissions (MT/year)		% Change from BAU
	2020 Project	2020 BAU	
Area	63	63	0.0%
Energy Use	878	1,228	-28.5%
Water Use	114	145	-21.6%
Waste Disposed	143	170	-16.0%
Traffic	2,486	2,821	-11.9%
Subtotal	**3,683**	**4,428**	**-16.8%**
Construction Amortized[1]	99	99	0.0%
Vegetation Amortized[2]	-12	-12	0.0%
Total	**3,771**	**4,515**	**-16.5%**

Source: *Greenhouse Gas Technical Report* (April 2015).
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.
[1] CO_2e includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective global warming potentials.
[2] One-time emissions from construction and vegetation removal were amortized over a 30-year period.
BAU = business as usual
CO_2e = carbon dioxide equivalent
MT = metric tons
MT/year = metric tons per year

Energy/Natural Gas Use. As described in Regulatory Compliance Measure GHG-3, the proposed Project would have energy-efficient buildings that will meet the 2013 Title 24 standards, and as described in Project Design Features NRG-1 and NRG-2, respectively, would have lower energy usage due to the use of Energy Star™ appliances and high-efficiency lighting. The analysis shows that with adherence to the regulatory standards described in Regulatory Compliance Measure GHG-3 and implementation of Project Design Features NRG-1 and NRG-2, the proposed Project would use approximately 30 percent less electricity and 10 percent less natural gas than the BAU scenario. As such, the proposed Project's buildings would be more energy-efficient than average residential and nonresidential buildings in the region.

The proposed Project's CO_2e emissions from electricity and natural gas use were calculated to be 417 and 461 MT of CO_2e/yr, respectively, or 878 MT of CO_2e/yr total. The BAU scenario is calculated to emit 716 and 511 MT of CO_2e/yr from energy and natural gas use, respectively, or 1,228 MT of CO_2e/yr total. Accordingly, the proposed Project is calculated to have a 28.5 percent reduction of GHG emissions, compared to the BAU scenario, for this category of emissions. Therefore, there is a substantial GHG reduction from BAU associated with operational energy use.

Area Sources. All residential dwelling units would contain gas-burning fireplaces. With construction, GHG emissions from fireplaces and use of landscape maintenance equipment are 63 MT of CO_2e/yr, including 59 MT of CO_2e/yr from fireplaces and 4 MT of CO_2e/yr from use of landscape maintenance equipment. For the BAU scenario, the area-source GHG

emissions are same as those for the proposed Project. Therefore, there is not a GHG reduction from BAU associated with the operation of fireplaces or landscaping equipment.

Water Use. The proposed Project was estimated to have approximately 20 and 11 million gallons (Mgal) per year of indoor and outdoor water use, respectively, which was calculated to result in 114 MT of CO_2e/yr as shown in Table 4.5.B. The proposed Project would adhere to the regulatory standards described in Regulatory Compliance Measure GHG-1, which would reduce indoor and outdoor water usage. The associated BAU scenario was calculated to have 23 and 12 Mgal/yr of indoor and outdoor water use, respectively, which was calculated to result in 145 MT of CO_2e/yr. The GHG emissions associated with the water use and wastewater treatment for the proposed Project are 21.6 percent below those for the BAU scenario. Therefore, the proposed Project has a substantial GHG reduction from BAU associated with water use and wastewater treatment.

Solid Waste Disposal. The proposed Project was calculated to generate approximately 314 tons per year (tpy) of solid waste and to result in 143 MT of CO_2e/year, as shown in Table 4.5.B. The associated BAU scenario was calculated to generate 374 tons/year of solid waste and was calculated to result in 170 MT of CO_2e/yr. Accordingly, the proposed Project was calculated to have a 16 percent reduction of GHG emissions compared to the BAU scenario for this category of emissions. Therefore, the proposed Project has a substantial GHG reduction from BAU associated with solid waste diversion.

Mobile Sources. The proposed Project was calculated to generate approximately 6,932,578 VMT/year, which would result in 2,486 MT of CO_2e/yr, as shown in Table 4.5.B. The associated BAU scenario is calculated to generate the same VMT/year and to result in 2,821 MT of CO_2e/yr. The proposed Project was calculated to have an 11.9 percent reduction of GHG emissions compared to the BAU scenario for this category of emissions. This calculation assumes that the Pavley Standard, LCFS regulations, and Advanced Clean Car Program are in place as required. Therefore, the proposed Project has a substantial GHG reduction from BAU associated with mobile sources.

Vegetation. The proposed Project and the BAU scenario are expected to plant 508 new trees (Table 4.5.C). Existing eucalyptus and pepper trees and other vegetation along the southerly and easterly boundaries of the existing project site would be removed as part of the proposed Project. The trees planted as a part of the proposed Project would result in an overall net gain of carbon sequestration as there will be a substantial net increase in the number of trees on the project site. The calculation of CO_2e sequestration in CalEEMod used the miscellaneous tree type, which represents an average of CO_2e sequestration potential for several tree species. The proposed Project and its associated BAU scenario would sequester 360 MT of CO_2e through planting new trees.

Table 4.5.C: Estimated Number of New Trees

	Number of New Trees	CO_2e Emissions (MT)
Project	508	-360
30-Year Amortized	**–**	**-12**

Source: *Greenhouse Gas Technical Report*, Table 5 (April 2015).
MT = metric tons

Overall, the proposed Project would sequester a net of 360 MT of CO_2e, or 12 MT of CO_2e/yr if amortized over a 30-year lifetime (Tables 4.5.B and 4.5.C). Because the amortized GHG emissions associated with vegetation are small compared to the operational emissions discussed later, and because there is no GHG reduction from BAU associated with vegetation, this analysis conservatively considered that the sequestration for the BAU scenario is the same as for the proposed Project. Therefore, there is not a GHG reduction from BAU associated with landscaping and vegetation associated with the proposed Project.

Conclusion for Construction and Operational Emissions. The conservative percentage reduction required to meet the 1990 GHG emissions level is 15.8 percent according to the thresholds of significance applied in this Draft EIR. The proposed Project is consistent with this reduction goal by achieving a 16.5 percent reduction from BAU. Tables 4.5.A and 4.5.B show the total GHG emissions for construction and operation of the proposed Project and its associated BAU scenario. As described above, the proposed Project would adhere to the regulatory standards described in Regulatory Compliance Measures GHG-1, GHG-2, and GHG-3, and would implement Project Design Features NRG-1 and NRG-2. The proposed Project's GHG emissions inventory is 3,771 MT of CO_2e/yr and the BAU GHG emissions inventory is 4,515 MT of CO_2e/yr. Consequently, the proposed Project is calculated to provide a 16.5 percent reduction from the BAU scenario. In comparison to the emission reduction target set by AB 32 and the numeric threshold of 15.8 percent, the proposed Project would reduce GHG emissions by more than the applicable thresholds. Therefore, the proposed Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment.

Threshold 4.5.2: Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases

Less than Significant Impact. As explained above in Section 4.5.4, Regulatory Setting, there are several plans, policies, and regulations designed to reduce GHG emissions. The impact analysis in this Draft EIR provides a quantitative assessment of the Project's ability to reduce GHG emissions by 16.5 percent compared to a BAU scenario. The reduction target (15.8 percent) was developed to achieve the goals of AB 32, and CARB's policies and plans were designed to reduce GHG emissions accordingly.

Table 4.5.B demonstrates that the proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measures GHG-1, GHG-2, and GHG-3 and implementation of Project

Design Features NRG-1 and NRG-2 would reduce GHG emissions compared to BAU, which in turn supports State goals for GHG emissions reduction. The methods used to establish this GHG reduction are consistent with the approach used in the Scoping Plan and Updated Scoping Plan prepared by CARB to implement AB 32.

In addition, the proposed Project is consistent with the approaches outlined by CARB to reduce GHG emissions. For example, the proposed Project would comply with the California Green Building Code (Regulatory Compliance Measures GHG-2 and GHG-3), which was adopted by the City of Cypress. In doing so, the proposed Project would improve energy conservation and energy efficiency. Also, the proposed Project would comply with applicable regulatory requirements that support renewable energy, more efficient vehicles, and waste diversion goals (Regulatory Compliance Measure GHG-2). The proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measures GHG-1, GHG-2, and GHG-3 and implementation of Project Design Features NRG-1 and NRG-2 would advance the objectives of the applicable GHG-reducing regulations. The proposed Project would also reduce GHG emissions associated with energy and water use through adherence to the regulatory standards described in Regulatory Compliance Measure GHG-1. Overall, the proposed Project would result in an approximately 16.5 percent reduction in GHG emissions from BAU. Its GHG reduction measures make the proposed Project consistent with AB 32 and its related regulations. Therefore, based on the proposed Project's consistency with State and SCAQMD GHG emission reduction goals and objectives, the proposed Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions.

4.5.7 Regulatory Compliance Measures and Project Design Features

The proposed Project would adhere to the regulatory standards described in the following regulatory compliance measures, the implementation of which is intended to reduce impacts related to GHG emissions:

Regulatory Compliance Measure GHG-1: The proposed Project would comply with applicable California Green Building Standards to reduce indoor potable water use by using water-saving fixtures and/or flow restrictors and would reduce outdoor water use by installing a high-efficiency irrigation system.

Regulatory Compliance Measure GHG-2: The proposed Project would comply with applicable provisions of AB 341, which establishes statewide solid waste diversion goals to achieve by 2020 by reducing, recycling, or composting solid waste.

Regulatory Compliance Measure GHG-3: The proposed Project will meet the statewide 2013 Building Energy Efficiency Standards, formally known as Title 24, Part 6.

The following Project Design Features identified in Chapter 3.0, Project Description, of this Draft EIR and listed below have been incorporated into the design to reduce or lessen potential impacts related to GHG and GCC.

Project Design Feature NRG-1: **Energy-Efficient Appliances.** Energy Star appliances, including clothes washers, dishwashers, and refrigerators, shall be installed in the residences.

Project Design Feature NRG-2: **High-Efficiency Lighting.** High-efficiency lightbulbs and lighting fixtures shall be installed in residential and non-residential buildings pursuant to applicable code standards.

4.5.8 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measures GHG-1, GHG-2, and GHG-3 and implementation of Project Design Features NRG-1 and NRG-2, the proposed Project's impacts related to GHGs would be less than significant, and no mitigation is required.

4.5.9 Cumulative Impacts

As stated above, the proposed Project would not result in a significant impact regarding GHG emissions because it is consistent with AB 32 and CARB's GHG reduction percentages from a BAU scenario. In the context of CEQA, GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.[1] Although the proposed Project is expected to emit GHGs, the emission of GHGs by any single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHGs from more than one project, and many sources in the atmosphere, that may result in GCC. A project's GHG emissions typically would be very small in comparison to State or global GHG emissions. Consequently, they would, in isolation, have no significant direct impact on GCC. Due to the complex physical, chemical, and atmospheric mechanisms involved in GCC, it is speculative to identify the specific impact, if any, to GCC from one project's incremental increase in global GHG emissions. As such, a proposed project's GHG emissions and the resulting significance of potential impacts are more properly assessed on a cumulative basis.

The quantitative impact analysis above and in the *Greenhouse Gas Technical Report* provides a cumulative assessment of the proposed Project's GHG emissions by comparing the Project reduction in GHG levels to the statewide goals for GHG reduction consistent with AB 32. In other words, the GHG impact analysis above for Thresholds 4.5.1 and 4.5.2 is inherently a cumulative analysis because it takes into consideration statewide GHG reduction targets and other projects and activities in the SCAB, and demonstrates that the proposed Project would be consistent with the statewide targets and applicable regional air quality standards of significance.

For construction, the proposed Project would contribute criteria pollutants to the SCAB during construction. Some of the related projects may be under construction simultaneously with the proposed Project (refer to Table 4.0.A, Summary of Related Projects, in this Draft EIR). Depending on construction schedules and actual implementation of projects in the area, the generation of

[1] CAPCOA, CEQA & Climate Change, p. 35, January 2008.

pollutant emissions during construction could result in short-term increases in air pollutants. However, each project would be required to comply with the SCAQMD's standard construction measures. In addition, the proposed Project's short-term construction emissions would not exceed the air quality significance thresholds as demonstrated by the discussion under Thresholds 4.2.1 and 4.2.2 in Section 4.2, Air Quality, of this Draft EIR. Therefore, the proposed Project's contribution to cumulative air quality and GHG impacts would not be cumulatively considerable.

In addition, with respect to air quality, the proposed Project's long-term operational emissions would not exceed the SCAQMD's thresholds for criteria pollutants. Furthermore, regarding GHG emissions, the proposed Project would result in a GHG emission profile that is 16.5 percent less than the BAU scenario and would thereby satisfy the percentage reductions target (15.8 percent) established by CARB to demonstrate compliance with the mandates of AB 32. Because the proposed Project is consistent with the GHG emission reduction target from CARB, and because its impacts alone would not cause or significantly contribute to GCC, project-related GHG emissions would not be considered cumulatively considerable. Therefore, the proposed Project would not result in a significant cumulative GHG impact.

4.5.10 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to construction and operational GHG and GCC.

4.6 HYDROLOGY AND WATER QUALITY

4.6.1 Introduction

This section describes the existing hydrology and water quality conditions with respect to the project site and evaluates the potential impacts of the proposed Project on hydrology and water quality. The analysis in this section is based in part on the *Preliminary Water Quality Management Plan* (PWQMP) (Fuscoe Engineering, Inc., revised January 16, 2015) and the *Preliminary Hydrology Study* (Fuscoe Engineering, Inc., February 2015) prepared for the proposed Project, which are included in Appendices F and G to this Draft EIR.

4.6.2 Methodology

Project impacts to hydrology and water quality are evaluated based on the proposed Project's adherence to local, State, and federal standards; the proposed land uses and project design; changes in pre- and post-project storm water flows; and proposed best management practices (BMPs) for control of surface runoff and reduction of pollutants in runoff.

4.6.3 Environmental Setting

Surface Water. The project site is located within the San Gabriel River-Coyote Creek Watershed, which covers 85.49 square miles and includes the Cities of Fullerton and Buena Park and parts of the Cities of Anaheim, Brea, Cypress, Fullerton, La Habra, La Palma, Los Alamitos, Placentia, and Seal Beach. Its main tributary, Coyote Creek, flows from Riverside County and empties into the San Gabriel River.[1] The San Gabriel River flows into the Pacific Ocean west of Seal Beach.

For planning purposes, the Santa Ana Regional Water Quality Control Board (RWQCB) uses a watershed classification system that divides surface waters into hydrologic units (HUs), areas, and subareas. As designated by the RWQCB, the project site is located within the Los Angeles-San Gabriel River HU, which itself is divided into Hydrologic Areas (HAs), which are then divided into Hydrologic Subareas (HSAs). The project site is located in the Anaheim HA Split and the Anaheim HSA Split.[2]

In the existing condition, runoff on the project site sheet flows overland from the northeast corner to the southwest corner of the project site. From this depression, the storm water discharges to an existing storm drain line in Katella Avenue. The storm drain system eventually discharges to the Los Alamitos Channel, Coyote Creek, the San Gabriel River (Reach 1), the San Gabriel River Estuary, San Pedro Bay, and eventually the Pacific Ocean (refer to Figure 4.6.1, Surface Waters).

A total of eight percolation tests were conducted on the project site as part of the PWQMP prepared for the proposed Project. The test locations were selected based on where infiltration BMPs could potentially be located based on grading and drainage patterns (e.g., low points and storm water

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[1] Orange County Public Works. San Gabriel River-Coyote Creek Watershed, http://ocwatersheds.com/programs/ourws/sangabrielrivercoyotecreek/ (accessed April 6, 2015).

[2] Santa Ana RWQCB. 1995. Water Quality Control Plan for the Santa Ana River Basin.

collection points). The results of the percolation tests indicate that infiltration rates on the project site are low, meaning that water cannot be treated and percolate back into the ground easily through a well system.

Surface Water Quality. As discussed in greater detail in Section 4.6.4, Coyote Creek is impaired for ammonia, dissolved copper, diazinon, bacteria/pathogens, lead, toxicity, and pH. San Gabriel River Reach 1 is impaired for coliform bacteria and pH, while the San Gabriel River Estuary is impaired for copper, dioxin, nickel, and dissolved oxygen. The San Pedro Bay and near/offshore zones are impaired for chlordane, dichlorodiphenyltrichloroethane (DDT), polychlorinated biphenyls (PCBs), and sediment toxicity.

Groundwater. According to the California Department of Water Resources, the project site is located within the Coastal Plain of the Orange County Groundwater Basin, which underlies a coastal alluvial plain in the northwestern portion of Orange County (County), as well as the lower Santa Ana River watershed. The basin is bounded by exposed consolidated rocks in the Puente and Chino Hills to the north, the Santa Ana Mountains to the east, and the San Joaquin Hills to the south. The basin is bounded by the Pacific Ocean to the southwest and by a low topographic divide in the vicinity of the Orange County/Los Angeles County line to the northwest. Groundwater recharge to the basin is derived from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells.[1]

For management purposes, groundwater basins are designated in the Santa Ana RWQCB's Water Quality Control Plan (Basin Plan) as Groundwater Management Zones. The project site is within the Orange County Groundwater Management Zone in the Lower Santa Ana River Basin. The Orange County Groundwater Management Zone is bounded to the north by the Chino Hills and Santa Ana Mountains, to the east by State Route 55 (SR-55) and the Irvine Groundwater Management Zone, to the south by the Pacific Ocean, and to the west by a low topographic divide approximated by the Orange County/Los Angeles County line.

According to the Geotechnical Assessment (included as Appendix D to this Draft EIR), information pertaining to the occurrence of groundwater within inland portions of the County was primarily obtained from borehole logs prepared during installation of the numerous water wells throughout the area. In the City and surrounding areas, semi-perched[2] groundwater generally occurs within the upper 40 to 50 feet of Holocene-age sediments. This water typically occurs within thin layers of silty sand and sand at depths of between 5 and 50 feet below ground surface (bgs). The Division of Mines and Geology Seismic Hazard Zone Evaluation indicates that the project site is located within an area where shallow groundwater (i.e., groundwater existing at a depth of 40 feet or less bgs) would

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1 California Department of Water Resources. 2004. California's Groundwater Bulletin 118. Coastal Plains of Orange County Groundwater Basin.

2 Perched groundwater is an aquifer that occurs above the regional groundwater table, above a geologic layer with low permeability.

typically be expected to occur.[1] According to this report, the historical high groundwater depth for the site is approximately 10 feet below the surface.

The cone penetrometer test (CPT) sounding data conducted for the Geotechnical Assessment[2] indicate that static groundwater levels on the project site ranged from approximately 8 to 12 feet bgs at the time of the field investigation. This is consistent with the findings of the feasibility-level investigation conducted for the project site in 2003, which found groundwater occurring at depths between 5 and 12 feet bgs.[3] This range of levels is likely to fluctuate in response to seasonal changes and variations in the rate of local groundwater withdrawal.

Groundwater Quality. Groundwater in the Coastal Plain of Orange County Groundwater Basin is primarily sodium-calcium bicarbonate based. In general, total dissolved solids (TDS) content in groundwater ranges from 232 milligrams per liter (mg/L) to 661 mg/L, with an average of 475 mg/L. Groundwater impairments include salinity (from seawater intrusion), colored water (from natural organic materials), high nitrates, and methyl tertiary butyl ether (MTBE).[4]

Floodplains. According to the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map (FIRM) No. 06059C0116J (December 3, 2009), the project site is located within Zone X, which comprises areas of 0.2 percent annual chance flood (500-year flood). This means that there is a very low likelihood of flooding within the project site.

4.6.4 Regulatory Setting

Federal Regulations and Policies.

Clean Water Act. In 1972, the Federal Water Pollution Control Act (now the Clean Water Act [CWA]) was amended to require that the discharge of pollutants into waters of the United States from any point source comply with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to require that the United States Environmental Protection Agency (USEPA) establish regulations for the permitting of storm water discharges (as a point source) by municipal and industrial facilities and construction activities under the NPDES permit program. The regulations require that Municipal Separate Storm Sewer System (MS4) discharges to surface waters be regulated by an NPDES permit.

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1 California Division of Mines and Geology, 1998, Seismic Hazard Evaluation of the Los Alamitos 7.5-Minute Quadrangle, Los Angeles and Orange Counties, California: CDMG Seismic Hazard Zones Report No. 019.

2 *Geotechnical Feasibility and CEQA-Level Assessment 33-acre Parcel Located Northeast of the Intersection of Katella Avenue and Enterprise Drive, City of Cypress, California.* Petra Geosciences, February 23, 2015.

3 *Limited Feasibility-Level Geotechnical Investigation, Cypress Golf Course Mass Grade, North and South Portions, 4921 Katella Avenue, City of Cypress, California.* Report prepared for Los Alamitos Race Course (Pacific Soils Engineering, Inc., November 25, 2003.

4 California Department of Water Resources. 2004. California's Groundwater Bulletin 118. Coastal Plains of Orange County Groundwater Basin.

The CWA requires states to adopt water quality standards for water bodies and to have those standards approved by the USEPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses. Water quality criteria are set concentrations or levels of constituents (such as lead, suspended sediment, and fecal coliform bacteria) or narrative statements that represent the quality of water that supports particular uses. Because California had not established a complete list of acceptable water quality criteria for toxic pollutants, the USEPA Region IX established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR).

When designated beneficial uses of a particular water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as impaired. Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each impairing water quality constituent. A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a "factor of safety" included, which limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body.

Direct discharges of pollutants into waters of the United States are not allowed except in accordance with the NPDES program established in Section 402 of the CWA.

Clean Water Act, Section 303, List of Impaired Water Bodies. The 2010 Integrated Report (CWA Section 303(d) List/305(b) Report) issued by the State Water Resources Control Board (SWRCB) contains the most recent listing of impaired water bodies in the State. Coyote Creek is impaired for ammonia, dissolved copper, diazinon, bacteria/pathogens, lead, toxicity, and pH. Reach 1 of the San Gabriel River is impaired for coliform bacteria and pH. The San Gabriel River Estuary is impaired for copper, dioxin, nickel, and dissolved oxygen. The San Pedro Bay Near/Offshore Zones are impaired for chlordane, DDT (tissue and sediment), PCBs, and sediment toxicity.

State Regulations and Policies.

California Porter-Cologne Act. The federal CWA places the primary responsibility for the control of water pollution and for planning the development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs.

California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and the nine RWQCBs broad powers to protect water quality and is the primary vehicle for the implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the SWRCB and RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface water and groundwater, to regulate waste disposal sites, and to

require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

Each RWQCB must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include in its region a regional plan with water discharge prohibitions applicable to particular conditions, areas, or types of waste.

The City of Cypress (City), including the project site, is within the jurisdictional boundaries of the Santa Ana RWQCB (Region 8). Coyote Creek is under the jurisdiction of both the Santa Ana and the Los Angeles RWQCBs. The San Gabriel River is under the jurisdiction of the Los Angeles RWQCB (Region 4). The groundwater basin for the project site is entirely within the jurisdiction of the Santa Ana RWQCB.

Water Quality Control Plans (Basin Plans). The Santa Ana and Los Angeles RWQCBs have both adopted Basin Plans for their regions of responsibility that delineate water resource area boundaries based on hydrological features. For the purposes of achieving and maintaining water quality protection, specific beneficial uses have been identified for each of the HAs described in the Basin Plans. Once beneficial uses are designated, appropriate water quality objectives can be established and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. Examples of beneficial uses include: municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; navigation; commercial and sport fishing; estuarine habitat; marine habitat; warm freshwater habitat; wildlife habitat; rare, threatened, or endangered species; migration of aquatic organisms; spawning, reproduction and/or early development; shellfish harvesting; contact water recreation; and noncontact water recreation.

The Basin Plans also establish implementation programs to achieve water quality objectives to protect beneficial uses and require monitoring to evaluate the effectiveness of the programs. These objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

Table 4.6.A below lists the beneficial uses for Coyote Creek and the San Gabriel River, as designated in the Santa Ana and Los Angeles RWQCB Basin Plans. There are no designated beneficial uses for the other receiving waters for the project site.

The present or potential beneficial uses for groundwater in the Orange County Groundwater Management Zone, as designated in the Santa Ana Regional Basin Plan, are as follows:

- **Municipal and Domestic Supply (MUN):** Waters used for community, military, municipal, or individual water supply systems. These may include, but are not limited to, drinking water supply.

Table 4.6.A: Beneficial Uses of Surface Waters

	MUN	IND	PROC	NAV	COMM	WARM	EST	MAR	WILD	RARE	MIGR	SPWN	SHELL	REC1	REC2
Santa Ana Basin Plan															
Coyote Creek	X							X	X					X	X
Los Angeles Basin Plan															
Coyote Creek	P	P	P			P			P	E				P	I
San Gabriel River (Reach 1)	P					P			P					E	E
San Gabriel River Estuary		E		E	E		E	E	E	E	E	E	P	E	E

Sources: *Water Quality Control Plan – Santa Ana River Basin*, 1995 (updated February 2008); *Water Quality Control Plan-Los Angeles Region* (Los Angeles Regional Water Quality Control Board, 1995).

X = Present or potential beneficial use
E = Existing beneficial use
P = Potential beneficial use
I = Intermittent beneficial use

COMM = Commercial and Sport Fishing
EST = Estuarine Habitat
IND = Industrial Service Supply
MAR = Marine Habitat
MIGR = Migration of Aquatic Organisms
MUN = Municipal and Domestic Supply
NAV = Navigation
PROC = Industrial Process Supply
RARE = Rare, Threatened, or Endangered Species
REC1 = Contact Water Recreation
REC2 = Noncontact Water Recreation
SHELL = Shellfish Harvesting
SPWN = Spawning, Reproduction, and/or Early Development
WARM = Warm Freshwater Habitat
WILD = Wildlife Habitat

- **Agricultural Supply (AGR):** Waters used for farming, horticulture, or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply (IND):** Waters used for industrial activities that do not depend primarily on water quality. These uses may include, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well re-pressurization.
- **Industrial Process Supply (PROC):** Waters used for industrial activities that depend primarily on water quality. These uses may include, but are not limited to, process water supply and all uses of water related to product manufacture or food preparation.

The Basin Plans have established narrative and numeric water quality objectives for inland surface streams and groundwater. If water quality objectives are exceeded, the RWQCBs can use their regulatory authority to require municipalities to reduce pollutant loads to the affected receiving waters. Relevant surface water quality objectives for all inland surface waters under the jurisdiction of the Santa Ana and Los Angeles RWQCBs are shown in Tables 4.6.B and 4.6.C, respectively. There are no site-specific water quality objectives for any of the receiving waters for the project site.

Groundwater quality objectives for the Santa Ana Region, as designated in the Santa Ana Basin Plan, are provided in Table 4.6.D. In addition to the groundwater objectives listed in Table 4.6.D, the following site-specific water quality objectives with respect to groundwater are designated in the Santa Ana Basin Plan for the Orange County Groundwater Management Zone as not to exceed:

- TDS content = 580 mg/L
- Nitrate as Nitrogen = 3.4 mg/L

California Toxics Rule. As stated previously, because California had not established a complete list of acceptable water quality criteria for toxic pollutants, the USEPA Region IX established numeric water quality criteria for toxic constituents in the form of the CTR. The CTR provides water quality criteria for certain potentially toxic compounds for inland surface waters, enclosed bays, estuaries, and waters designated for human health or aquatic life uses. The CTR is often used by the RWQCBs when establishing water quality objectives and TMDLs. Although the CTR criteria do not apply directly to discharges of storm water runoff, they are utilized as benchmarks for toxics in urban runoff. The CTR is used as a benchmark to evaluate the potential ecological impacts of storm water runoff to receiving waters. The CTR establishes acute and chronic surface water quality standards for certain water bodies. Acute criteria provide benchmarks for the highest permissible concentration below which aquatic life can be exposed for short periods of time without deleterious effects. Chronic criteria provide benchmarks for an extended period of time (i.e., 4 days or more) without deleterious effects. The acute CTR criteria have a shorter relevant averaging period (less than 4 days) and provide a more appropriate benchmark for comparison for storm water flows.

Table 4.6.B: Surface Water Quality Objectives for Inland Surface Waters in the Santa Ana Region

Constituent	Concentration	Receiving Waters
Algae	Waste discharges shall not contribute to excessive algal growth.	Inland surface waters
Boron	Shall not exceed 0.75 mg/L.	Inland surface waters
Chlorine (residual)	Chlorine residual in wastewater discharged to inland surface waters shall not exceed 0.1 mg/L.	Inland surface waters
Coliform (fecal)	Logarithm means fewer than 200 organisms per 100 mL based on five or more samples per 30-day period and not more than 10% of the samples exceeding 400 organisms per 100 mL for any 30-day period.	REC1 beneficial use
	Logarithm means fewer than 2,000 organisms per 100 mL based on five or more samples per 30-day period and not more than 10% of the samples exceeding 4,000 organisms per 100 mL for any 30-day period.	REC2 beneficial use
Coliform (total)	Not to exceed 100 organisms per 100 mL.	MUN beneficial use
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other inland surface water resources used for human consumption shall not be impaired.	Inland surface waters
Floatables	Waste discharges shall not contain floating materials (including solids, liquids, foam, or scum) that cause a nuisance or adversely affect beneficial uses.	Inland surface waters
Fluoride	Shall not exceed 0.7 to 1.2 mg/L as a result of controllable water quality factors depending on air temperature (refer to Basin Plan).	MUN beneficial use
Metals	Varies based on hardness.	Inland surface waters
MBAS	Shall not exceed 0.05 mg/L.	MUN beneficial use
Nitrate	Shall not exceed 45 mg/L as NO_3 or 10 mg/L as N.	MUN beneficial use
Oil and grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that result in a visible film or in coating objects in the water or that cause a nuisance or adversely affect beneficial uses.	Inland surface waters
Oxygen (dissolved)	Waste discharges shall not cause the median dissolved oxygen concentration to fall below 85% saturation or the 95th percentile concentration, or to fall below 75% saturation within a 30-day period.	Inland surface waters
pH	Shall not be raised above 8.5 or depressed below 6.5.	Inland surface waters
Radioactivity	Shall not exceed the CCR Title 22 standards of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha, 20,000 pCi/L for tritium, 8 pCi/L for strontium-90, 50 pCi/L for gross beta, and 20 pCi/L for uranium.	MUN beneficial use
Solids	Suspended and settleable solids shall not cause a nuisance or adversely affect beneficial uses.	Inland surface waters
Sulfides	Shall not be increased.	Inland surface waters
Surfactants	Waste discharges shall not contain concentrations of surfactants that result in foam in the course of flow or use of the receiving water or that adversely affect aquatic life.	Inland surface waters
Taste and odor	Shall not contain taste- or odor-producing substances at concentrations that cause a nuisance or adversely affect beneficial uses.	Inland surface waters
Toxic substances	Shall not be discharged at levels that will bioaccumulate in aquatic resources to levels that are harmful to human health. Concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses.	Inland surface waters

Table 4.6.B: Surface Water Quality Objectives for Inland Surface Waters in the Santa Ana Region

Constituent	Concentration	Receiving Waters
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.	Inland surface waters

Source: *Water Quality Control Plan – Santa Ana River Basin*, 1995 (updated February 2008).
°F = degrees Fahrenheit
Basin Plan = Water Quality Control Plan – Santa Ana River Basin
CCR = California Code of Regulations
JTU = Jackson turbidity units
MBAS = methylene-blue activated substances
mg/L = milligrams per liter
mL = milliliters
MUN = Municipal and Domestic Water Supply
N = nitrogen
NO_3 = nitrate
NTU = nephelometric turbidity units
pCi/L = picocuries per liter
pH = percentage of hydrogen
REC1 = Contact Water Recreation
REC2 = Noncontact Water Recreation

Table 4.6.C: Surface Water Quality Objectives for Inland Surface Waters in the Los Angeles Region

Constituent	Basin Plan Objectives	Receiving Waters
Ammonia	Shall not be present at levels that, when oxidized to nitrate, pose a threat to groundwater. Numerical ammonia concentrations for inland surface waters are contained in Tables 3-1 through 3-4 of the *Basin Plan.*	Inland surface waters
Bacterial, Coliform	Fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of no fewer than four samples for any 30-day period), nor shall more than 10 percent of samples collected during any 30-day period exceed 400/100 mL.	REC1 beneficial use
	Fecal coliform concentration shall not exceed a log mean of 2,000/100 mL (based on a minimum of no fewer than four samples for any 30-day period), nor shall more than 10 percent of samples collected during any 30-day period exceed 4,000/100 mL.	REC2 (and not designated REC1) beneficial use
	Fecal coliform concentration shall not exceed a median total coliform concentration throughout the water column of 70/100 mL for any 30-day period, nor shall more than 10 percent of the samples collected during any 30-day period exceed 230/100 mL for a five-tube decimal dilution test or 330/100 mL when a three-tube decimal dilution test is used.	SHELL beneficial use
Bioaccumulation	Toxic pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels that are harmful to aquatic life or human health.	Inland surface waters
BOD	Waters shall be free of substances that result in increases in BOD, which adversely affect beneficial uses.	Inland surface waters
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes a nuisance or adversely affects beneficial uses.	Inland surface waters
Chemical Constituents	Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Waters shall not contain concentrations of chemical constituents in excess of the limits specified in CCR Title 22.	MUN beneficial use
Chlorine, Total Residual	Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses.	Inland surface waters
Color	Waters shall be free of coloration that causes a nuisance or adversely affects beneficial uses.	Inland surface waters
Exotic Vegetation	Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes a nuisance or adversely affects beneficial uses.	Inland surface waters
Floating Material	Waters shall not contain floating materials (including solids, liquids, foams, and scum) in concentrations that cause a nuisance or adversely affect beneficial uses.	Inland surface waters
MBAS	Waters shall not have MBAS concentrations greater than 0.5 mg/L.	MUN beneficial use
Mineral Quality	Numerical mineral quality objectives for individual inland surface waters are contained in Table 3-8 of the Basin Plan.	Inland surface waters
Nitrogen (Nitrate, Nitrite)	Waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen, 45 mg/L as nitrate, 10 mg/L as nitrate-nitrogen, or 1 mg/L as nitrite-nitrogen.	Inland surface waters
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water that causes a nuisance or adversely affects beneficial uses.	Inland surface waters
Oxygen, Dissolved	The mean annual dissolved oxygen concentration of all waters shall be greater than 7 mg/L, and no single determination shall be less than 5 mg/L, except when natural conditions cause lesser concentrations.	Inland surface waters
	The dissolved oxygen content of surface waters shall not be depressed below 5 mg/L.	WARM beneficial use

Table 4.6.C: Surface Water Quality Objectives for Inland Surface Waters in the Los Angeles Region

Constituent	Basin Plan Objectives	Receiving Waters
	The dissolved oxygen content of surface waters shall not be depressed below 7 mg/L as a result of waste discharges.	SPWN beneficial use
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life. Waters designated for MUN uses shall not contain concentrations of pesticides in excess of the limiting concentrations specified in Table 64444-A of Section 64444 of CCR Title 22.	Inland surface waters
pH	Inland water shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.5 unit from natural conditions as a result of waste discharge.	Inland surface waters
	The pH of bays or estuaries shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.2 unit from natural conditions as a result of waste discharge.	Bays or estuaries
PCBs	Pass-through or uncontrollable discharges to waters, or at locations where the waste can subsequently reach waters, are limited to 70 pg/L (30-day average) for protection of human health and 14 ng/L (daily average) to protect aquatic life in inland fresh waters.	Inland surface waters
Radioactive Substances	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.	Inland surface waters
	Waters shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 of CCR Title 22.	MUN beneficial use
Solids	Waters shall not contain suspended or settleable material in concentrations that cause a nuisance or adversely affect beneficial uses.	Inland surface waters
Tastes and Odors	Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or edible aquatic resources, cause a nuisance, or adversely affect beneficial uses.	Inland surface waters
Temperature	The natural receiving water temperature of all waters shall not be altered unless it can be demonstrated that such alteration in temperature does not adversely affect beneficial uses.	Inland surface waters
	Water temperature shall not be altered by more than 5ºF above the natural temperature or raised above 80ºF as a result of waste discharges.	WARM beneficial use
Toxicity	All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life.	Inland surface waters
Turbidity	Waters shall be free of changes in turbidity that cause a nuisance or adversely affect beneficial uses. Increases in natural turbidity shall not exceed the following limits: • Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. • Where natural turbidity is greater than 50 NTU, increases shall not exceed 10 percent.	Inland surface waters

Source: *Water Quality Control Plan-Los Angeles Region* (Los Angeles Regional Water Quality Control Board, 1995).

ºF = degrees Fahrenheit
Basin Plan = Water Quality Control Plan – Santa Ana River Basin
BOD = Biological Oxygen Demand
CCR = California Code of Regulations
COLD = Cold Freshwater Habitat
MBAS = methylene-blue activated substances
mL = milliliters
MUN = Municipal and Domestic Water Supply
ng/L = nanograms per liter
NTU = nephelometric turbidity units
PCBs = polychlorinated biphenyls
pg/L = picograms per liter
REC1 = Contact Water Recreation
REC2 = Noncontact Water Recreation
SHELL = Shellfish Harvesting
SPWN = Spawning, Reproduction, and/or Early Development
WARM = Warm Freshwater Habitat

Table 4.6.D: Groundwater Quality Objectives for the Santa Ana Region

Constituent	Concentration	Area
Arsenic	Shall not exceed 0.05 mg/L	MUN beneficial use
Boron	Shall not exceed 0.75 mg/L	Santa Ana Region
Chloride	Shall not exceed 500 mg/L	MUN beneficial use
Coliform (total)	Shall not exceed 2.2 organisms/100 mL median over any 7-day period	MUN beneficial use
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses.	Santa Ana Region
Cyanide	Shall not exceed 0.2 mg/L	MUN beneficial use
Fluoride	Shall not exceed 1 mg/L	MUN beneficial use
Hardness	Shall not be increased as a result of waste discharges to levels that adversely affect beneficial uses.	MUN beneficial use
Oil and grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that cause a nuisance or adversely affect beneficial uses.	Santa Ana Region
Barium	Shall not exceed 1 mg/L	MUN beneficial use
Cadmium	Shall not exceed 0.01 mg/L	MUN beneficial use
Chromium	Shall not exceed 0.05 mg/L	MUN beneficial use
Cobalt	Shall not exceed 0.2 mg/L	MUN beneficial use
Copper	Shall not exceed 1 mg/L	MUN beneficial use
Iron	Shall not exceed 0.3 mg/L	MUN beneficial use
Lead	Shall not exceed 0.05 mg/L	MUN beneficial use
Manganese	Shall not exceed 0.05 mg/L	MUN beneficial use
Mercury	Shall not exceed 0.002 mg/L	MUN beneficial use
Selenium	Shall not exceed 0.01 mg/L	MUN beneficial use
Silver	Shall not exceed 0.05 mg/L	MUN beneficial use
MBAS	Shall not exceed 0.05 mg/L	MUN beneficial use
pH	The pH of groundwater shall not be raised above 9 or depressed below 6	Santa Ana Region
Radioactivity	Shall not exceed the CCR Title 22 standards of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha, 20,000 pCi/L for tritium, 8 pCi/L for strontium-90, 50 pCi/L for gross beta, and 20 pCi/L for uranium.	MUN beneficial use
Sodium	Shall not exceed a sodium adsorption rate of 9.	AGR beneficial use
Sulfate	Shall not exceed 500 mg/L	MUN beneficial use
Taste and odor	Groundwater shall not contain taste- or odor-producing substances in concentrations that adversely affect beneficial uses.	Santa Ana Region
Toxic substances	All waters shall be maintained free of substances in concentrations that are toxic or that produce detrimental physiological responses in human, plant, animal, or aquatic life.	Santa Ana Region

Source: *Water Quality Control Plan – Santa Ana River Basin*, 1995 (updated February 2008).
AGR = Agricultural Water Supply
CCR = California Code of Regulations
MBAS = methylene-blue activated substances
mg/L = milligrams per liter
mL = milliliters
MUN = Municipal Water Supply
pCi/L = picocuries per liter
pH = percentage of hydrogen

CTR criteria are applicable to the receiving water body and, therefore, must be calculated based on the probable hardness values of the receiving waters. At higher hardness values for receiving waters, certain constituents (including copper, lead, and zinc) are more likely to be complexed (bound with) components in the water column. This in turn reduces the bioavailability and resulting potential toxicity of these metals.

Total Maximum Daily Load Requirements. On July 13, 2006, the Los Angeles RWQCB adopted Resolution No. R06-014, an *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate Total Maximum Daily Loads for Metals and Selenium in the San Gabriel River and Impaired Tributaries*. This Basin Plan amendment established the TMDL and associated waste load allocations based on numeric targets. The TMDL specifies a dry-weather numeric target of 3.7 micrograms per liter (µg/L) for copper for the San Gabriel River Estuary and 166 µg/L for lead for Reach 2 of the San Gabriel River.[1]

General Construction Activity Storm Water Permit. The *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*, Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ (Construction General Permit), adopted by the SWRCB, regulates construction activity that includes clearing, grading, and excavation resulting in soil disturbance of at least 1 acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than storm water and authorized nonstorm water discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4 unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than 1 acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three risk levels established in the General Permit;
- Eliminate or reduce nonstorm water discharges to storm sewer systems and other waters of the United States;

[1] On June 6, 2013, the Los Angeles RWQCB adopted Resolution No. R13-004, an *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate Implementation Plans and Schedules for the Total Maximum Daily Loads for Metals and Selenium in the Los Cerritos Channel and Metals and Selenium in the San Gabriel River and Impaired Tributaries*. This Basin Plan amendment was subsequently approved by the SWRCB on March 4, 2014, and by the Office of Administrative Law on October 13, 2014. This Basin Plan amendment established an implementation plan for attainment of the waste load allocations specified in the TMDL.

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies BMPs that will reduce pollution in storm water discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

To obtain coverage under the Construction General Permit, a project applicant must electronically file all permit registration documents with the SWRCB prior to the start of construction. Permit registration documents must include the:

- Notice of Intent;
- Risk Assessment;
- Site map;
- SWPPP;
- Annual fee; and
- Signed certification statement.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Local Regulations and Policies.

Groundwater Discharge Permit. On March 27, 2009, the Santa Ana RWQCB adopted the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Groundwater Discharge Permit) (Order No. R8-2009-0003, NPDES No. CAG998001). This permit covers discharge of groundwater and nonstorm water construction dewatering waste in the Santa Ana Region. Under this permit, waste discharges must comply with discharge specifications, receiving water limitations, and monitoring and reporting requirements detailed in the permit to ensure that effluent limitations for constituents are not exceeded.

Municipal NPDES Permit (MS4 Permit). The City is a co-permittee under the Municipal NPDES Permit for the North Orange County Region (Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff, Orange County [MS4 Permit, Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062]), which was approved by the Santa Ana RWQCB in May 2009, amended in October 2010, and became effective in August 2011. The MS4 Permit stipulates operational requirements for new development and significant redevelopment, including specific selection and sizing criteria for low-impact development (LID) and treatment control BMPs. The MS4 Permit is currently in the process of being updated. Draft Order No. R8-2015-0001, NPDES No. CAS61080, was circulated for public comment from December 22, 2014, through February 13, 2015.

Cypress Municipal Code. Chapter 13, Article IV, Cypress Water Quality, of the City Municipal Code regulates storm water and surface runoff water quality. The Municipal Code requires compliance with the Drainage Area Management Plan (DAMP) and Local Implementation Plan (LIP). The DAMP was developed by the co-permittees under the Municipal NPDES Permit for the North Orange County Region (MS4 Permit) to implement its requirements. It identifies measures intended to reduce the discharge of pollutants to the maximum extent practicable (MEP) using BMPs, control techniques and systems, engineering methods, and other appropriate provisions. Per the requirements in the DAMP and the MS4 Permit, the City adopted a LIP implementing the DAMP and MS4 Permit. Using the LIP as a guide, the City approves Water Quality Management Plans (WQMPs) for new development and redevelopment projects as part of the development plan and entitlement approval process. WQMPs for new development and significant redevelopment projects that fall under specific priority project categories must include site design, routine structural and nonstructural, and treatment control BMPs, as well as an operations and maintenance plan, and must address LID and hydromodification. The priority project categories are those determined by the RWQCB to have the greatest potential to impact receiving waters with polluted runoff. The proposed Project is considered a "priority" project because it would add or replace at least 10,000 square feet of impervious surface.

WQMPs must be prepared in accordance with the Model WQMP (May 19, 2011) and Technical Guidance Document (TGD) December 20, 2013), which were prepared by the County to assist with project development in north Orange County and to assist in compliance with the MS4 Permit requirements. Prior to issuance of a grading permit, building permit, and/or safety permit for any new development or significant redevelopment, the property owner is required to submit to and obtain the approval of the WQMP by the City.

4.6.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, the proposed Project would have a significant impact on hydrology and water quality if it would:

Threshold 4.6.1: Violate any water quality standards or waste discharge requirements;

Threshold 4.6.2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

Threshold 4.6.3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site;

Threshold 4.6.4: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially

increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;

Threshold 4.6.5: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;

Threshold 4.6.6: Otherwise substantially degrade water quality;

Threshold 4.6.7: Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

Threshold 4.6.8: Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

Threshold 4.6.9: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;

Threshold 4.6.10: Inundation by seiche, tsunami, or mudflow;

Threshold 4.6.11: Result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash);

Threshold 4.6.12: Result in significant alteration of receiving water quality during or following construction;

Threshold 4.6.13: Could the proposed project result in increased erosion downstream;

Threshold 4.6.14: Result in increased impervious surfaces and associated increased runoff;

Threshold 4.6.15: Create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes;

Threshold 4.6.16: Be tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list? If so, can it result in an increase in any pollutant for which the water body is already impaired;

Threshold 4.6.17: Be tributary to other environmentally sensitive areas? If so, can it exacerbate already existing sensitive conditions;

Threshold 4.6.18: Have a potentially significant environmental impact on surface water quality to either marine, fresh, or wetland waters;

Threshold 4.6.19: Have a potentially significant adverse impact on groundwater quality;

Threshold 4.6.20: Cause or contribute to an exceeded applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses;

Threshold 4.6.21: Impact aquatic, wetland, or riparian habitat; or

Threshold 4.6.22: Would the project include new or retrofitted stormwater treatment control Best Management Practices.

The analysis in the Initial Study (Appendix A) determined that the proposed Project's impacts with respect to Thresholds 4.6.7 through 4.6.10 and 4.6.17 would be clearly insignificant and unlikely to occur. Therefore, the hydrology and water quality impacts relating to those thresholds are not considered further in this Draft EIR.

4.6.6 Project Impacts

Threshold 4.6.1: Violate any water quality standards or waste discharge requirements

Construction.

Less than Significant Impact. During construction activities, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), sanitary waste, and concrete-related waste may be spilled or leaked and have the potential to be transported via storm water runoff into downstream receiving waters (i.e., groundwater or surface waters such as Coyote Creek, the San Gabriel River, and ultimately the Pacific Ocean). Construction activities include the handling, storage, and disposal of construction materials containing pollutants that can be accidentally spilled onsite and introduced into storm water runoff. In addition, poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze, or other vehicle-related fluids on the project site are potential sources of storm water pollution and soil contamination. Finally, grading and construction activities disturb soil, which increases erosion and has the potential to transport sediment into downstream receiving waters.

As specified in Regulatory Compliance Measure WQ-1 in Section 4.6.7, below, the proposed Project would comply with the waste discharge requirements of the Construction General Permit. Under the Construction General Permit, a SWPPP would be required for the proposed Project and construction BMPs detailed in the SWPPP would be implemented during construction activities to minimize erosion and prevent spills. Construction BMPs would include, but not be limited to, erosion control and sediment control BMPs designed to minimize erosion and retain sediment onsite, as well as good housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The SWPPP would be developed and construction BMPs selected and implemented to target pollutants of concern during construction. Routine inspections would be conducted of all storm water pollution prevention measures and control practices being used at the project site, including inspections before and after storm events. The construction BMPs would be designed and maintained during construction to prevent sediment and other

pollutants from reaching receiving waters so that construction activities do not violate water quality standards or waste discharge requirements.

Depth to semi-perched groundwater is shallow (potentially as shallow as 5 feet bgs). Due to the anticipated depth of excavation (an average of 3 to 4 feet below existing grade), groundwater may be encountered during excavation. As a result, groundwater dewatering may be required during construction. Groundwater may contain elevated levels of TDS, color, nitrates, or other constituents that could be introduced to surface waters. As specified in Regulatory Compliance Measure WQ-2 in Section 4.6.7, below, any groundwater dewatering during excavation would be conducted in accordance with the waste discharge requirements of the Groundwater Discharge Permit, which would require testing and treatment (as necessary) of groundwater encountered during dewatering or groundwater well construction prior to release. As a result, groundwater dewatering would not introduce pollutants to receiving waters or violate water quality standards or waste discharge requirements.

Regulatory Compliance Measures WQ-1 and WQ-2 reflect that the proposed Project must comply with (1) the waste discharge requirements of the Construction General Permit (including preparation and implementation of a SWPPP that identifies appropriate construction BMPs as part of the project design) and (2) the waste discharge requirements of the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater). The proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measures WQ-1 and WQ-2 would ensure that potential construction impacts related to violation of water quality standards or waste discharge requirements would be less than significant.

Operation.

Less than Significant Impact. Table 4.6.E summarizes the expected pollutants of concern that could potentially be present in runoff during operation of the proposed Project, which include suspended solids/sediments, nutrients, heavy metals, pathogens, pesticides, oil and grease, toxic organic compounds, and trash and debris.

The proposed Project would result in a permanent increase in impervious surface area of approximately 28 acres (an increase from 0 percent to approximately 85 percent of the project site). An increase in impervious area would increase the volume of runoff during a storm, which could more easily transport pollutants to receiving waters.

As discussed above, infiltration rates on the project site are low in the existing condition. Therefore, overland runoff does not contribute substantially to groundwater recharge in the existing condition. Since the proposed Project would increase the impervious area within the project site, it would decrease infiltration to groundwater. As a result of the low infiltration rate and additional impervious surface area on the project site, and because the proposed Project would include an onsite storm drain detention system, it is anticipated that very little runoff would infiltrate to groundwater and the majority of runoff from the project site would discharge to the storm drain system. As a result, operation of the proposed Project would not substantially impact groundwater quality.

Table 4.6.E: Expected Pollutants of Concern

Priority Project Category and/or Project Features	General Pollutant Category							
	Suspended Solids/ Sediments	Nutrients	Heavy Metals	Pathogens (Bacteria/ Viruses)	Pesticides	Oil and Grease	Toxic Organic Compounds	Trash and Debris
Detached Senior Residential Units	E	E	N	E	E	E	N	E
Attached Senior Residential Units	E	E	N	E	E	E[1]	N	E
Commercial/ Retail Improvements	E	E	E	E	E	E	E	E
Restaurants	E	E	E	E	E	E	N	E
Parking Lots	E	E	E	E	E	E	E	E

Source: *Preliminary Water Quality Management Plan* (Fuscoe Engineering, Inc., January 2015).
E = Expected to be of concern
N = Not expected to be of concern

In order to further reduce the proposed Project's potential operational impact on groundwater quality, and as specified in Regulatory Compliance Measure WQ-3 in Section 4.6.7, below, site design, source control, and LID (biotreatment) BMPs have been incorporated into the project design to treat storm water runoff prior to discharge into the storm drain system. Site design BMPs are BMPs that reduce runoff or pollutants at the source through intentional use of landforms and materials. Source control BMPs are measures that focus on reducing or eliminating runoff and controlling sources of pollutants during project operation, LID BMPs mimic the project site's existing hydrology by using design measures that capture, filter, store, evaporate, detain, and infiltrate runoff, rather than allowing runoff to flow directly to piped or impervious storm drains.

The site design and source control BMPs for the proposed Project are described in Table 4.6.F.

The LID BMPs for the proposed Project would consist of biotreatment BMPs, which reduce storm water volume to the maximum extent practicable, treat storm water using a suite of treatment mechanisms characteristic of biologically active systems, and discharge water to the downstream storm drain system. The onsite biotreatment for the proposed Project would include Modular Wetland Systems (developed by Bio Clean Environmental Services, Inc.) that utilize multi-stage treatment processes, including screening media filtration, settling, and biofiltration, and would treat pollutants of concern to a medium to high level of effectiveness for low-flow and first-flush runoff from the project site. High flows beyond the first-flush would bypass the Modular Wetland Systems and flow into the underground detention system located within the commercial/retail portion of the project site. The Modular Wetland Systems have high treatment effectiveness for oil and grease, trash and debris, and suspended solids/sediments, and medium-high treatment effectiveness for nutrients, metals, pathogens/bacteria, and toxic organic compounds. The locations and graphic depictions of the Modular Wetlands Systems and underground detention system are depicted on Figures 3.16 and 3.17, which are included in Chapter 3.0, Project Description, of this Draft EIR. The underground detention basin is included as Project Design Feature WQ-1.

Table 4.6.F: Source Control BMPs

Name	Project-Specific Application
Site Design BMPs	
Minimize Impervious Area	Impervious surfaces have been minimized by incorporating landscaped areas throughout the project site surrounding the proposed buildings. Landscaping will be provided throughout the project site in parkways and within the common areas, within the parking lots, adjacent to the sidewalks, and around the perimeter of the buildings.
Preserve Existing Drainage Patterns and Time of Concentration	Runoff from the project site will continue to flow similar to existing conditions. The time of concentration for peak flows will be managed by the proposed underground detention system located in the southern portion of the project site.
Disconnect Impervious Areas	Landscaping will be provided adjacent to the sidewalks and around the perimeters of the proposed buildings. Low flows and first-flush runoff will drain to bioretention units for water quality treatment via biofiltration. Following treatment, flows will enter a detention system for flow control to the downstream storm drain system.
Protect Existing Vegetation and Sensitive Areas, and Revegetate Disturbed Areas	There are no existing jurisdictional habitat or sensitive areas to preserve on the project site. All disturbed areas will either be paved or landscaped.
Landscaping	To the extent feasible, native and/or drought-tolerant landscaping will be incorporated into the project design consistent with applicable City requirements.
Nonstructural Source Control BMPs	
Education for Property Owners, Tenants, and Occupants	Educational materials, including brochures and restrictions to reduce pollutants from reaching the storm drain system, will be provided to homeowners and commercial/retail tenants prior to occupancy and periodically thereafter. Examples include tips for pet care, household maintenance, and proper household hazardous waste disposal.
Activity Restrictions	The HOA/owner of the commercial/retail area will develop ongoing activity restrictions that include those with the potential to create adverse impacts on water quality. Activities include, but are not limited to: handling and disposal of contaminants, fertilizer and pesticide application restrictions, litter control and pickup, and vehicle or equipment repair and maintenance in nondesignated areas, as well as any other activities that may potentially contribute to water pollution.
Common Area Landscape Management	Management programs will be designed and implemented by the HOA/owner of the commercial/retail area to maintain all the common areas within the project site. These programs will cover how to reduce the potential pollutant sources of fertilizer and pesticide uses, utilization of water-efficient landscaping practices, and proper disposal of landscape wastes by contractors.
BMP Maintenance	The HOA/owner of the commercial/retail area will be responsible for the implementation and maintenance of each applicable nonstructural BMP, as well as for scheduling inspections and maintenance of all applicable structural BMP facilities through its staff, landscape contractor and/or any other necessary maintenance contractors.
Spill Contingency Plan	Any commercial facilities that store liquid materials or wastes will maintain procedures for spill response and cleanup activities. Emergency spill kits will be kept onsite at all times. Spill kits will include, at a minimum, dry adsorbent material such as kitty litter, mats or pillows, containment booms, wipes, goggles, gloves, and disposal bags. Minor spills will be cleaned up immediately using dry methods, consistent with measures identified in the PWQMP. Activities will be coordinated between the respective departments and the police and fire departments in the event of a spill. Procedures will be maintained on an ongoing basis.

Table 4.6.F: Source Control BMPs

Name	Project-Specific Application
Hazardous Materials Disclosure Compliance	Any storage or utilization of hazardous wastes, where applicable, will comply with the County Fire Authority hazardous materials disclosure requirements. Compliance will be maintained on an ongoing basis.
Uniform Fire Code Implementation	The owner of the commercial/retail area will ensure all structures comply with Article 80 of the Uniform Fire Code, City Municipal Code, and County Fire Authority. Compliance will be maintained on an ongoing basis.
Common Area Litter Control	The HOA/owner of the commercial/retail area will be responsible for performing trash pickup and sweeping of littered common areas on a weekly basis or whenever necessary. Responsibilities will also include noting improper disposal materials by the public and reporting such violations for investigation.
Employee Training	All employees of the HOA/owner of the commercial/retail area and any contractors will require training to ensure that employees are aware of maintenance activities that may result in pollutants reaching the storm drain. Training will include, but not be limited to, spill cleanup procedures, proper waste disposal, housekeeping practices, etc.
Housekeeping of Loading Docks	Housekeeping measures will be implemented by the owner of the commercial/retail area to keep the proposed loading dock and delivery areas in a clean and orderly condition. These measures include removal of trash and debris on a weekly basis, and use of dry methods for cleanup (e.g., sweeping).
Common Area Catch Basin Inspection	All onsite catch basin inlets and drainage facilities will be inspected and maintained by the HOA/owner of the commercial/retail area at least once per year, prior to the rainy season and no later than October 1 of each year.
Street Sweeping Private Streets and Parking Lots	The HOA/owner of the commercial/retail area will be responsible for sweeping all onsite private streets, drive aisles, and uncovered parking areas within the proposed Project on a quarterly basis and prior to the storm season (i.e., prior to October 1 each year).
Structural Source Control BMPs	
Provide Storm Drain System Stenciling and Signage	The phrase "NO DUMPING! DRAINS TO OCEAN," or an equally effective phrase approved by the City, will be stenciled on all major storm drain inlets within the project site to alert the public to the destination of pollutants discharged into storm water. Stencils will be in place prior to release of the certificate of occupancy. Stencils will be inspected for legibility on an annual basis and re-stenciled as necessary.
Design and Construct Trash and Waste Storage Areas to Reduce Pollution Introduction	All trash and waste will be stored in containers that have lids or tarps to minimize direct precipitation into the containers. Four trash enclosures will be located within the commercial area parking lot. The trash storage areas will be designed to City standards, and will be walled and roofed with gates and proper drainage per City standards.
Use Efficient Irrigation Systems and Landscape Design, Water Conservation, Smart Controllers, and Source Control	The HOA/owner of the commercial/retail area will be responsible for the installation and maintenance of all common landscape areas utilizing similar planting materials with similar water requirements to reduce excess irrigation runoff. The HOA/owner of the commercial/retail area will be responsible for implementing all efficient irrigation systems for common area landscaping, including, but not limited to, provisions for water sensors and programmable irrigation cycles. This includes smart timers, rain sensors, and moisture shut-off valves. The irrigation systems will be in conformance with water efficiency guidelines. Systems will be tested twice per year, and water used during testing/flushing will not be discharged to the storm drain system.

Table 4.6.F: Source Control BMPs

Name	Project-Specific Application
Properly Design: Dock Areas	Runoff from loading docks will not discharge into the storm drain system. Required housekeeping measures include routinely sweeping the loading dock areas and sweeping prior to October 1 each year. The loading dock areas will be kept clean of trash and debris at all times. Spills will be cleaned up immediately using dry methods.
Properly Design: Wash Water Control for Food Preparation Areas	Onsite catch basin inlets and other drainage facilities will be inspected at least once per year, prior to the start of the rainy season (October 1). Inlets and other facilities will be cleaned when the sump is 40% full and annually at a minimum.
Street Sweeping Private Streets and Parking Lots	Private streets, parking areas, and drive aisles within the proposed Project will be swept at a minimum frequency of quarterly as well as once per year prior to the storm season (i.e., no later than October 1 each year).

Source: *Preliminary Water Quality Management Plan* (Fuscoe Engineering, Inc., January 2015).
BMP = best management practice
City = City of Cypress
County = County of Orange
HOA = homeowners' association for senior residential community
PWQMP = Preliminary Water Quality Management Plan

The pre-treatment chamber in the Modular Wetlands Systems includes a catch basin inlet filter to capture trash, debris, gross solids, and sediments; a settling chamber to separate out larger solids; and a media filter cartridge for capturing fine total suspended solids (TSS), metals, nutrients, and bacteria. Runoff then flows through the wetland chamber where treatment is achieved through a variety of physical, chemical, and biological processes. As storm water passes down through the planting soil, pollutants are filtered, absorbed, biodegraded, and sequestered by the soil and plants. The discharge chamber at the end of the unit collects treated flows and discharges them into the underground detention system. The detention system has been sized to accommodate flows for a 100-year storm event to limit peak flow discharges to the undersized storm drain line within Katella Avenue. The detention system would discharge via gravity to the existing storm drain line located within Katella Avenue.

As noted in Regulatory Compliance Measure WQ-4, the proposed Project would be required to adhere to the operational requirements outlined in the DAMP and LIP under the MS4 Permit. The MS4 Permit stipulates operational requirements for new development and significant redevelopment, and the DAMP was developed by the co-permittees under the MS4 Permit to implement its requirements. The LIP was prepared by the City in accordance with the requirements in the DAMP and the MS4 Permit. The DAMP identifies BMPs, control techniques and systems, engineering methods, and other appropriate provisions to reduce the discharge of pollutants to the MEP.

As specified in the regulatory standards described in Regulatory Compliance Measures WQ-3 and WQ-4, the BMPs would be incorporated into the final project design consistent with the requirements of the County of Orange Model WQMP and TGD, as required by Chapters 13 and 14 of the City's Municipal Code; would target pollutants of concern from the project site so they do not reach receiving waters or degrade beneficial uses; and would comply with the provisions of the MS4 Permit. The inclusion of the post-construction BMPs described above would ensure that potential operational impacts related to violation of water quality standards or waste discharge requirements would be less than significant.

Threshold 4.6.2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

Construction.

Less than Significant Impact. The depth to the semi-perched groundwater within the project site is shallow (potentially less than 5 feet below ground surface). Due to the anticipated depth of excavation (an average of approximately 3 to 4 feet below existing grade), the semi-perched groundwater may be encountered during excavation. As a result, dewatering of the semi-perched groundwater may be required during construction. However, any required groundwater dewatering would be temporary, and the volume of groundwater removed would not be substantial. The semi-perched groundwater is not part of the principal aquifer that occurs within

the lowermost portion of the recent alluvium and in nearly all deposits of Pleistocene-age and some Pliocene rocks; therefore, groundwater dewatering would not lower the groundwater table level of the principal aquifer. In addition, the development of the proposed Project includes soil compaction, as well as the construction of buildings and structures that would substantially increase the impervious portion of the project site, both of which would decrease the amount of infiltration during construction. Moreover, the existing onsite infiltration rates are low so that overland runoff does not contribute substantially to groundwater recharge in the existing condition. Therefore, project construction activities would not substantially alter infiltration rates or groundwater recharge compared to the existing condition. For these reasons, construction of the proposed Project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, and the impact would be less than significant.

Operation.

Less than Significant Impact. The operation of the proposed Project would not require or involve groundwater extraction. In addition, as discussed previously, the proposed Project would increase impervious surface area within the project site, which would reduce infiltration. Specifically, the pervious area would decrease from approximately 33 acres (100 percent) to approximately 5 acres (15 percent). A small portion of onsite runoff from hardscaped areas, such as roads and sidewalks, would drain into adjacent landscaping, where it would infiltrate. Since existing, onsite infiltration rates are low, overland runoff does not contribute substantially to groundwater recharge in the existing condition. Therefore, the increase in impervious surface area would not substantially reduce infiltration of runoff to groundwater. For these reasons, the operation of the proposed Project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, and the impact would be less than significant.

Threshold 4.6.3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site

Construction.

Less than Significant Impact. As previously discussed, project grading would change onsite drainage patterns. There are no onsite streams or rivers, so project construction would not alter the course of a stream or river. During grading, excavated soil would be exposed and there would be increased potential for soil erosion compared to the existing condition. During a storm event, soil erosion and sedimentation could occur at an accelerated rate. For example, grading activities generate sediment, which has the potential to be washed into storm drains. In addition, grading and construction activities would compact soil and construction of structures would increase the impervious area within the project site, which could increase runoff and flooding during construction.

However, Regulatory Compliance Measure WQ-1 in Section 4.6.7, below, reflects that a SWPPP must be prepared for the proposed Project in compliance with the requirements of the Construction General Permit. This SWPPP would identify the construction BMPs to be implemented as part of the proposed Project to ensure that the potential for soil erosion, sedimentation, and flooding is minimized and to control the discharge of storm water runoff and associated pollutants as a result of construction activities.

The proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measure WQ-1 would ensure that the construction of the proposed Project would not substantially alter the existing drainage pattern of the project site or surrounding area in a manner that would result in substantial erosion, siltation, or flooding onsite or offsite, and the impact would be less than significant.

Operation.

Less than Significant Impact. The proposed Project would change the onsite drainage pattern by adding impervious surface areas, including buildings, private streets and sidewalks, and a commercial parking lot. However, the onsite flows within the project site would maintain the existing pattern and drain from northeast to southwest. New onsite storm drains would be constructed to convey runoff to the proposed biotreatment BMPs, into a detention chamber, and then into the existing storm drain within Katella Avenue.

In the proposed condition, approximately 85 percent of the project site would be impervious surface area and, therefore, not prone to erosion or siltation. The remaining 15 percent would be landscaped, which would minimize erosion and siltation. The project site would be designed for storm water to drain to the storm drain system. Therefore, onsite erosion and siltation would not occur with respect to the proposed Project's operation.

With respect to potential offsite erosion or siltation, under the existing condition, storm water generally drains from the northeast corner of the project site toward the southwest corner near the Katella Avenue/Enterprise Drive intersection. The existing 100-year peak flow associated with the project site is approximately 20.2 cubic feet per second (cfs). The proposed Project would increase impervious area within the project site, which could increase runoff volume and velocity from the project site. Flows from the project site currently enter a 48-inch reinforced concrete pipe (RCP) within Katella Avenue near the intersection. The existing storm drain system within Katella Avenue is undersized and, therefore, requires onsite detention (i.e., flow attenuation) until peak storm flows within the Katella Avenue storm drain system subside.

The City has determined that, based on the Katella Avenue storm drain capacity, each acre tributary to the storm drain in Katella Avenue, including the acreage within the project site, is allowed a maximum discharge rate of 0.308 cfs/acre (or 10.14 cfs for the entire project site). For consistency purposes, the City has required that all approved development projects within the area governed by the Amended Specific Plan adhere to that discharge rate. All flows in excess of 10.14 cfs must be detained onsite and metered out at the allowable discharge rate.

With respect to the proposed Project, the 100-year peak flow would be 90.16 cfs, while the allowable discharge rate is 10.14 cfs. Based on the site hydrology, basin routing calculations, and the maximum allowable discharge rate, 5 acre-feet of onsite detention is required. Therefore, the proposed Project includes, as Project Design Feature WQ-1, an underground detention system with a design detention volume of 5.3 acre-feet that would be located near the downstream end of the commercial/retail area. The proposed underground detention system is depicted on Figure 3.17 in Chapter 3.0, Project Description. As shown in Table 4.6.G, the detention system would have a maximum outflow of 7.46 cfs for a 100-year storm event, which is well below the existing peak flow and the City-established maximum rate of 10.14 cfs. Therefore, the proposed Project would not result in an increase in offsite erosion or siltation.

Table 4.6.G: Post-Development Peak Flow

Development Condition	Peak Flow (cfs)		
	2-Year Storm Event	10-Year Storm Event	100-Year Storm Event
Post-Development	29.44	57.02	90.61
Post-Development with Detention System	3.42	5.35	7.46

Source: *Preliminary Hydrology Study* (Fuscoe Engineering, Inc., February 2015).
cfs = cubic feet per second

For these reasons, the proposed Project's operational impacts related to onsite or offsite erosion and siltation as a result of an alteration in drainage patterns on the project site would be less than significant.

Threshold 4.6.4: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site

Less than Significant Impact. As discussed in detail under Threshold 4.6.3 above, the proposed Project includes an onsite storm drain and detention system (Project Design Feature WQ-1) that would reduce storm water runoff from the project site during project operation below both the existing condition and the maximum design flow determined by the City for the project site. As also discussed under Threshold 4.6.3 above, a SWPPP would be required to be prepared for the proposed Project in compliance with the requirements of the Construction General Permit (Regulatory Compliance Measure WQ-1). The SWPPP would identify the construction BMPs to be implemented as part of the proposed Project to ensure that the potential for soil erosion, sedimentation, or flooding is minimized and to control the discharge of storm water runoff as a result of construction activities. Adherence to the regulatory standards described in Regulatory Compliance Measure WQ-1 and the implementation of Project Design Feature WQ-1 (which would reduce peak flow to the downstream storm drain system below the existing peak flow) would ensure that potential construction and operational impacts related to onsite or offsite flooding from an alteration in drainage patterns would be less than significant.

Threshold 4.6.5: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff

Construction.

Less than Significant Impact. Construction of the proposed Project has the potential to introduce pollutants from erosion, siltation, and accidental spills. In addition, the compaction of soil during grading and the construction of buildings and structures would increase the impervious area within the project site, which could increase runoff during construction. However, as previously discussed, Regulatory Compliance Measure WQ-1 reflects that the preparation of a SWPPP to identify construction BMPs must be implemented during project construction in order to reduce impacts to water quality, including those impacts associated with soil erosion, siltation, spills, and increased runoff.

As also discussed previously, groundwater dewatering may be required during construction. Since groundwater dewatering during construction activities would be temporary, and because the volume of groundwater removed would not be substantial, the discharge of dewatered groundwater would not exceed the capacity of the storm drain system. In addition, groundwater may contain high levels of TDS, color, nitrates, or other constituents that could be introduced to surface waters. However, Regulatory Compliance Measure WQ-2 reflects that any groundwater dewatering during excavation would be conducted in accordance with the Groundwater Discharge Permit, which would require testing and treatment (as necessary) of groundwater encountered during dewatering or groundwater well construction prior to release.

The proposed Project's adherence to the regulatory requirements described in Regulatory Compliance Measures WQ-1 and WQ-2 would ensure that the proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, so that the impacts would be less than significant.

Operation.

Less than Significant Impact. As previously discussed under Threshold 4.6.3, the proposed Project would increase impervious surface area, which could increase runoff from the project site. However, based on the capacity of the existing storm drain system in Katella Avenue, runoff from the project site must be detained on the project site before entering the off-site storm drain system. To ensure that the capacity of the storm drain system is not exceeded, the City allows a maximum of 0.308 cfs per acre-foot of development to be discharged from the project site to the Katella Avenue storm drain line. Based on this standard, a maximum of 10.14 cfs (or 0.31 cfs/acre) can be discharged to the Katella Avenue storm drain line from the project site. As shown in Table 4.6.G, the proposed underground detention system (Project Design Feature WQ-1) would reduce offsite discharge to the City storm drain system to a maximum outflow rate of 7.46 cfs for a 100-year storm event, which is substantially less than the current peak flow or the City-established maximum design outflow of 10.14 cfs for the project site. Therefore, the proposed Project would not create or contribute runoff water that would exceed the capacity of an existing or planned storm water drainage system.

In addition, as previously discussed under Threshold 4.6.1, the proposed Project includes site design, source control, and LID BMPs with respect to project operation and incorporated into the project design, as reflected in Regulatory Compliance Measures WQ-3 and WQ-4. The inclusion of those operational BMPs would ensure that the proposed Project would not substantially increase polluted runoff.

For these reasons, the proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, and the impacts would be less than significant.

Threshold 4.6.6: Otherwise substantially degrade water quality

Less than Significant Impact. As discussed in detail under Threshold 4.6.1 above, Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 reflect that (1) the proposed Project must comply with the Construction General Permit (including preparation and implementation of a SWPPP), (2) the proposed Project must comply with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), (3) a WQMP must be prepared and BMPs implemented and maintained that target pollutants of concern in runoff from the project site; and (4) the proposed Project must comply with the MS4 Permit. As also discussed in detail under Threshold 4.6.1 above, the proposed onsite detention system (Project Design Feature WQ-1) would include Modular Wetland Systems for biotreatment of storm water runoff. The proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 and Project Design Feature WQ-1 would ensure that potential construction and operational impacts related to degradation of water quality would be less than significant.

Threshold 4.6.11: Result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash)

Less than Significant Impact. As discussed in detail under Threshold 4.6.1 above, adherence to the regulatory standards described in Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4, which include compliance with the Construction General Permit (including preparation and implementation of a SWPPP), compliance with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), preparation of a WQMP, implementation and maintenance of BMPs that target pollutants of concern in runoff from the project site, and compliance with the MS4 Permit, would reduce impacts related to potential pollutant discharges to receiving waters. As also discussed in detail under Threshold 4.6.1 above, the proposed onsite detention system (Project Design Feature WQ-1) would include Modular Wetland Systems for biotreatment of storm water runoff. Adherence to the regulatory standards described in these Regulatory Compliance Measures and implementation of Project Design Feature WQ-1 would ensure that potential construction and operational impacts related to increased pollutant discharges to receiving waters would be less than significant.

Threshold 4.6.12: Result in significant alteration of receiving water quality during or following construction

Less than Significant Impact. As discussed in detail under Threshold 4.6.1 above, Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 reflect that compliance with the Construction General Permit (including preparation and implementation of a SWPPP), compliance with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), preparation of a WQMP, implementation and maintenance of BMPs that target pollutants of concern in runoff from the project site, and compliance with the MS4 Permit would all be required, which would reduce impacts related to alteration of receiving water quality. As also discussed in detail under Threshold 4.6.1 above, the proposed onsite detention system (Project Design Feature WQ-1) would include Modular Wetland Systems for biotreatment of storm water runoff. Adherence to the regulatory standards described in these Regulatory Compliance Measures and implementation of Project Design Feature WQ-1 would ensure that potential construction and operational impacts related to alteration of receiving water quality would be less than significant.

Threshold 4.6.13: Could the proposed project result in increased erosion downstream

Less than Significant Impact. As discussed in detail under Threshold 4.6.3 above, Regulatory Compliance Measure WQ-1 reflects that the preparation of a SWPPP, which would identify erosion and sediment control BMPs for the proposed Project, would reduce impacts related to erosion during construction. As also discussed in detail in Threshold 4.6.3, the proposed onsite detention system (Project Design Feature WQ-1) would reduce peak flow to the downstream storm drain system to well below the existing peak flow and the City-established maximum design flow assigned to the project site. As a result, the proposed Project would not result in an increase in off-site erosion or siltation. Adherence to the regulatory standards described in Regulatory Compliance Measure WQ-1 and implementation of Project Design Feature WQ-1 would ensure that potential construction and operational impacts related to increased downstream erosion would be less than significant.

Threshold 4.6.14: Result in increased impervious surfaces and associated increased runoff

Less than Significant Impact. As discussed in detail under Threshold 4.6.5 above, Regulatory Compliance Measures WQ-1 and WQ-2 reflect that compliance with the Construction General Permit and Groundwater Discharge Permit and implementation of BMPs would be required, which would reduce impacts related to the increase in impervious surfaces and associated increased runoff. As also discussed in detail under Threshold 4.6.5, the proposed onsite detention system described as Project Design Feature WQ-1 would reduce peak flow to the downstream storm drain system to well below the existing peak flow and the City-established maximum design flow assigned to the project site. Adherence to the regulatory standards described in these Regulatory Compliance Measures and implementation of Project Design Feature WQ-1 would ensure that potential construction and operational impacts related to increased impervious surfaces and associated increased runoff would be less than significant.

Threshold 4.6.15: Create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes

Less than Significant Impact. As discussed in detail under Threshold 4.6.3 above, Regulatory Compliance Measure WQ-1 reflects that the preparation of a SWPPP, which would identify construction BMPs for the proposed Project, would reduce impacts to flooding during construction. As also discussed in detail in Threshold 4.6.3, the proposed onsite detention system described as Project Design Feature WQ-1 would reduce peak flow to the downstream storm drain system to well below the existing peak flow and the City-established maximum design flow assigned to the project site. Adherence to the regulatory standards described in Regulatory Compliance Measure WQ-1 and implementation of Project Design Feature WQ-1 would ensure that potential construction and operational impacts to drainage patterns due to changes in runoff flow rates and volumes would be less than significant.

Threshold 4.6.16: Be tributary to an already impaired water body, as listed on the Clean Water Act Section 303 (d) list? If so, can it result in an increase in any pollutant for which the water body is already impaired

The project site is tributary to several designated impaired water bodies (Coyote Creek, the San Gabriel River, the San Gabriel River Estuary, and San Pedro Bay). Coyote Creek is impaired for ammonia, dissolved copper, diazinon, bacteria/pathogens, lead, toxicity, and pH. Reach 1 of the San Gabriel River is impaired for coliform bacteria and pH. The San Gabriel River Estuary is impaired for copper, dioxin, nickel, and dissolved oxygen. The San Pedro Bay Near/Offshore zones are impaired for chlordane, DDT (tissue and sediment), PCBs, and sediment toxicity. There is an existing TMDL for metals and selenium for the San Gabriel River.

Construction.

Less than Significant Impact. Pollutants of concern associated with construction activities include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction, these pollutants could potentially be spilled or leaked and have the potential to contribute to the ammonia, metals, toxicity, and pH impairments. Selenium is a naturally occurring element in soil and groundwater in the region. During construction, soil erosion and groundwater dewatering could contribute to the selenium impairment if selenium is present on the project site.

Construction of the proposed Project would not contribute to the existing dioxin impairment in the San Gabriel River Estuary, the existing diazinon impairment in Coyote Creek, or the existing chlordane, DDT, and PCB impairments in San Pedro Bay and near/offshore zones because they are not pollutants of concern in runoff from the proposed Project and, therefore, have no potential to be introduced to receiving waters during construction. Because dioxin, diazinon, chlordane, DDT, and PCBs do not have a potential to occur on the project site and will not be used or produced during construction activities, there is no potential for construction of the proposed Project to contribute to these receiving water impairments.

Regulatory Compliance Measure WQ-1 in Section 4.6.7, below, reflects that a SWPPP must be prepared for the proposed Project in compliance with the requirements of the Construction General Permit. The SWPPP would identify the construction BMPs to be implemented as part of the proposed Project to minimize erosion and prevent spills with respect to pollutants of concern. The construction BMPs would be designed to retain sediment and other pollutants onsite so they would not reach receiving waters. Moreover, Regulatory Compliance Measure WQ-2 reflects that any groundwater dewatering would be conducted in accordance with the Groundwater Discharge Permit, which would require testing and treatment (as necessary) of groundwater encountered during dewatering or groundwater well construction prior to release. The proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measures WQ-1 and WQ-2 would ensure that the proposed Project would not materially increase the existing ammonia, metals, toxicity, pH, or selenium impairments.

Enterococcus, fecal coliform, and total coliform would have the potential to be introduced to the downstream receiving water from fecal matter. However, as part of the good housekeeping BMPs that would be identified in the SWPPP to prevent spills, leaks, and discharge of construction debris and waste into receiving waters, construction workers would be provided access to portable toilets. Portable toilets would be located in the staging areas, which would be located in areas where pollutants would not have the potential to be washed into the storm drain system. In addition, disposal of waste from the portable toilets would be performed by contracted waste haulers who would handle, haul away, and properly dispose of portable toilet waste in accordance with applicable regulations. Therefore, construction of the proposed Project would not contribute to the bacteria/pathogens or coliform bacteria impairments.

The proposed Project's adherence to the regulatory standards described in Regulatory Compliance Measures WQ-1 and WQ-2 would ensure that the proposed Project would not result in an increase in any pollutant for which the water body is already impaired, and the impact would, therefore, be less than significant.

Operation.

Less than Significant Impact. With respect to operation of the proposed Project, pollutants of concern include suspended solids/sediments, nutrients, heavy metals, pathogens, pesticides, oil and grease, toxic organic compounds, and trash and debris. As described above, diazinon, dioxin, chlordane, DDT, and PCBs are not pollutants of concern for the proposed Project; therefore, project operation would not contribute to these existing impairments.

Because nutrients, heavy metals, pathogens, and toxic organic compounds are pollutants of concern for the proposed Project, the proposed Project's operation has the potential to contribute to the ammonia, metals, toxicity, pH, and pathogens/bacteria impairments. In addition, selenium is a naturally occurring element that may be present in the suspended solids/sediments in runoff from the project site. However, source control, site design, and LID BMPs have been incorporated into the project design to treat storm water runoff and reduce pollutants of concern prior to discharge into the storm drain system. The BMPs would target pollutants of concern from the project site so that runoff from the site would not contribute to the existing impairments. Specifically, the Modular Wetland Systems have been determined to have high treatment

effectiveness for oil and grease, trash and debris, and suspended solids/sediments, and medium-high treatment effectiveness for nutrients, metals, pathogens/bacteria, and toxic organic compounds.

The implementation of these BMPs, as reflected in Regulatory Compliance Measures WQ-3 and WQ-4, would ensure that project operation would not result in an increase in any pollutant for which the water body is already impaired, and the impact would, therefore, be less than significant.

Threshold 4.6.18: Have a potentially significant environmental impact on surface water quality to either marine, fresh, or wetland waters

Less than Significant Impact. As discussed in detail under Threshold 4.6.1 above, Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 reflect that compliance with the Construction General Permit (including preparation and implementation of a SWPPP), compliance with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), preparation of a WQMP, implementation and maintenance of BMPs that target pollutants of concern in runoff from the project site, and compliance with the MS4 Permit would all be required, which would reduce impacts related to surface water quality. Adherence to the regulatory standards described in these Regulatory Compliance Measures would ensure that potential construction and operational impacts related to surface water quality of marine, fresh, or wetland waters would be less than significant.

Threshold 4.6.19: Have a potentially significant adverse impact on groundwater quality

Less than Significant Impact. As discussed in detail under Threshold 4.6.1 above, Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 reflect that compliance with the Construction General Permit (including preparation and implementation of a SWPPP), compliance with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), preparation of a WQMP, implementation and maintenance of BMPs that target pollutants of concern in runoff from the project site, and compliance with the MS4 Permit would all be required. Adherence to the regulatory standards described in these Regulatory Compliance Measures would ensure that potential construction and operational impacts to groundwater quality would be less than significant.

Threshold 4.6.20: Cause or contribute to an exceeded applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses

Less than Significant Impact. As discussed in detail in Threshold 4.6.1 above, Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 reflect that compliance with the Construction General Permit (including preparation and implementation of a SWPPP), compliance with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), preparation of a WQMP, implementation and maintenance of BMPs that target pollutants of concern in runoff from the project site, and compliance with the MS4 Permit would all be required. Adherence to the regulatory standards described in these Regulatory Compliance Measures would ensure that

potential construction and operational impacts to water quality objectives and beneficial uses would be less than significant.

Threshold 4.6.21: Impact aquatic, wetland, or riparian habitat

Less than Significant Impact. As discussed in Section 4.3, Biological Resources, the project site does not contain any natural lakes, streams, riparian habitat, or wetlands. The analysis in the IS determined that the proposed Project's impacts with respect to wetlands and riparian habitat would be clearly insignificant and unlikely to occur. Therefore, the biological impacts relating to those thresholds were not considered further in Section 4.3, Biological Resources, of this Draft EIR. In any event, as discussed in detail in Threshold 4.6.1 above, Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 reflect that compliance with the Construction General Permit (including preparation and implementation of a SWPPP), compliance with the Groundwater Discharge Permit (including testing and treatment of dewatered groundwater), preparation of a WQMP, implementation and maintenance of BMPs that target pollutants of concern in runoff from the project site, and compliance with the MS4 Permit would all be required. Adherence to the regulatory standards described in these Regulatory Compliance Measures would ensure that potential construction and operational impacts to aquatic, wetland, or riparian habitat from changes in water quality would be less than significant.

Threshold 4.6.22: Would the project include new or retrofitted stormwater treatment control Best Management Practices

Less than Significant Impact. As previously discussed under Thresholds 4.6.1 and 4.6.3, the required site treatment BMP is Modular Wetland Systems and the proposed Project includes an underground detention system (Project Design Feature WQ-1). These BMPs are discussed in the impact analyses throughout this Draft EIR. Therefore, the BMPs would not result in additional impacts not already evaluated in this Draft EIR. Given that the BMPs would be designed, inspected, and maintained to reduce impacts to water quality and hydrology, the proposed Project's impact for which storm water BMPs would be implemented would be less than significant.

4.6.7 Regulatory Compliance Measures and Project Design Features

The following regulatory compliance measures are existing regulatory requirements. The proposed Project would comply with the following regulatory standards, the implementation of which is intended to reduce impacts related to water quality and hydrology:

Regulatory Compliance Measure WQ-1: **NPDES Construction General Permit.** Prior to the first grading permit for the proposed Project, the project applicant shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, Permit No. CAS000002, as

amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit) or subsequent permit. The project applicant shall provide the Waste Discharge Identification Number to the City Engineer, or designee, to demonstrate proof of coverage under the Construction General Permit. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the proposed Project in compliance with the requirements of the Construction General Permit. The SWPPP shall identify construction best management practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in storm water runoff as a result of construction activities.

Regulatory Compliance Measure WQ-2: **Groundwater Discharge Permit.** If groundwater dewatering during excavation for the proposed Project is required, then with respect to such dewatering the project applicant shall comply with the requirements of the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Groundwater Discharge Permit) (Order No. R8-2009-0003, NPDES No. CAG998001) or subsequent permit. The project applicant shall comply with all applicable provisions in the permit, including water sampling, analysis, and reporting of dewatering-related discharges. The project applicant shall submit a Notice of Intent for coverage under the permit to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 45 days prior to the start of dewatering. Groundwater discharge shall not commence until an authorization letter is received from the Santa Ana RWQCB. Upon completion of groundwater dewatering activities, the project applicant shall submit a Notice of Termination to the Santa Ana RWQCB.

Regulatory Compliance Measure WQ-3: **Water Quality Management Plan.** The final Water Quality Management Plan (WQMP) for the proposed Project shall be substantially consistent with the Preliminary WQMP (PWQMP) for the Project (Fuscoe Engineering, Inc., revised January 16, 2015) and shall include all of the site design, biotreatment and nonstructural and structural source control BMPs described in the final WQMP.

Regulatory Compliance Measure WQ-4: **Municipal NPDES Permit (MS4 Permit).** Prior to the issuance of the first grading permit for the proposed Project, the project applicant shall demonstrate adherence to the operational requirements outlined in the Drainage Area Management Plan (DAMP) and Local Implementation Plan (LIP) under the Municipal NPDES Permit for the North Orange County Region (Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff, Orange County [MS4 Permit, Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062]).

The following Project Design Feature, as identified in Chapter 3.0 of this Draft EIR, has been incorporated into the project design to reduce or lessen potential water quality and hydrology impacts.

Project Design Feature WQ-1: **Underground Storm Water Detention Basin.** The proposed Project would include an underground storm water detention system located beneath the proposed commercial/retail area near Katella Avenue. The detention system would have a design detention volume of 5.3 acre-feet and be sized to accommodate flows for the 100-year storm event to limit peak flow discharges to the storm drain within Katella Avenue. The underground detention system would discharge via gravity to the existing storm drain line located within Katella Avenue at a controlled rate, per City of Cypress standards.

4.6.8 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measures WQ-1, WQ-2, WQ-3, and WQ-4 and the incorporation of Project Design Feature WQ-1, the proposed Project would not result in any significant adverse impacts related to hydrology or water quality, and no mitigation measures are required.

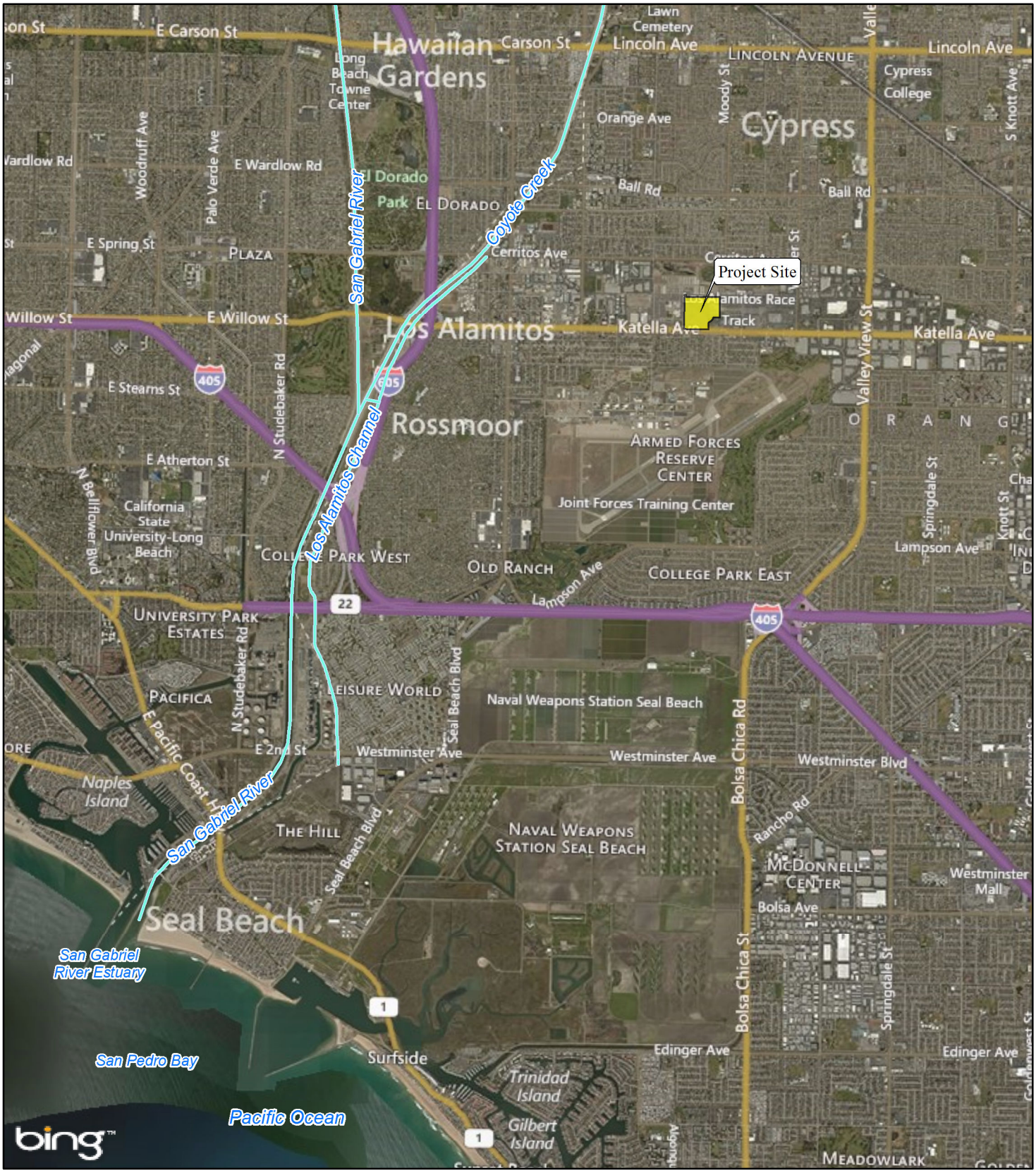
4.6.9 Cumulative Impacts

The project site is located within the San Gabriel River-Coyote Creek Watershed. Therefore, the relevant cumulative area with respect to hydrology and water quality impacts is the San Gabriel River-Coyote Creek Watershed. Each of the related projects could potentially increase the volume of storm water runoff and contribute to pollutant loading in storm water runoff reaching both the City's storm drain system and Coyote Creek, resulting in cumulative impacts to hydrology and surface water quality.

However, as with the proposed Project, each of the related projects would be subject to NPDES and MS4 Permit requirements (Regulatory Compliance Measures WQ-1 and WQ-4) for both construction and operation. The preparation and approval of a SWPPP and WQMP would be required for each related project to determine appropriate BMPs to minimize water quality impacts. In addition, the preparation and approval of a hydrology study would be required to determine the hydrologic control required to minimize increases in runoff from each site so they do not exceed existing conditions and/or the design flow assigned to each site. As one example, the Mackay Place Specific Plan project would incorporate a number of hydrologic source control and infiltration BMPs, including permeable concrete pavers, porous landscaping, and a water quality basin, as well as several nonstructural source control BMPs, including ongoing litter control and inspections of catch basins in common areas, and street sweeping, all of which would minimize water quality and hydrologic impacts. In addition, the City Department of Public Works reviews all development projects on a case-by-case basis to ensure that sufficient local and regional drainage capacity is available. Therefore, the cumulative hydrology and water quality impacts of the proposed Project and the related projects would be less than significant and the proposed Project's incremental hydrology and water quality impacts would not be cumulatively considerable.

4.6.10 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to hydrology or water quality.



LSA

LEGEND

Project Site

Surface Waters

FIGURE 4.6.1

0 2500 5000
FEET

SOURCE: Bing Maps (2014); National Hydrography Dataset (2013)

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Barton Place

Surface Waters

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4.7 NOISE

4.7.1 Introduction

This section evaluates the potential short-term and long-term noise impacts associated with the construction and operation of the proposed Project. This section is based in part on information provided in the Noise Element (2000) of the City's General Plan, the Amended Specific Plan, and the *Barton Place Noise Impact Analysis* (Urban Crossroads, Inc., April 2015) (Noise Report) (Appendix H).

Characteristics of Sound. Noise is usually defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health.

To the human ear, sound has two important characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. In analyzing the potential noise impacts of a proposed project, the existing noise environment in the vicinity of the project site is identified and the potential noise effects of the project are evaluated in terms of sound intensity and the effect on adjacent sensitive land uses.

Measurement of Sound. Sound intensity is measured through the A-weighted decibel (dBA) scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels (dB) are measured on a logarithmic scale representing points on a sharply rising curve. Each interval of 10 dB indicates a sound energy 10 times greater than before. For example, 10 dB is 10 times more intense than 1 dB, 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Thirty dB represents 1,000 times as much acoustic energy as 1 dB. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is applicable to noise generated by stationary equipment. If noise is produced by a line source (which approximates the effect of several point sources), such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance from the line source.

There are many ways to rate noise for various time periods. Appropriate rating scales for ambient noise affecting people also account for the annoying effects of sound. In California, the predominant rating scales are the equivalent continuous sound level (L_{eq}) and the Community Noise Equivalent level (CNEL) or the day-night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a weighting factor of 5 dBA applied to the hourly L_{eq} for noises occurring from 7:00 PM to 10:00 PM (defined as relaxation hours) and with a weighting factor of 10 dBA from 10:00 PM to 7:00 AM (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are normally interchangeable and yield measurements within 1 dBA of each other.

Other noise rating scales used when assessing the annoyance factor of noise include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. Short-term noise impacts are specified in terms of maximum levels denoted by L_{max}. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise. For enforcement purposes, it is often used with another noise scale (or noise standards in terms of percentile noise levels) in noise ordinances. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period.

Vibration. According to the United States Department of Transportation (USDOT) Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment, vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency. Vibration is often described in units of velocity (inches per second) and discussed in decibel units in order to compress the range of numbers required to describe vibration. Vibration impacts are generally associated with activities such as train operations, construction, and heavy truck movements.

The background vibration velocity level in residential areas is generally 50 vibration velocity decibels (VdB). Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The relevant range of vibration for the purposes of this analysis is from approximately 50 VdB, the typical background vibration velocity level, to 100 VdB, the general threshold where minor damage can occur in fragile buildings.

Section 2 of the Noise Report provides additional information about the fundamentals of noise.

4.7.2 Methodology

To assess the existing noise level environment, six noise level measurements were taken at locations in the vicinity of the project site. The locations were selected to describe and document the existing noise environment in the vicinity of the project site without and with the noise associated with the activities at the Los Alamitos Race Course and with traffic on adjacent roadways. Noise level measurements were collected by Urban Crossroads, Inc. on Thursday, February 19, through Sunday, February 22, 2015. Section 5 of the Noise Report provides additional information about the methodology used to measure the existing noise conditions.

The Noise Report compares new noise levels generated by the proposed Project to the existing environment noise level (i.e., ambient environment) and determines whether that level of change could be considered substantial. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. With this in mind, the Federal Interagency Committee on Noise (FICON) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level. The FICON recommendations apply to measurements of noise levels on sensitive land uses and receivers.

In addition, to analyze noise impacts originating from a designated fixed location or private property such as the proposed Project, stationary-source (operational) noise, such as loading dock activities, rooftop air conditioning units, and parking lot traffic movement, is typically evaluated against standards established under a city's municipal code. Although the project site is located in the City of Cypress, sensitive receivers are located in the adjacent City of Los Alamitos. Therefore, the Noise Report applied both the City of Cypress and City of Los Alamitos noise standards.

More specifically, the Noise Report assessed the potential noise impacts associated with construction and operation of the proposed Project based on several methods that apply to stationary and vehicular noise sources. The Noise Report also assessed vibration impacts from the proposed Project and the potential impacts from the Los Alamitos Race Course on future uses on the project site.

For construction impacts, the City of Cypress does not specify construction noise level limits because its Municipal Code, Section 13-70 (e), states that "[n]oise sources 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, before 9:00 a.m. and after 8:00 p.m. on Saturday, or at any time on Sunday or a federal holiday" are exempt from the provisions of the noise ordinance. However, to provide a conservative analysis, the Noise Report applied an anytime maximum permitted exterior noise level for the residential receivers in the City of Cypress as the acceptable threshold for determining the impacts due to project construction for sensitive receivers in the City. Because the City of Cypress has identified a maximum permitted exterior noise level to control operational noise levels, this represents a reasonable method and threshold of significance to evaluate potential construction noise level impacts. Sensitive receivers in the vicinity of the project site are also located in the City of Los Alamitos. The City of Los Alamitos Municipal Code, Section 17.24.020 (D), also states that construction activities are considered exempt if limited to the permitted hours between 7:00 AM to 8:00 PM on weekdays and Saturdays, with no activity on Sundays or federal holidays. However, to provide a conservative analysis, the Noise Report applied the maximum permitted noise level limit to assess the project-related construction noise level impacts at receivers in the City of Los Alamitos.

For operational impacts, the Noise Report assessed traffic noise and stationary-source noise. The estimated roadway noise impacts from traffic were calculated using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108), which represents standard industry practice for traffic noise contour modeling. The FHWA model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California, the national REMELs are substituted with the California Vehicle Noise (Calveno) emission levels. Adjustments are then made to the REMELs to account for: the roadway classification (e.g., collector, secondary, major, or arterial); the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway); the total average daily traffic (ADT); the travel speed; the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume; the roadway grade; the angle of the view (e.g., whether the roadway view is blocked); the site conditions ("hard" or "soft," which relates to the absorption of the ground, pavement, or landscaping); and the percentage of total ADT that flows each hour throughout a 24-hour period. To assess the operational stationary-source noise impacts, sample reference noise level measurements were collected from similar types of activities, including loading docks, rooftop air conditioning units, parking lot vehicle movement, and trash compactors. The sample reference noise level measurements represent the noise levels expected with the development of the proposed Project.

Regarding vibration, the Noise Report assessed ground-borne vibration from vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way and rarely results in vibration levels that cause damage to buildings in the vicinity. However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Representative ground vibration levels associated with various types of construction equipment, which are based on the applied vibration assessment methods defined by the FTA and its methodology, are summarized in Table 6-7 of the Noise Report.

Finally, the Noise Report analyzed the onsite stationary noise impacts (to future uses on the project site) during peak race course activity at the Los Alamitos Race Course by evaluating public address (P.A.) system speakerphones, horse trailer trucks and cars operating adjacent to the project site, parking lot vehicle movement, and an existing water pump adjacent to the northeast corner of the project site. The Noise Report contains additional detailed information regarding the methodologies used to measure the existing noise levels and analyze the noise sources associated with the proposed Project.

4.7.3 Existing Environmental Setting

Existing Project Site and Vicinity. The project site is generally located north of Katella Avenue and east of Enterprise Drive in the City of Cypress. The project site is located immediately north of the City of Los Alamitos boundary and approximately 1 mile northwest of the City of Garden Grove. Interstate 605 (I-605) is located approximately 2 miles west of the project site, and State Route 22 (SR-22) and Interstate 405 (I-405) are located approximately 3 miles south. The Joint Forces Training Base (JFTB), Los Alamitos army airfield is located approximately 0.27 mile south of the project site. To the east of the project site is an existing water pump, a surface parking area for the Los Alamitos

Race Course, a small two-story church, and a four-story hotel (Residence Inn Hotel). To the south, on the south side of Katella Avenue, there is an existing motel (Don's Turf Motel) and commercial and multifamily residential uses, behind which are single-family residences. To the west of the project site is the Cottonwood Church campus across Enterprise Drive.

The project site is currently vacant. Existing land uses in the vicinity of the project site include the former railroad property to the north, which is currently vacant. Beyond that are one-story horse barns occupied by quarter horses and thoroughbred horses, including equipment associated with the Los Alamitos Race Course. The Race Course, located north and northeast of the project site, conducts regular year-round quarter horse races Fridays through Sundays, starting at 7:00 PM on Fridays, 6:00 PM on Saturdays, and 5:00 PM on Sundays. The final post times, or the last race of each night, are approximately 10:30 PM on Fridays, 9:45 PM on Saturdays, and 8:45 PM on Sundays. In addition, three annual thoroughbred events are scheduled for July 2–27, September 10–27, and December 3–20. Thoroughbred races take place Thursday through Sunday, beginning at noon each day and lasting approximately 2 to 3 hours each.

Noise sources in the area include, but are not limited to: traffic from Katella Avenue; activities at the Los Alamitos Race Course; operation of the water pump adjacent to the northeast corner of the project site; parking lot vehicle movements, loading dock activities, rooftop air conditioning units and a trash compactor associated with the retail center with Office Depot located east of the project site; and rooftop air conditioning units and parking lot vehicle movements from the nearby churches and hotel.

Existing Noise Levels. The noise level measurements were taken at several locations (shown on Figure 4.7.1) to assess the existing ambient noise levels surrounding the project site. Collecting reference ambient noise level measurements at receiver locations allows for a comparison of the before and after project construction noise levels. The noise measurements presented in Table 4.7.A below represent existing conditions.

The background ambient noise levels in the project study area are dominated by the transportation-related noise associated with the arterial roadway network and the stationary noise sources associated with the Los Alamitos Race Course. This includes the automobile and truck activities near the noise level measurement locations as well as the stationary noise sources from Los Alamitos Race Course, such as the P.A. system speakerphones, horse trailer trucks and cars operating adjacent to the project site, and parking lot vehicle movements. Additional stationary noise sources described by the noise level measurements include the existing water pump adjacent to the northeast corner of the project site, parking lot vehicle movements, loading dock activities, rooftop air conditioning units and trash compactors associated with the retail center with Office Depot located east of the project site, and rooftop air conditioning units and parking lot vehicle movements from the nearby churches and hotel. In addition, the Noise Report assessed existing traffic noise levels on 18 roadway segments surrounding the proposed Project based on the average daily traffic volumes. Table 4.7.B below presents the existing noise contours.

Table 4.7.A: 24-Hour Ambient Noise Level Measurements

Location[1]	City	Description	Hourly Noise Level (dBA L_{50})[2] Daytime	Nighttime	CNEL	Noise Level Compliance?[3]
LT1	Cypress	Located within the northwest corner of the project site along Enterprise Drive.	50.5	47.2	56.7	Yes
LT2		Located within the project site along the northern property line, south of the existing horse stables of the Los Alamitos Race Course.	50.5	43.8	57.6	Yes
LT3		Located within the northeast corner of the project site, south and west of the Los Alamitos Race Course horse stables.	49.8	47.4	59.7	Yes
LT4		Located along the eastern project site boundary, west of an existing church and north of an existing hotel.	48.4	48.3	58.2	Yes
LT5		Located within the project site along the western property line across Enterprise Drive from an existing church.	51.9	49.1	58.7	Yes
LT6		Located within the project site at the future separation between the residential and commercial land uses of the proposed Project.	50.9	47.2	56.8	Yes

Source: *Barton Place Noise Impact Analysis*, Table 5-1, Urban Crossroads, Inc. (April 2015) (Appendix H).
Note: "Daytime" = 7:00 AM to 10:00 PM; "Nighttime" = 10:00 PM to 7:00 AM.
1 See Figure 4.7.1 for the noise level measurement locations.
2 The long-term 24-hour measurement printouts are included in Appendix 5.2 to the Noise Report.
3 Do the existing ambient noise levels satisfy the City of Cypress noise standards as discussed in Section 3?

Table 4.7.B: Existing (2015) Without Project Conditions Noise Contours

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)	Distance to Contour from Centerline (feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Cerritos Ave.	e/o Los Alamitos Blvd.	Community & Institutional	68.4	RW	102	219
2	Cerritos Ave.	e/o Bloomfield St.	Medium-Density Residential	69.5	RW	101	217
3	Cerritos Ave.	e/o Denni St.	Low-Density Residential	70.7	56	121	260
4	Cerritos Ave.	e/o Moody St.	Low-Density Residential	70.7	56	121	260
5	Cerritos Ave.	e/o Walker St.	Low-Density Residential	70.8	57	122	262
6	Katella Ave.	e/o I-605 NB Ramps	Suburban Residential	72.6	90	194	417
7	Katella Ave.	e/o Los Alamitos Blvd.	Professional Office	71.2	72	155	333
8	Katella Ave.	e/o Bloomfield St.	Community & Institutional	70.8	68	147	317
9	Katella Ave.	e/o Lexington Dr.	Single-Family Residential	72.4	86	185	400
10	Katella Ave.	e/o Enterprise Dr.	Single-Family Residential	72.4	86	185	400
11	Katella Ave.	e/o Siboney St.	Single-Family Residential	72.1	83	179	385
12	Katella Ave.	e/o Winners Cir.	Professional Office	72.1	83	179	385
13	Katella Ave.	e/o Walker St.	Specific Plan	73.7	107	230	495
14	Bloomfield St.	s/o Cerritos Ave.	Community & Institutional	66.3	RW	51	110
15	Lexington Dr.	s/o Cerritos Ave.	Golf Course	61.8	RW	RW	55
16	Walker St.	s/o Cerritos Ave.	Specific Plan	70.3	44	95	204
17	Valley View St.	s/o Cerritos Ave.	Specific Plan	73.0	95	204	439
18	Valley View St.	s/o Katella Ave.	Low-Density Residential	74.3	116	251	540

Source: B*arton Place Noise Impact Analysis*, Table 7-1, Urban Crossroads, Inc. (April 2015) (Appendix H).
[1] Per City of Cypress General Plan Land Use Policy Map and the City of Los Alamitos General Plan, Figure 3, Land Use Plan.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
e/o = east of
I-605 = Interstate 605
NB = northbound
RW = location of the respective noise contour falls within the right-of-way of the road.
s/o = south of

Offsite Receiver Locations in the Project Vicinity. To assess the potential for long-term operational and short-term construction noise impacts, the following four receiver locations (shown on Figure 4.7.2) were identified. The City defines the most predominant sensitive receivers as housing locations where considerable time is spent by individuals, where substantial activities occur outdoors, and where sleep disturbances are most likely to occur in a residential area. The City's General Plan Noise Element also considers educational facilities, churches, libraries, senior housing, and park and recreation facilities to be noise-sensitive uses. Similarly, the City of Los Alamitos General Plan Noise Element defines sensitive receptors as residences, schools, childcare facilities, religious institutions, hospitals, libraries, parks and recreational facilities, healthcare facilities, convalescent centers, and retirement homes.

Representative sensitive receivers in the vicinity of the project site include residential land uses located at receiver location R4, and churches located at receiver locations R1 and R2. Receiver location R3 represents the existing Residence Inn Hotel (which is not defined as a sensitive receiver, but is included for informational purposes) in the vicinity of the project site and is used to determine compliance with City standards. The closest sensitive residential land uses are represented by location R4 at a distance of approximately 163 feet south of the project site.

R1: Receiver Location R1 is near the Cottonwood Church along Enterprise Drive, located approximately 117 feet west of the project site boundary.

R2: Receiver Location R2 is near the Los Alamitos Seventh-Day Adventist Church, located roughly 242 feet east of the project site boundary.

R3: Receiver Location R3 is near the Residence Inn Hotel, located approximately 83 feet southeast of the project site boundary.

R4: Receiver Location R4 is approximately 163 feet south of the project site and represents the residential community south of Katella Avenue in the City of Los Alamitos.

4.7.4 Regulatory Setting

Federal Regulations and Policies.

Federal Transit Administration Vibration Standards. The USDOT FTA identifies guidelines for the maximum acceptable vibration levels for different types of land uses. These guidelines allow 80 VdB as the human perception threshold for residential uses and buildings where people normally sleep. According to the FTA, ground vibrations from construction activities do not often reach the levels that can damage structures, but they can achieve the audible and feel-able ranges in buildings very close to the site. A possible exception is the case of fragile buildings, many of them old, where special care must be taken to avoid damage. Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures, and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment, such as air compressors, light trucks, and hydraulic loaders, generates little or no ground vibration. Occasionally, large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. With no enforceable regulations in the Cities of Cypress or Los Alamitos, the FTA guideline of 80 VdB for sensitive land uses is the threshold for determining the significance of potential vibration impacts of the proposed Project.

State Regulations and Policies.

State of California Noise Requirements. The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element, which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research (OPR). The purpose of the Noise Element as defined by the OPR guidelines is to limit the exposure of the community to excessive noise levels. In addition, the *California Environmental Quality Act (CEQA) Guidelines* include thresholds of significance for analyzing environmental noise impacts.

State of California Building Code. The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24; the Building Standards Administrative Code, Part 2; and the California Building Code (which has been adopted by the City of Cypress, with modification, as the City's Building Code). These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations (Chapter 2-35, Part 2, Title 24) specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

Local and Regional Policies and Regulations.

City of Cypress General Plan. The City of Cypress has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect its citizens from excessive exposure to noise. The City's General Plan Noise Element specifies the maximum allowable unmitigated exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads.

Land Use Compatibility. The Noise and Land Use Compatibility Matrix in the City's General Plan Noise Element (provided below in Table 4.7.C) lists land use categories and the acceptable and unacceptable levels of community noise exposure. The compatibility criteria provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The Noise and Land Use Compatibility Matrix describes categories of compatibility but not specific noise standards. As shown in Table 4.7.C, according to these categories of transportation-related noise compatibility, the residential land uses are considered normally acceptable with unmitigated exterior noise levels below 60 dBA CNEL and conditionally acceptable with noise levels below 65 dBA CNEL. Business commercial land uses within the project site are considered normally acceptable with exterior noise levels of between 50 and 67.5 dBA CNEL and conditionally acceptable with noise levels below 75 dBA CNEL.

Transportation Noise Standards. The City's General Plan Noise Element provides specific interior and exterior transportation-related noise level standards for various land use categories. For noise-sensitive residential uses, the General Plan Noise Element requires transportation-related exterior noise levels to not exceed 60 dBA CNEL. The General Plan Noise Element does not identify specific transportation-related exterior noise level standards for the commercial/retail land uses. The exterior transportation noise level standards apply to outdoor living areas such as private yards and private patios or balconies that are greater than 6 feet deep. The interior transportation-related noise levels for residential land uses may not exceed 45 dBA CNEL, and the interior noise levels for commercial/retail land uses shall not exceed 55 dBA CNEL.

Table 4.7.C: Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure L_{dn} or CNEL, dB			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Unacceptable
Residential – Low-Density	50–60	60–65	65–75	75–85
Residential – Multiple-Family	50–60	60–65	65–75	75–85
Transient Lodging – Motel, Hotels	50–65	65–70	70–80	80–85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–60	60–65	65–80	80–85
Auditoriums, Concert Halls, Amphitheaters	N/A	50–65	N/A	65–85
Sports Arenas, Outdoor Spectator Sports	N/A	50–70	N/A	70–85
Playgrounds, Neighborhood Parks	50–70	N/A	70–75	75–85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–70	N/A	70–80	80–85
Office Buildings, Business Commercial and Professional	50–67.5	67.5–75	75–85	N/A
Industrial, Manufacturing, Utilities, Agriculture	50–70	70–75	75–85	N/A

Source: City of Cypress, General Plan Noise Element, Table N-2.

Notes: Normally Acceptable = Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable = New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Normally Unacceptable = New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable = New construction or development should generally not be undertaken.

CNEL = Community Noise Equivalent Level
dB = decibels
L_{dn} = day-night average level
N/A = Not Applicable

Consistent with the land use compatibility guidelines and noise standards of the City of Cypress General Plan Noise Element, the Noise Report was prepared to satisfy a transportation-related exterior noise level of less than 60 dBA CNEL and an interior noise level of less than 45 dBA CNEL for the noise-sensitive residential land uses within the proposed Project. For commercial/retail land uses within the project site, an interior noise level of less than 55 dBA CNEL is required.

City of Cypress Municipal Code.

Construction Noise Standards. The City of Cypress does not specify construction noise level limits because its Municipal Code, Section 13-70 (e), states that "[n]oise sources 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,

and before 9:00 a.m. and after 8:00 p.m. on Saturdays, or at any time on Sundays or a federal holiday" are exempt from the provisions of the Noise Ordinance.

In the absence of daytime construction noise level restrictions in the City's Municipal Code, the operational noise level limits are used to evaluate the noise levels from construction activity on the project site. The anytime maximum permitted daytime exterior noise level of 80 dBA L_{max} for the residential receivers in the City of Cypress shall be used as the acceptable threshold for determining the impacts due to construction of the proposed Project for sensitive receivers in the City.

Operational Noise Standards. The noise regulations included in the City's Municipal Code, Article VII, Noise Control, provide standards for evaluating non-transportation or stationary-source noise impacts from operations at private properties. The noise standards identified in the Municipal Code are based on noise zones specified in Section 13-67, Designated Noise Zone, which establishes Noise Zone 1 for all residential properties zoned RS-15000 or RS-6000, and Noise Zone 2 for all other residential properties. Based on the Municipal Code and the Amended Specific Plan, the project site is designated as located within Noise Zone 2.

Amended Specific Plan. Because the Amended Specific Plan supersedes any conflicting provisions in the City's Municipal Code regarding the zoning standards applicable to the proposed Project, the proposed Project would adhere to the construction hours set forth in the Amended Specific Plan. Therefore, the construction hours for the proposed Project would be limited to weekdays and Saturdays between 7:00 AM and 8:00 PM, with no activity on Sunday and holidays. These construction hours are included in the analysis below relating to Regulatory Compliance Measure N-1.

City of Los Alamitos Municipal Code. The project site is located within and under the jurisdiction of the City of Cypress. However, due to the close proximity to the City of Los Alamitos, and to present a conservative analysis, the Noise Report also applied the City of Los Alamitos noise standards to certain receptors located within that city. The City of Los Alamitos Municipal Code, Chapter 17.24, Noise, provides noise control guidelines for evaluating non-transportation or stationary-source noise impacts from operations at private properties.

Construction Noise Standards. The City of Los Alamitos Municipal Code, Section 17.24.020 (D), states that construction activities are considered exempt if limited to the permitted hours of 7:00 AM to 8:00 PM on weekdays and Saturdays, with no activity on Sundays or federal holidays. These construction hours are included in the analysis below as part of Regulatory Compliance Measure N-1. For the purposes of the noise analysis, the maximum permitted noise level limit of 75 dBA L_{max} is used to assess construction noise level impacts at receivers in the City of Los Alamitos.

Operational Noise Standards. The City of Los Alamitos Municipal Code defines exterior noise standards in Section 17.24.050 for land uses categorized in four different noise zones. As defined by the Municipal Code, Section 17.24.040, noise-sensitive residential properties are designated as Noise Zone 1, and the operational noise level limits of 55 dBA L_{50} during the daytime (7:00 AM to 10:00 PM) hours and 50 dBA L_{50} during the nighttime (10:00 PM to 7:00 AM) hours shall apply to residential uses.

4.7.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, implementation of the proposed Project would have a significant impact with respect to noise if it would result in or cause:

Threshold 4.7.1: Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

Threshold 4.7.2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

Threshold 4.7.3: A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

Threshold 4.7.4: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

Threshold 4.7.5: 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, expose people residing or working in the project area to excessive noise levels; or

Threshold 4.7.6: For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

The Initial Study (Appendix A) substantiates the determination that the proposed Project would not result in impacts associated with Thresholds 4.7.5 and 4.7.6, and that any such impacts would be clearly insignificant and unlikely to occur. As a result, those thresholds are not considered further in this Draft EIR.

In addition to the *CEQA Guidelines* Appendix G thresholds above, the quantitative noise standards in Table 4.7.D, below, are used in this analysis to evaluate construction and operational impacts related to noise and vibration.

Table 4.7.D: Summary of Noise Standards/Significance Criteria

Noise Analysis	Jurisdiction	Condition(s)	Significance Criteria Daytime	Significance Criteria Nighttime
Offsite Traffic	Cypress and Los Alamitos	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60–65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
Onsite Traffic	Cypress	Exterior residential land use	60 dBA CNEL exterior noise levels	
		Interior residential land use	45 dBA CNEL interior noise levels	
		Exterior commercial land use	55 dBA CNEL interior noise levels	
Operational	Cypress	Exterior residential land use	60 dBA L_{50}	55 dBA L_{50}
		≥ 30 minutes	60 dBA L_{50}	55 dBA L_{50}
		≥ 15 minutes	65 dBA L_{25}	60 dBA L_{25}
		≥ 5 minutes	70 dBA L_8	65 dBA L_8
		≥ 1 minute	75 dBA L_2	70 dBA L_2
		Anytime	80 dBA L_{max}	75 dBA L_{max}
		Interior residential land use	55 dBA L_8	45 dBA L_8
		≥ 5 minutes	55 dBA L_8	45 dBA L_8
		≥ 1 minute	60 dBA L_2	50 dBA L_2
		Anytime	65 dBA L_{max}	55 dBA L_{max}
	Los Alamitos	Exterior residential land use	55 dBA L_{50}	50 dBA L_{50}
		≥ 30 minutes	55 dBA L_{50}	50 dBA L_{50}
		≥ 15 minutes	60 dBA L_{25}	55 dBA L_{25}
		≥ 5 minutes	65 dBA L_8	60 dBA L_8
		≥ 1 minute	70 dBA L_2	65 dBA L_2
		Anytime	75 dBA L_{max}	70 dBA L_{max}
Construction	Cypress and Los Alamitos	Permitted hours of operation: weekdays and Saturdays between 7:00 AM and 8:00 PM; no activity on holidays		
	Cypress	Noise level threshold	80 dBA L_{max}	N/A
	Los Alamitos	Noise level threshold	75 dBA L_{max}	N/A
	Cypress and Los Alamitos	Vibration level threshold	80 VdB	N/A

Source: *Barton Place Noise Impact Analysis*, Table 4-2, Urban Crossroads, Inc. (April 2015) (Appendix H).
Note: "Daytime" = 7:00 AM–10:00 PM; "Nighttime" = 10:00 PM–7:00 AM
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
L_2 = noise level exceeded 2 percent of the time during a stated time period
L_8 = noise level exceeded 8 percent of the time during a stated time period
L_{25} = noise level exceeded 25 percent of the time during a stated time period
L_{50} = noise level exceeded half the time during a stated time period
L_{max} = maximum instantaneous noise level
N/A = Not applicable (no nighttime construction activity is permitted and, therefore, no nighttime construction noise level threshold is identified)
VdB = vibration velocity decibels

4.7.6 Project Impacts

Threshold 4.7.1: Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies

Offsite Transportation Noise Impacts.

Less than Significant Impact. The Noise Report quantified the proposed Project's traffic noise impacts on the identified sensitive receivers by calculating the changes in traffic volume and related noise levels on 18 roadway segments around the proposed Project. As discussed above, a significant offsite traffic noise level impact would occur if the without Project noise levels at nearby noise-sensitive receivers: (1) are less than 60 dBA and the proposed Project creates a readily perceptible 5 dBA or greater project-related noise level increase; (2) range from 60 to 65 dBA and the proposed Project creates a barely perceptible 3 dBA or greater project noise level increase; or (3) already exceed 65 dBA, and the proposed Project creates a community noise level impact of greater than 1.5 dBA.

Tables 4.7.E and 4.7.F below summarize the unmitigated exterior traffic noise levels for the 18 roadway segments analyzed in the without Project and with Project scenarios for the existing and Year 2018 conditions, respectively.

For existing conditions, the unmitigated without Project exterior noise levels are expected to range from 61.8 to 74.3 dBA CNEL, and the with Project noise level contours are expected to range from 62.5 to 74.3 dBA CNEL. Overall, the proposed Project is expected to generate an unmitigated exterior noise level increase of up to 0.7 dBA CNEL. Table 4.7.E below demonstrates that the proposed Project's contribution to the existing noise level is less than significant for all of the study area roadway segments.

For future conditions, the unmitigated exterior noise levels without the proposed Project are expected to range from 64.9 to 74.6 dBA CNEL, and the Year 2018 with Project conditions noise level contours that are expected to range from 65.2 to 74.6 dBA CNEL. Overall, the proposed Project is expected to generate an unmitigated exterior noise level increase of up to 0.3 dBA CNEL. Table 4.7-F below demonstrates that the proposed Project's contribution to the future noise level is less than significant for all of the study area roadway segments.

In addition, the existing with Project noise level contribution of up to 0.7 dBA CNEL is expected to decrease to 0.3 dBA CNEL by Year 2018 conditions. Stated differently, the proposed Project's incremental traffic-related noise level contributions at land uses adjacent to roadways conveying the proposed Project's traffic will diminish over time because background traffic in the study area increases over time. Thus, the proposed Project represents a smaller percentage of the overall traffic volume. In any case, the minor increases in noise levels are well below even the most stringent significance threshold of 1.5 dBA or more.

Therefore, the proposed Project will not create a substantial permanent increase in the ambient noise levels and would not expose persons to noise levels in excess of applicable standards. Offsite traffic noise impacts will be less than significant.

Table 4.7.E: Existing Without and With Project Traffic Noise Impacts (2015)

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Adjacent Land Use (dBA)			Potential Significant Impact?[2]
				No Project	With Project	Project Addition	
1	Cerritos Ave.	e/o Los Alamitos Blvd.	Community & Institutional	68.4	68.4	0.0	No
2	Cerritos Ave.	e/o Bloomfield St.	Medium-Density Residential	69.5	69.5	0.0	No
3	Cerritos Ave.	e/o Denni St.	Low-Density Residential	70.7	70.8	0.1	No
4	Cerritos Ave.	e/o Moody St.	Low-Density Residential	70.7	70.8	0.1	No
5	Cerritos Ave.	e/o Walker St.	Low-Density Residential	70.8	70.9	0.1	No
6	Katella Ave.	e/o I-605 NB Ramps	Suburban Residential	72.6	72.7	0.1	No
7	Katella Ave.	e/o Los Alamitos Blvd.	Professional Office	71.2	71.2	0.0	No
8	Katella Ave.	e/o Bloomfield St.	Community & Institutional	70.8	70.9	0.1	No
9	Katella Ave.	e/o Lexington Dr.	Single-Family Residential	72.4	72.5	0.1	No
10	Katella Ave.	e/o Enterprise Dr.	Single-Family Residential	72.4	72.5	0.1	No
11	Katella Ave.	e/o Siboney St.	Single-Family Residential	72.1	72.2	0.1	No
12	Katella Ave.	e/o Winners Cir.	Professional Office	72.1	72.2	0.1	No
13	Katella Ave.	e/o Walker St.	Specific Plan	73.7	73.8	0.1	No
14	Bloomfield St.	s/o Cerritos Ave.	Community & Institutional	66.3	66.3	0.0	No
15	Lexington Dr.	s/o Cerritos Ave.	Golf Course	61.8	62.5	0.7	No
16	Walker St.	s/o Cerritos Ave.	Specific Plan	70.3	70.4	0.1	No
17	Valley View St.	s/o Cerritos Ave.	Specific Plan	73.0	73.0	0.0	No
18	Valley View St.	s/o Katella Ave.	Low-Density Residential	74.3	74.3	0.0	No

Source: *Barton Place Noise Impact Analysis*, Table 7-5, Urban Crossroads, Inc. (April 2015) (Appendix H).

[1] City of Cypress General Plan Land Use Policy Map and City of Los Alamitos General Plan, Figure 3, Land Use Plan.

[2] Significance of Cumulative Impacts: if Project increases of 5 dBA, 3 dBA, or 1.5 dBA CNEL occur when ambient noise levels are less than 60 dBA, between 60 and 65 dBA, or greater than 65 dBA CNEL, respectively.

CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
e/o = east of
I-605 = Interstate 605
NB = northbound
s/o = south of

Table 4.7.F: With and Without Project Traffic Noise Impacts (Year 2018)

ID	Road	Segment	Adjacent Land Use[1]	CNEL at Adjacent Land Use (dBA)			Potential Significant Impact?[2]
				No Project	With Project	Project Addition	
1	Cerritos Ave.	e/o Los Alamitos Blvd.	Community & Institutional	68.8	68.8	0.0	No
2	Cerritos Ave.	e/o Bloomfield St.	Medium-Density Residential	70.0	70.0	0.0	No
3	Cerritos Ave.	e/o Denni St.	Low-Density Residential	71.1	71.2	0.1	No
4	Cerritos Ave.	e/o Moody St.	Low-Density Residential	71.1	71.2	0.1	No
5	Cerritos Ave.	e/o Walker St.	Low-Density Residential	71.2	71.3	0.1	No
6	Katella Ave.	e/o I-605 NB Ramps	Suburban Residential	72.9	72.9	0.0	No
7	Katella Ave.	e/o Los Alamitos Blvd.	Professional Office	71.6	71.6	0.0	No
8	Katella Ave.	e/o Bloomfield St.	Community & Institutional	71.2	71.3	0.1	No
9	Katella Ave.	e/o Lexington Dr.	Single-Family Residential	72.8	73.0	0.2	No
10	Katella Ave.	e/o Enterprise Dr.	Single-Family Residential	72.8	73.0	0.2	No
11	Katella Ave.	e/o Siboney St.	Single-Family Residential	72.9	73.0	0.1	No
12	Katella Ave.	e/o Winners Cir.	Professional Office	72.9	73.0	0.1	No
13	Katella Ave.	e/o Walker St.	Specific Plan	74.3	74.4	0.1	No
14	Bloomfield St.	s/o Cerritos Ave.	Community & Institutional	66.3	66.4	0.1	No
15	Lexington Dr.	s/o Cerritos Ave.	Golf Course	64.9	65.2	0.3	No
16	Walker St.	s/o Cerritos Ave.	Specific Plan	70.5	70.6	0.1	No
17	Valley View St.	s/o Cerritos Ave.	Specific Plan	73.2	73.2	0.0	No
18	Valley View St.	s/o Katella Ave.	Low-Density Residential	74.6	74.6	0.0	No

Source: *Barton Place Noise Impact Analysis*, Table 7-6, Urban Crossroads, Inc. (April 2015) (Appendix H).
[1] City of Cypress General Plan Land Use Policy Map and City of Los Alamitos General Plan, Figure 3, Land Use Plan.
[2] Significance of Cumulative Impacts: if Project increases of 5 dBA, 3 dBA, or 1.5 dBA CNEL occur when ambient noise levels are less than 60 dBA, between 60 and 65 dBA, or greater than 65 dBA CNEL, respectively.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
e/o = east of
I-605 = Interstate 605
NB = northbound
s/o = south of

Offsite Stationary Noise Impacts.

Less than Significant Impact. The Noise Report quantitatively assessed the potential noise impacts from the proposed Project's commercial/retail-related noise sources on the offsite receivers. As discussed above, the City of Cypress Municipal Code provides standards for determining stationary-source noise impacts from operations at private properties, which are generally: a daytime noise level standard of 60 dBA L_{50} and a nighttime noise level standard of 55 dBA L_{50}. Similarly, for the nearby residential land uses in the City of Los Alamitos, the standard is daytime of 55 dBA L_{50} and 50 dBA L_{50} during the nighttime.

The proposed Project commercial/retail-related noise sources are expected to include: parking lot vehicle movement, loading dock activities, and rooftop air conditioning units. The loading dock activities at the commercial/retail land use will only occur during the daytime hours of 7:00 AM to 10:00 PM. The residential portion of the proposed Project is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with residential land use.

The operational noise level calculations shown in Tables 4.7.G and 4.7.H below indicate that stationary-source noise impacts to offsite land uses from noise sources such as the parking lot vehicle movement, loading dock activities, and rooftop air conditioning units would not exceed the City of Cypress or City of Los Alamitos Municipal Codes.

Table 4.7.G: Daytime Offsite With Project Operational Noise Level Compliance

Receiver Location[1]	City	Land Use	Noise Level at Receiver Locations (dBA)[2]					Daytime Compliance[3]
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (anytime)	
R1	Cypress	Church	41.0	42.3	43.3	44.1	46.6	Yes
R2	Cypress	Church	34.9	36.4	37.7	39.1	47.1	Yes
R3	Cypress	Hotel	52.5	53.3	54.0	54.8	60.1	Yes
R4	Los Alamitos	Residential	47.7	48.8	49.8	50.7	56.5	Yes

Source: *Barton Place Noise Impact Analysis*, Table C-1, Urban Crossroads, Inc. (April 2015) (Appendix H).
Note: "Daytime" = 7:00 AM to 10:00 PM
1 See Figure 4.7.2 for the receiver and noise source locations.
2 Estimated project stationary-source noise levels as shown in Table 10-1in the Noise Report.
3 Do the estimated project stationary-source noise levels meet the City of Cypress and Los Alamitos noise standards (shown in Table 4.7.D) with respect to the affected land uses?
dBA = A-weighted decibels
min = minute

Table 4.7.H: Nighttime With Project Operational Noise Level Compliance

Receiver Location[1]	City	Land Use	Noise Level at Receiver Locations (dBA)[2]					Nighttime Compliance[3]
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (anytime)	
R1	Cypress	Church	41.0	42.3	43.3	44.1	46.6	Yes
R2	Cypress	Church	34.9	36.4	37.7	39.1	47.1	Yes
R3	Cypress	Hotel	48.5	49.9	51.1	52.2	58.9	Yes
R4	Los Alamitos	Residential	46.2	47.6	48.8	49.8	56.1	Yes

Source: *Barton Place Noise Impact Analysis*, Table C-2, Urban Crossroads, Inc. (April 2015) (Appendix H).
Note: "Nighttime" = 10:00 PM to 7:00 AM
1 See Figure 4.7.2 for the receiver and noise source locations.
2 Estimated project stationary-source noise levels as shown in Table 10-2 in the Noise Report.
3 Do the estimated project stationary-source noise levels meet the City of Cypress and Los Alamitos noise standards (shown in Table 4.7.D) with respect to the affected land uses?
dBA = A-weighted decibels
min = minute

In addition, the Noise Report analyzed the proposed Project's stationary-source operational noise combined with the existing ambient noise level at offsite receivers. As shown in Tables 4.7.I and 4.7.J, the proposed Project would contribute operational stationary-source noise level increases of up to 3.9 dBA L_{50} (daytime) and 3.7 dBA L_{50} (nighttime) at nearby offsite receiver locations. The noise level contributions of 3.9 dBA L_{50} and 3.7 dBA L_{50} at offsite receiver locations would not exceed the applicable significance criteria. Accordingly, the project-related operational noise level increases at the offsite sensitive receivers in the project study area are considered less than significant for the daytime and nighttime conditions.

Table 4.7.I: Offsite Project-Related Daytime Operational Noise Level Contributions

Location			Noise Levels (dBA)					Potential Significant Impact?[6]
Receiver[1]	Meas.	Type of Noise	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)	
R1	LT5	Project Noise Level[2]	41.0	42.3	43.3	44.1	46.6	No
		Ambient Noise Level[3]	51.9	54.1	56.7	61.1	75.3	
		Combined[4]	52.2	54.4	56.9	61.2	75.3	
		Project Contribution[5]	0.3	0.3	0.2	0.1	0.0	
R2	LT4	Project Noise Level[2]	34.9	36.4	37.7	39.1	47.1	No
		Ambient Noise Level[3]	48.4	50.2	54.7	60.5	71.5	
		Combined[4]	48.6	50.4	54.8	60.5	71.5	
		Project Contribution[5]	0.2	0.2	0.1	0.0	0.0	
R3[7]	LT6	Project Noise Level[2]	52.5	53.3	54.0	54.8	60.1	No
		Ambient Noise Level[3]	50.9	52.6	55.0	58.9	70.3	
		Combined[4]	54.8	56.0	57.6	60.3	70.7	
		Project Contribution[5]	3.9	3.4	2.6	1.4	0.4	
R4	LT6	Project Noise Level[2]	47.7	48.8	49.8	50.7	56.5	No
		Ambient Noise Level[3]	50.9	52.6	55.0	58.9	70.3	
		Combined[4]	52.6	54.1	56.1	59.5	70.5	
		Project Contribution[5]	1.7	1.5	1.1	0.6	0.2	

Source: *Barton Place Noise Impact Analysis*, Table 10-5, Urban Crossroads, Inc. (April 2015) (Appendix H).

1 See Figure 4.7.2 for the receiver and noise source locations.
2 Total operational noise levels as shown in Table 10-3 in the Noise Report.
3 Existing ambient noise level measurement locations as shown on Figure 4.7.1.
4 Represents the combined ambient conditions plus the Project activities.
5 The noise level increase expected with the addition of the proposed Project activities.
6 Significance of Cumulative Impacts (based on thresholds in Table 4.7.D).
7 Receiver location is not considered noise-sensitive by the City of Cypress General Plan Noise Element.

Table 4.7.J: Offsite Project-Related Nighttime Operation Noise Level Contributions

Location			Noise Levels (dBA)					Potential Significant Impact?[6]
Receiver[1]	Meas.	Type of Noise	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)	
R1	LT5	Project Noise Level[2]	41.0	42.3	43.3	44.1	46.6	No
		Ambient Noise Level[3]	49.1	51.1	53.6	55.8	68.5	
		Combined[4]	49.7	51.6	54.0	56.1	68.5	
		Project Contribution[5]	0.6	0.5	0.4	0.3	0.0	
R2	LT4	Project Noise Level[2]	34.9	36.4	37.7	39.1	47.1	No
		Ambient Noise Level[3]	49.8	51.3	53.0	55.9	68.7	
		Combined[4]	49.9	51.4	53.1	56.0	68.7	
		Project Contribution[5]	0.1	0.1	0.1	0.1	0.0	
R3[7]	LT6	Project Noise Level[2]	48.5	49.9	51.1	52.2	58.9	No
		Ambient Noise Level[3]	47.2	48.9	51.1	53.4	60.9	
		Combined[4]	50.9	52.4	54.1	55.9	63.0	
		Project Contribution[5]	3.7	3.5	3.0	2.5	2.1	
R4	LT6	Project Noise Level[2]	46.2	47.6	48.8	49.8	56.1	No
		Ambient Noise Level[3]	47.2	48.9	51.1	53.4	60.9	
		Combined[4]	49.7	51.3	53.1	55.0	62.1	
		Project Contribution[5]	2.5	2.4	2.0	1.6	1.2	

Source: *Barton Place Noise Impact Analysis*, Table 10-6, Urban Crossroads, Inc. (April 2015) (Appendix H).

1 See Figure 4.7.2 for the receiver and noise source locations.
2 Total operational noise levels as shown in Table 10-4 in the Noise Report.
3 Existing ambient noise level measurement locations as shown on Figure 4.7.1.
4 Represents the combined ambient conditions plus the Project activities.
5 The noise level increase expected with the addition of the proposed Project activities.
6 Significance of Cumulative Impacts (based on thresholds in Table 4.7.D).
7 Receiver location is not considered noise-sensitive by the City of Cypress General Plan Noise Element.

Therefore, the proposed Project will not create a substantial permanent increase in the ambient noise levels and would not expose persons to noise levels in excess of applicable standards. Offsite stationary-source noise impacts will be less than significant.

Onsite Traffic Noise Impacts.

Less than Significant Impact. As described in Project Design Feature N-1, the proposed Project would provide an 8-foot-high wall around the perimeter of the residential community portion of the project site. The onsite traffic noise analysis shows that with the planned perimeter wall, the exposure of persons to noise levels in excess of the standards will be less than significant based on the City of Cypress General Plan Noise Element 60 dBA CNEL standards. The perimeter wall would result in future exterior noise levels that range from 50.7 to 50.8 dBA CNEL at the residential portion of the proposed Project. No exterior noise level standards are identified in the City's General Plan Noise Element for commercial/retail land uses, but the noise analysis completed for the proposed Project indicates that the commercial/retail land uses within the project site are considered conditionally acceptable with noise levels below 75 dBA CNEL. Therefore, no exterior noise mitigation would be required. Table 4.7.K demonstrates that the onsite traffic noise levels comply with the City requirements for residential land uses.

Table 4.7.K: Onsite Traffic Exterior Noise Levels (CNEL)

Lot	Roadway	Noise Level (dBA CNEL) Without Perimeter Wall	Noise Level (dBA CNEL) with Perimeter Wall	Perimeter Wall Height (feet)	Top of Perimeter Wall Elevation (feet)
Commercial-West	Katella Ave.	65.4	N/A[1]	N/A[1]	N/A[1]
Commercial-South	Katella Ave.	69.2	N/A[1]	N/A[1]	N/A[1]
Residential-Southwest	Katella Ave.	60.7	50.7	8.0	37.9
Residential-South	Katella Ave.	60.7	50.8	8.0	39.0
Residential-Southeast	Katella Ave.	60.7	50.8	8.0	39.3

Source: *Barton Place Noise Impact Analysis*, Table C-3, Urban Crossroads, Inc. (April 2015) (Appendix H).
[1] Commercial buildings do not include any outdoor environments requiring exterior noise mitigation based on the Interior and Exterior Noise Standards, Table N-3, of the City of Cypress General Plan Noise Element.
CNEL = Community Noise Equivalent Level N/A = not applicable
dBA = A-weighted decibels

Onsite Operational Noise Impacts.

Less than Significant Impact. The operational noise analysis prepared for the proposed Project shows that the stationary-source noise levels associated with the nearby churches, hotel, and retail center will not exceed the City of Cypress Municipal Code noise level standards at the onsite sensitive receivers within the project site. In addition to the planned perimeter walls included as Project Design Feature N-1, the proposed project includes Project Design Feature N-4, which will improve energy conservation as well as reduce noise levels. With Project Design Features N-1 and N-4, the proposed Project would meet the City of Cypress 45 dBA CNEL interior noise level standards for residential development and the 55 dBA CNEL interior noise level standards for commercial/retail development.

Table 4.7.L shows that the onsite stationary noise levels due to the existing stationary noise sources (shown on Figure 4.7.3) in the vicinity of the project site will not exceed the City of Cypress's noise standards. Therefore, the stationary-source noise level impacts associated with the existing noise sources impacting the project site, such as the parking lot vehicle movements, loading dock activities, rooftop air conditioning units, and trash compactor, will be less than significant.

Ambient noise level measurements were taken at the project site to analyze the noise levels at the locations of the proposed senior residential uses with and without the noise generated by Los Alamitos Race Course activity. The peak-hour noise level measurements showed an hourly noise level of 58.4 dBA L_{eq}, which includes noise from the P.A. system speakerphones, horse trailer trucks and cars operating adjacent to the project site, parking lot traffic movement, and an existing water pump adjacent to the northeast corner of the project site. By including attenuation provided by Project Design Features N-1 and N-4, the noise levels due to peak race course activity will not exceed the City of Cypress exterior or interior noise level standards.

Therefore, the proposed Project would not result in exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies.

Table 4.7.L: Onsite Stationary-Source Operational Noise Level Compliance

Receiver Location[1]	City	Land Use	Noise Level at Receiver Locations (dBA)[2]					Compliance[3]	
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (anytime)	Daytime	Nighttime
T1	Cypress	Residential	35.4	37.1	38.7	40.5	50.1	Yes	Yes
T4	Cypress	Residential	36.2	37.5	38.6	39.5	44.2	Yes	Yes
T5	Cypress	Residential	34.5	35.7	37.0	38.7	45.9	Yes	Yes
T6	Cypress	Residential	40.1	41.5	42.8	44.1	51.6	Yes	Yes
T8	Cypress	Residential	34.4	38.4	41.4	44.8	57.2	Yes	Yes

Source: *Barton Place Noise Impact Analysis*, Table C-4, Urban Crossroads, Inc. (April 2015) (Appendix H).
Note: "Daytime" = 7:00 AM to 10:00 PM; "Nighttime" = 10:00 PM to 7:00 AM.
[1] See Figure 4.7.3 for the receiver and noise source locations.
[2] Estimated project stationary-source noise levels as shown in Table 11-1 in the Noise Report.
[3] Do the estimated project stationary-source noise levels meet the City of Cypress noise standards on the affected land uses?
dBA = A-weighted decibels
min = minute

Threshold 4.7.2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels

Onsite Construction Equipment Vibration Impacts.

Less than Significant Impact. Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures, and soil type. Ground-borne vibration from construction activities associated with the proposed Project would cause only intermittent and temporary vibration events. Although all heavy mobile construction equipment has the potential to cause at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. Heavy equipment, such as large bulldozers, would not operate close enough to any residences or buildings to cause a vibration impact.

Ground-borne vibration levels resulting from construction activities occurring within the project site were estimated using data published by the FTA. Construction activities that would have the potential to generate low levels of ground-borne vibration within the project site include grading and paving. Using the vibration source levels of the various types of construction equipment anticipated to be used during construction, and the construction vibration assessment methodology published by the FTA, Table 4.7.M presents the vibration levels at the four receiver locations proximate to the project site.

At distances ranging from 183 to 342 feet from the center of construction activities on the project site, construction vibration levels are expected to range from 23.9 to 61.1 VdB. As shown in Table 4.7.M, the proposed Project would not generate vibration levels exceeding the FTA maximum acceptable vibration standard of 80 VdB.

Table 4.7.M: Construction Equipment Vibration Levels

Noise Receiver[1]	Distance to Property Line (feet)	Receiver Vibration Levels (VdB)[2]					Potential Significant Impact?[3]
		Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer	Peak Vibration	
R1	217	29.8	50.8	57.8	58.8	58.8	No
R2	342	23.9	44.9	51.9	52.9	52.9	No
R3	183	32.1	53.1	60.1	61.1	61.1	No
R4	263	27.3	48.3	55.3	56.3	56.3	No

Source: *Barton Place Noise Impact Analysis*, Table 12-6, Urban Crossroads, Inc. (April 2015) (Appendix H).
1 Receiver locations are shown on Figure 4.7.2.
2 Based on the Vibration Source Levels of Construction Equipment included in Table 6-7 in the Noise Report.
3 Does the peak vibration exceed the Federal Transit Administration maximum acceptable vibration standard of 80 VdB?
CNEL = Community Noise Equivalent Level N/A = not applicable
dBA = A-weighted decibels VdB = vibration velocity decibels

Moreover, construction at the project site would adhere to the regulatory standards described in Regulatory Compliance Measure N-1, which restricts construction activities to daytime hours, consistent with City requirements, thereby eliminating potential vibration impacts during the sensitive nighttime hours.

Therefore, the potential for the proposed Project to result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels is less than significant.

Truck Haul Route Vibration Impacts.

Less than Significant Impact. Although the human threshold of perception of vibration is approximately 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement condition. Typical vibration levels for heavy trucks at normal traffic speeds will not exceed 65 VdB. Truck deliveries and construction trucks transiting onsite will be traveling at very low speeds, so it is expected that delivery truck vibration impacts at nearby homes will not exceed the vibration threshold identified by the FTA of 80 VdB and, therefore, will be less than significant. In addition, haul truck deliveries during construction would be required to adhere to the regulatory standards described in Regulatory Compliance Measure N-2, which restricts such deliveries to daytime hours, consistent with City requirements, thereby eliminating potential vibration impacts during the sensitive nighttime hours.

Therefore, the potential for the proposed Project to result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels is less than significant.

Threshold 4.7.3: A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project

Less than Significant Impact. As described under Threshold 4.7.1 above, for existing conditions, the proposed Project is expected to generate an unmitigated exterior noise level increase of up to 0.7 dBA

CNEL. For future conditions, the proposed Project is expected to generate an unmitigated exterior noise level increase of up to 0.3 dBA CNEL. These minor increases in noise levels are well below even the most stringent significance threshold of 1.5 dBA or more. Therefore, the proposed Project will not create a substantial permanent increase in the ambient noise levels in the project vicinity associated with traffic above levels existing without the proposed Project, and contributions to roadway noise levels would be less than significant under both existing and Year 2018 traffic conditions.

Similarly, as discussed in Threshold 4.7.1 above, the project-related stationary-source noise level increases at the offsite sensitive receivers in the project study area are considered less than significant for the daytime and nighttime conditions based on the combined ambient noise level measurements and project-related operational noise levels.

Therefore, the proposed Project operational stationary-source noise would not result in a substantial permanent increase in ambient noise levels that would impact sensitive receivers in the project vicinity. Impacts would be less than significant.

Threshold 4.7.4: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project

Less than Significant Impact. The Noise Report assessed the impacts from the proposed Project's temporary/periodic construction activity at the nearby receiver locations in the vicinity of the project site. Construction noise represents a short-term increase in the ambient noise levels at each receiver location. As discussed above, the anytime maximum permitted exterior noise levels of 80 dBA L_{max} for receivers in the City of Cypress and 75 dBA L_{max} for receivers in the City of Los Alamitos were used as the threshold for determining the significance of impacts from construction activities.

Noise generated by construction equipment would include a combination of earthmoving equipment, trucks, power tools, concrete mixers, and portable generators used during site preparation, grading and paving, and building construction and architectural coatings. The Noise Report assessed a comprehensive list of noise-generating construction equipment and applied acoustical usage factors to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., the loudest condition) during construction. The highest construction noise levels will occur during the grading and paving phases, with the unmitigated peak construction noise levels expected to range from 72.6 to 78.1 dBA L_{max}.

The unmitigated peak noise impact range assumes that each piece of heavy equipment is operating simultaneously at a distance of roughly 100 feet from the project site boundary. This is a conservative approach because it assumes all heavy equipment is operating at the same time and distance from each receiver, which is unlikely to occur during actual construction activities and, therefore, represents a worst-case noise analysis. Tables 12-1 to 12-3 in the Noise Report present the short-term construction noise levels for each phase of construction. Table 4.7.N below provides a summary of the construction noise levels by phase at the four noise receiver locations. It demonstrates that temporary unmitigated construction noise would not exceed 80 dBA L_{max} at receiver locations in the City of Cypress or 75 dBA L_{max} at receivers in the City of Los Alamitos even when all equipment is operating simultaneously.

Table 4.7.N: Construction Equipment Noise Level Compliance

Noise Receiver[1]	City	Peak Construction Noise Level (dBA L_{max})[2]	Construction Noise Level Criteria (dBA L_{max})[3]	Compliance[4]
R1	Cypress	76.6	80.0	Yes
R2	Cypress	72.6	80.0	Yes
R3	Cypress	78.1	80.0	Yes
R4	Los Alamitos	74.9	75.0	Yes

Source: *Barton Place Noise Impact Analysis*, Table 12-5, Urban Crossroads, Inc. (April 2015) (Appendix H).

1 See Figure 4.7.2 for the receiver locations.

2 Estimated construction noise levels during peak operating conditions (grading and paving).

3 Based on the maximum exterior noise level standards of both the City of Cypress and the City of Los Alamitos.

4 Do the estimated project construction noise levels meet the threshold of 80 dBA L_{max} for receivers in the City of Cypress and 75 dBA L_{max} for receivers in the City of Los Alamitos?

dBA = A-weighted decibels

L_{max} = maximum instantaneous noise level

In addition, the proposed Project would adhere to the regulatory standards described in Regulatory Compliance Measures N-1 and N-2, which would restrict the hours of noise-generating construction activities and haul truck deliveries during construction in compliance with the City's Noise Ordinance. The proposed Project would also include Project Design Features N-2 and N-3, which would require the construction contractor to equip all construction equipment with properly operating and maintained mufflers, and locate equipment staging in areas that will create a minimum distance of 100 feet between construction-related noise sources and noise-sensitive receivers. It should also be noted that construction activities are considered exempt from the provisions of the City Municipal Code noise standards if construction occurs only during permitted hours of operation, which the proposed Project would comply with (Regulatory Compliance Measure N-1).

Finally, as described above in the discussion under Threshold 4.7.1, the proposed Project's contribution to traffic on the roadway segments in the vicinity of the project site would result in minor increases in noise levels that would be well below even the most stringent significance threshold. Likewise, the stationary-source noise level increases at the offsite receivers in the vicinity of the project site would be less than significant during both daytime and nighttime conditions based on the combined ambient noise level measurements and project-related operational noise levels. The operational stationary-source and transportation-related noise would not increase substantially.

Therefore, the proposed Project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the proposed Project. Impacts would be less than significant.

4.7.7 Regulatory Compliance Measures and Project Design Features

The proposed Project would comply with the following regulatory compliance measures. Adherence to the regulatory standards described in the following Regulatory Compliance Measures would further reduce potential impacts related to noise:

Regulatory Compliance Measure N-1: **Construction Hours.** Prior to approval of grading plans and/or issuance of building permits, the project applicant shall document that noise-generating construction activities shall only occur on weekdays and Saturdays between 7:00 AM and 8:00 PM (excluding holidays).

Regulatory Compliance Measure N-2: **Haul Truck Delivery Hours.** Haul truck deliveries shall be limited to the same hours specified for construction equipment (weekdays and Saturdays between 7:00 AM and 8:00 PM, excluding holidays). The contractor shall prepare a haul route exhibit and shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

The following Project Design Features identified in Chapter 3.0, Project Description, of this Draft EIR and listed below have been incorporated into the project design to reduce or lessen potential noise impacts:

Project Design Feature N-1: **Perimeter Walls.** The construction of the 8-foot-high planned wall around the residential uses within the project site shall be prioritized as soon as practicable once construction has commenced. The locations of the planned perimeter walls are shown on Figure 3.18, Noise Reducing Project Design Features.

Project Design Feature N-2: **Construction Equipment Noise Reduction.** During construction, the contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer's standards. The contractor shall locate stationary construction equipment so that emitted noise is directed away from the noise-sensitive receptors nearest the project site to the extent practicable.

Project Design Feature N-3: **Equipment Staging Area.** Equipment staging areas shall be located to be a minimum distance of 100 feet from noise-sensitive receivers nearest the project site (i.e., in the center) during construction.

Project Design Feature N-4: **Structure Design Features.** The proposed Project includes the following structural features:

- **Windows:**
  - All windows and sliding glass doors throughout the project site shall be well-fitted, well-weather-stripped assemblies and shall have a minimum sound transmission class (STC) rating of 27.
  - Upgraded second-floor windows and sliding glass doors with a minimum STC rating of 35 shall be installed facing the Los Alamitos Race Course along the northern site boundary. The locations of the lots requiring upgraded second-floor windows are shown on Figure 3.18, Noise Reducing Project Design Features.
- **Doors:** All exterior doors shall be well-weather-stripped solid-core assemblies at least 1.75 inches thick.
- **Roof:** Roof sheathing of wood construction shall be well-fitted or caulked plywood at least 0.5 inch thick. Ceilings shall be well-fitted, well-sealed gypsum board at least 0.5 inch thick. Insulation with a rating of at least R-19 shall be used in the attic space.
- **Attic:** Attic vents should be oriented away from Katella Avenue. If such an orientation cannot be avoided, then an acoustical baffle shall be placed in the attic space behind the vents.
- **Ventilation:** Any habitable room shall be designed and constructed such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g., air conditioning) or active ventilation system (e.g., fresh air supply) shall be provided to satisfy the requirements of the Uniform Mechanical Code.

4.7.8 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measures N-1 and N-2 and the implementation of Project Design Features N-1 through N-4, the proposed Project's impacts related to construction or operational noise would be less than significant and no mitigation is required.

4.7.9 Cumulative Impacts

A cumulative noise or vibration impact would occur if multiple sources of noise and vibration combine to create impacts in close proximity to a sensitive receptor. Therefore, the cumulative area for noise impacts is the project site and any sensitive receptors in the immediately surrounding area.

As illustrated on Figure 4.0.1 in this Draft EIR, the only relevant related projects in proximity to the project site would be Related Project Nos. 1 and 2. Related Project No. 1 is the approved retail/ commercial project on a 13-acre site located east of the project site and includes 122,556 square feet of major retail use, 21,000 square feet of retail/restaurant uses, and 9,353 square feet of sit-down restaurant use. Related Project No. 2 is the unbuilt portion of the approved Cottonwood Church complex located just west of the project site, which includes approximately 245,843 square feet of church use, 28,000 square feet of specialty retail use, and 33,600 square feet of community college use. Because construction and vibration are localized and rapidly attenuate within an urban environment, the other related projects are located too far from the project site to contribute to cumulative impacts related to noise levels due to construction activities.

There are currently no plans to develop Related Project No. 1 or Related Project No. 2 during the planned construction period for the proposed Project (2016–2018). Therefore, given that, as previously discussed, the proposed Project itself would not have a potentially significant construction noise impact, there would not be a cumulatively significant construction noise impact.

Cumulative noise impacts would occur as a result of increased traffic volumes on local roadways due to future growth in the vicinity of the project site. Cumulative traffic noise impacts are based on the difference between existing traffic volumes and future traffic volumes after buildout of the proposed Project and related projects. A cumulative significant impact would occur if the following conditions occur: existing noise levels are less than 60 dBA CNEL and the proposed Project and related projects create a readily perceptible 5 dBA CNEL or greater project-related noise level increase; existing noise levels range from 60 to 65 dBA CNEL and the proposed Project and related projects create a barely perceptible 3 dBA CNEL or greater project noise level increase; or existing noise levels already exceed 65 dBA CNEL and the proposed Project and related projects create a noise level impact of greater than 1.5 dBA CNEL.

The *Traffic Impact Study* (Kimley-Horn and Associates, Inc., April 2015 [Appendix K to this Draft EIR]) prepared for the proposed Project includes a cumulative analysis of traffic impacts under future buildout conditions in 2018, based on all of the related projects identified in Table 4.0.A of this Draft EIR. The information in that cumulative traffic analysis was used to determine the “No Project” cumulative baseline for analyzing the proposed Project’s traffic noise impacts in 2018, as shown in Table 4.7.F. Table 4.7.F further shows that project-related traffic would result in small (0.7 dBA or less) noise level increases along roadway segments in the vicinity of the project site for the cumulative buildout year (2018) scenario. Therefore, none of the roadway segments in the vicinity of the project site would experience a noise level increase greater than the applicable noise thresholds, so that the proposed Project would not have a cumulatively significant traffic noise impact.

4.7.10 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to construction and operational noise.

LSA

FIGURE 4.7.1

LEGEND:

▲ Long-Term (LT) Noise Measurement Locations

N

Barton Place

Noise Measurement Locations

SOURCE: Urban Crossroads

I:\CCP1401\G\Noise Measurement Locations.cdr (7/16/15)

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LSA

FIGURE 4.7.2

LEGEND:

Off-Site Receiver Locations

Distance from receiver to Project site boundary (in feet)

N

Barton Place

Offsite Receiver Locations

SOURCE: Urban Crossroads

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LSA

LEGEND:

- 8' Barrier Height (in feet)
- Planned Barrier
- Distance from receivers to center of noise sources (in feet)
- On-Site Receiver Locations
- Roof-Top Air Conditioning Units
- Trash Compactor
- Loading Dock Activity
- Parking Lot Vehicle Movement

N

FIGURE 4.7.3

Barton Place
Stationary Noise Source and Receiver Locations

SOURCE: Urban Crossroads

I:\CCP1401\G\Stationary Noise Source Locations.cdr (6/11/15)

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4.8 POPULATION AND HOUSING

4.8.1 Introduction

This section describes the existing population and housing characteristics of the City of Cypress (City) and evaluates the potential impacts of the proposed Project on population growth. This section is based on sources of demographic information provided by various agencies, including the Southern California Association of Governments (SCAG), the 2014–2021 Housing Element of the City's General Plan (Housing Element), and the City's records.

4.8.2 Methodology

City and County demographic information was used to describe the existing population and housing characteristics in the City and County. SCAG projections for these topics were identified for the existing conditions and project build out. City goals and policies regarding population and housing were used to evaluate potential impacts that could result from implementation of the proposed Project.

4.8.3 Environmental Setting

Population and Housing Trends in the City and County. The City is characterized by urban areas, including single-family and multi-family residential uses and concentrations of retail, office, and industrial uses.

In its existing condition, the approximately 33-acre project site is undeveloped and, therefore, does not contain any population or housing.

The six-county Southern California Association of Governments (SCAG) planning area encompasses a population exceeding 18 million persons in an area of more than 38,000 square miles. The City and County are located within the SCAG planning area. SCAG is a federally designated Metropolitan Planning Organization (MPO)[1] representing six counties (Ventura, Orange, San Bernardino, Riverside, Imperial, and Los Angeles). SCAG divides its six-county planning area into 15 subregions. The project site is located within the Orange County Council of Governments (OCCOG) subregion. In 2012, SCAG prepared a Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Growth Forecast (SCAG RTP/SCS Growth Forecast) to predict the most likely growth scenario for the Southern California region in the future. The SCAG RTP/SCS Growth Forecast is meant to provide a common foundation for regional and local planning, policymaking, and infrastructure provision within the SCAG region.

The growth forecast for the City and County in the SCAG RTP/SCS Growth Forecast is provided below in Table 4.8.A. These projections are used as a reference point for discussing population and housing growth throughout this section.

[1] An MPO is a federally mandated and federally funded transportation policymaking organization that is made up of representatives from local government and governmental transportation authorities. In 1962, the U.S. Congress passed legislation that required the formation of an MPO for any urbanized area with a population greater than 50,000.

Table 4.8.A: 2012 SCAG Population and Housing Forecasts (2008–2035)

	2008	2020	2008–2020 Increase	% Change 2008–2020	2035	2020–2035 Increase	% Change 2020–2035	2008–2035 Increase
Total Population								
Cypress	47,800	50,300	2,500	5.2%	51,400	1,100	2.2%	3,600
Orange County	2,989,000	3,266,000	277,000	9.3%	3,421,000	155,000	4.7%	432,000
Total Households								
Cypress	15,700	16,000	300	1.9%	16,500	500	3.1%	800
Orange County	987,000	1,049,000	62,000	6.3%	1,125,000	76,000	7.2%	138,000

Source: SCAG Adopted 2012 RTP/SCS Growth Forecast. http://www.scag.ca.gov/forecast/downloads/excel/2012AdoptedGrowthForecast.xls (accessed March 25, 2015).
RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy
SCAG = Southern California Association of Governments

Population. As shown in Table 4.8.A, according to the SCAG RTP/SCS Growth Forecast, the City's population is anticipated to grow by approximately 5.2 percent (approximately 0.4 percent per year) between 2008 and 2020. Similarly, the County is expected to experience an approximately 9.3 percent (approximately 0.8 percent per year) increase between 2008 and 2020. The City's population is anticipated to increase by approximately 2.2 percent between 2020 and 2035, while the County's population is expected to grow by approximately 4.7 percent between 2020 and 2035. According to the State of California Department of Finance population estimates, the City's population in 2014 was 48,886 persons.[1]

Age Characteristics. A city's age distribution often shapes its housing demand because different age groups prefer different types of housing. According to the Housing Element, Cypress's older population is increasing. The median age in 2010 was 39.9 years, compared with 36.7 years in 2000. This increase in median age is consistent with County, State, and national trends. Table 4.8.B below shows the age characteristics of the City and County in 2010.

Table 4.8.B: Cypress and Orange County Age Characteristics (2010)

	Percentage Under 18 Years	Percentage Between 18 and 24 Years	Percentage Between 25 and 44 Years	Percentage Between 45 and 64 Years	Percentage Over 65 Years
Cypress	24	10	24	29	13
Orange County	25	10	28	25	12

Source: City of Cypress 2014–2021 Housing Element Technical Report (2013), Table 2-2: Age Distribution 2000–2010.

As shown in Table 4.8.B, the City and County have similar proportions of residents under the age of 18 (24 percent and 25 percent, respectively) and the same proportion of residents between 18 and 24 years (10 percent). The City has a lower percentage of residents between the ages of 25

[1] State of California Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011–2014, With 2010 Benchmark. Sacramento, California, May 2014, http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/documents/E-5_2014_Internet_Version.xls (accessed April 3, 2015).

and 44 (24 percent, compared to 28 percent for the County). The City has a higher percentage of residents between the ages of 45 and 64 (29 percent, compared to 25 percent for the County) and a slightly higher percentage of residents older than age 65 (13 percent, compared to 12 percent for the County) than the County. Approximately 13 percent of Cypress residents are over age 65, a 2 percent increase since 2000.

Households. As shown in Table 4.8.A, the City is anticipated to experience an approximately 1.9 percent (approximately 0.2 percent per year) increase in households between 2008 and 2020, while the number of households in the City is anticipated to increase approximately 3.1 percent between 2020 and 2035. The County is anticipated to experience an approximately 6.3 percent (approximately 0.5 percent per year) increase in households between 2008 and 2020, followed by a 7.2 percent increase in households between 2020 and 2035.

4.8.4 Regulatory Setting

Local and Regional Policies and Regulations.

Southern California Association of Governments. As the designated MPO for the six-county subregion that includes Orange County, SCAG prepares several plans to address regional growth, including the RTP/SCS. The regional growth forecasts undertaken by SCAG are developed for two planning horizons, 2020 and 2035. The projected growth in population and households was the data relied upon during the development of the SCAG RTP/SCS Growth Forecast.

City of Cypress Housing Element. The Housing Element analyzes current housing needs, estimates future housing needs, considers potential sites for additional housing, and establishes goals, policies, and programs in response to both current and future housing needs.

4.8.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, implementation of the proposed Project would have a significant impact on population and housing if it would:

Threshold 4.8.1: Induce substantial 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);

Threshold 4.8.2: Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or

Threshold 4.8.3: Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

The analysis in the Initial Study (Appendix A) determined that the proposed Project's impacts with respect to Thresholds 4.8.2 and 4.8.3 would be clearly insignificant and unlikely to occur. Therefore, the population and housing impacts relating to those thresholds are not considered further in this Draft EIR.

4.8.6 Project Impacts

Threshold 4.8.1: Induce substantial 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)

Direct Growth.

Less than Significant Impact. The proposed Project includes the development of a 244-unit senior residential community and approximately 47,876 square feet of commercial/retail improvements on currently undeveloped land. The Housing Element provides that the average household size in the City is 3.02 persons per household. However, due to the older demographics associated with the senior residential community, it is reasonably anticipated that approximately 80 percent of the 244 units would be occupied by two residents, with the other 20 percent of the residential units anticipated to be occupied by one resident, for an average household size of approximately 1.8 persons per unit.

Based on that estimate, the proposed senior residential community would include approximately 440 residents, which on its face does not constitute substantial population growth. The projected population would also be considerably less than the population growth allowed under the Amended Specific Plan. The residential density of the senior residential community would be approximately 8.7 dwelling units per acre (or approximately 15.7 persons per acre). By comparison, the permitted residential density under the Amended Specific Plan is 20 dwelling units per acre, which translates to approximately 560 units on the 28-acre senior residential community parcel and approximately 1,008 residents. Therefore, the senior residential community only includes approximately 43 percent of the population permitted under the Amended Specific Plan (440 ÷ 1,008), which further reflects that the proposed Project would not directly induce substantial population growth.

In addition, the projected population associated with the proposed Project would be consistent with City and County population and housing forecasts. As shown in Table 4.8.A, SCAG projects that the City's population will increase by 2,500 from 2008 to 2020 and by 1,100 from 2020 to 2035, and that the number of households will increase by 300 from 2008 to 2020 and by 500 from 2020 to 2035. Therefore, in a highly urbanized area that is already largely built out, the proposed senior residential community represents only (1) approximately 12 percent of the City's projected population growth through 2035, and (2) approximately 30 percent of the City's projected household growth through 2035.

Moreover, the City's estimated population was 48,886 in 2014, and the addition of 440 residents represents an increase of approximately 0.9 percent. Furthermore, the estimated number of households in the City was 15,700 in 2008 and the addition of 244 housing units represents an

increase of approximately 1.5 percent. Therefore, the population/housing increase is not substantial in relation to the current relatively built-out conditions in the City.

For all of these reasons, the proposed Project would not directly induce substantial population growth and is consistent with all relevant population growth forecasts. Therefore, the proposed Project's direct impact on population growth would be less than significant.

Indirect Growth.

Less than Significant Impact. The proposed Project also includes approximately 47,876 square feet of neighborhood-serving commercial/retail uses. The proposed commercial/retail establishments would increase employment in the City, but the number of employees would not be substantial due to the limited size of the commercial/retail area. In addition, it is anticipated that most of the new employees of the new establishments already live in the project vicinity and, in any event, virtually all of the employees would commute to work rather than moving to the project area. Therefore, the proposed Project would not indirectly induce population growth related to the inclusion of commercial/retail uses.

The proposed Project would also include roadways and extend infrastructure (e.g., water facilities, sewer facilities, energy services) to and within the project site (see Sections 4.11, Transportation/Traffic, and 4.9, Public Services and Utilities). However, those roadways and other infrastructure would not induce additional population growth because they would only serve project residents, patrons, and employees and would not provide additional infrastructure capacity for other projects. In addition, the surrounding area is largely built out (other than the northern portion of the former Cypress Golf Club, which is not contiguous to Katella Avenue), and therefore even substantial public improvements would not induce substantial population growth in the project vicinity.

As a result, the development of the proposed Project would not indirectly induce substantial population growth and the indirect impact would therefore be less than significant.

4.8.7 Mitigation Measures

The proposed Project would not result in potentially significant impacts related to population growth and no mitigation is required.

4.8.8 Cumulative Impacts

The implementation of the proposed Project in conjunction with the 17 related projects identified in Table 4.0.A, Summary of Related Projects, would contribute to population and housing growth in the project vicinity. The related projects include 265 residential units that could be constructed in several cities within Orange County, including 149 residential units in the City of Cypress. The Housing Element states that the average household size in Orange County is 3.00 persons (which is almost identical to the City of Cypress' average household size of 3.02 persons). Based on the County's average household size, the combined construction of the related residential units would yield a total

of approximately 795 new County residents. Construction of the proposed Project and the related projects would result in a cumulative population increase of 1,235 new County residents (440 residents [proposed Project] + 795 residents [related projects]).

The addition of 1,235 new residents would represent a small fraction of SCAG's forecasted County increase of 432,000 people between 2008 and 2035, as shown in Table 4.8.A. Moreover, if the proposed Project and all 149 of the related residential units in the City of Cypress were constructed, the cumulative population increase of 890 residents in the City of Cypress (440 residents [proposed Project] + 450 residents [related projects]) would be well within the projected population increase of 3,600 between 2008-2035 shown in Table 4.8.A.

The related projects include a variety of residential, commercial, recreational, and industrial land uses. Some of the related projects may include the extension of roads or infrastructure. However, it is expected that those infrastructure improvements would only serve the applicable related projects. Therefore, it is not anticipated that the related projects would extend roads or other infrastructure into previously undeveloped areas that would be available for future development, particularly given that the project area is highly urbanized and largely built out.

Based on the foregoing, the proposed Project in combination with the related projects would not result in a significant impact on population or housing because (1) the increase in population that would be generated by the proposed Project and the related projects is relatively small when compared to population forecasts, and (2) roadways and other infrastructure are not anticipated to be extended into previously undeveloped areas that would be available for future development.

Therefore, the cumulative impact of the proposed Project and the related projects on population growth would not be significant.

4.8.9 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to population growth.

4.9 PUBLIC SERVICES, UTILITIES, AND ENERGY USE

4.9.1 Introduction

This section describes the public services and utility providers within whose jurisdiction the project site is located and evaluates the potential impacts of the proposed Project on public services, utilities, and energy use. This section is based on multiple data sources, including: written correspondence and coordination with public service and utility providers (Appendix J); the Energy Resources Worksheets prepared to evaluate energy consumption of the proposed Project (ENVIRON, May 2015) (Appendix I); and the Greenhouse Gas Technical Report (ENVIRON, May 2015) (Appendix E), which contains additional energy demand information. This section addresses the following public services and utilities (service providers are noted in parentheses):

- Fire Protection (Orange County Fire Authority [OCFA])
- Police Protection (City of Cypress Police Department)
- Parks (City of Cypress Parks and Recreation Department)
- Public Libraries (Orange County Public Libraries [OCPL])
- Public Transportation (Orange County Transit Authority [OCTA])
- Electricity (Southern California Edison [SCE])
- Natural Gas (Southern California Gas Company [SoCalGas])
- Solid Waste (Valley Vista Services; Orange County Waste and Recycling [OCWR])
- Wastewater (Orange County Sanitation District [OCSD])
- Potable Domestic Water (Golden State Water Company [GSWC])
- Storm Drainage (Orange County Flood Control District [OCFCD]).

4.9.2 Methodology

Public service and utility providers were sent a questionnaire requesting information regarding current service provided to the project site and possible constraints or impacts to this service associated with project buildout, which is anticipated to occur in 2018. The impact analyses are based on responses to the questionnaires, information obtained through subsequent phone conversations with public service and utility provider representatives, data obtained through websites, and adopted planning documents of the service and utility providers. This analysis also includes calculations found in the Energy Resources Worksheets prepared to assess the energy consumption of the proposed Project (ENVIRON, May 2015) and included in Appendix I to this Draft EIR. Correspondence with public service and utility providers is included in Appendix J.

4.9.3 Existing Environmental Setting

Fire Protection. The City contracts with the OCFA for fire protection and paramedic services. The OCFA is a Joint Powers Authority responsible for reducing loss of life and property due to fire, medical, and environmental emergencies. It is also a regional fire service agency that serves 23 cities

in the County and all unincorporated areas in the County. The OCFA provides fire protection services to over 1.7 million residents from its 71 fire stations located throughout the County. In addition, OCFA Reserve Firefighters operate 10 stations throughout the County.

The City is located in the service area of Division VII, which includes Battalion 8, which serves the Cities of Cypress, Buena Park, La Palma, and Stanton.[1]

OCFA Fire Station No. 17 is located at 4991 Cerritos Avenue in the City of Cypress, approximately 0.5 mile north of the project site. Fire Station No. 17 would be the first to the project site in the event of an emergency and would thus be designated as the "first-in" station. Station No. 17 is staffed by 6 captains, 6 engineers, and 15 firefighters. In 2014, the most recent year that published data was available, Station No. 17 responded to 5,513 calls.[2] Fire equipment at Station No. 17 includes a fire engine, a fire truck, and a medic van. In 2012, OCFA Fire Station No. 17 was rebuilt and expanded to accommodate existing and planned future needs within its service area.

The OCFA's goal is to have the first responding company for a fire reach the emergency scene 80 percent of the time within 7 minutes and 20 seconds, from receipt of the call to arriving at the scene of the call, and to respond to 80 percent of calls for paramedics within 10 minutes, from receipt of the call to arriving on the scene of the call.[3] In 2014, the OCFA responded to 45 fires, 1,981 emergency medical service calls, and 623 other incidents in the City of Cypress.

Police Protection. The City operates its own police department for police protection services. The City's police station is located at 5275 Orange Avenue, approximately 1.5 miles northeast of the project site. The Cypress Police Department maintains a detective bureau, K-9 teams, a narcotics team, vice and intelligence officers, motorcycle officers, a Personnel and Training Department, a Positive Actions thru Character Education (P.A.C.E.) program, a S.W.A.T. team, and a Lead Patrol Officer program. All 41 of the sworn personnel are dedicated to the delivery of patrol services in the City. [4] The Police Department is organized into three divisions—Operations, Investigations, and Administration—in addition to the Office of the Chief of Police. A Chief, 3 Commanders, 10 Sergeants, and a civilian supervisor provide management and supervision of personnel.

Police dispatch services for the City are provided by the West Cities Police Communications Center, also known as WestComm. WestComm is a consolidated police dispatch center located at the Seal Beach Police Department. It serves a combined population of approximately 90,000 and handles approximately 100,000 calls for service each year.[5]

In written correspondence dated May 18, 2015, Commander Tom Bruce of the Cypress Police Department stated that the City is conducting a space utilization study of the police department

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1 Michele Hernandez, OCFA. Written correspondence. Received May 18, 2015. OCFA, Operations Division: http://www.ocfa.org/Menu/Departments/Operations/OperationsDivI.aspx (accessed April 8, 2015).

2 Ibid.

3 Ibid.

4 City of Cypress Police Department, http://www.ci.cypress.ca.us/police/community_we_serve.htm (accessed April 8, 2015).

5 City of Cypress Police Department, http://www.ci.cypress.ca.us/police/community_we_serve.htm (accessed April 8, 2015).

facility, but there are no plans for a new facility for the fiscal year 2015-2016. In addition, the letter indicated that there would be a general increase in calls for service with the anticipated increase in overall population and the addition of the commercial/retail space associated with the Project, but that increase would not be considered substantial.[1]

Parks. Section 4.10, Recreation, provided later in this Draft EIR, contains a detailed discussion related to parks and recreational facilities within the City.

Public Libraries. The OCPL system provides library services to the County, including the City, and includes 33 branches, as well as an outlet in the Orangewood Children's Home.[2] OCPL operates the Cypress Library, located at 5331 Orange Avenue. The Cypress Branch consists of a 15,000-square-foot[3] building that holds over 87,802 books, CDs, and videos.[4] The branch is open Saturday through Thursday and is closed on Fridays.

The OCPL's adopted service standard is 1.5 books and 0.2 square foot of library space per capita. Using this standard and 49,184[5] as the most current population estimate for the City, the Cypress Library would need to be 9,837[6] square feet in size with 73,776 books[7] in order to meet the OCPL requirement. The Cypress Branch of the OCPL not only meets, but currently exceeds, the OCPL standards for size and number of books with a 15,000-square-foot facility and approximately 88,000 books.

Public Transportation. Public transportation is provided within the project vicinity by OCTA. OCTA currently provides one bus route in close proximity to the project site, Route 50, which travels between the Village at Orange in the City of Orange and California State University, Long Beach (CSULB) in Long Beach. Within the project vicinity, Route 50 runs along Katella Avenue directly adjacent to the project site (on Katella Avenue just west of Enterprise Drive), with a westbound bus stop provided near the southwestern corner of the project site and an eastbound bus stop provided across Katella Avenue from the southeastern corner of the project site. Route 50 operates 7 days per week and on holidays.[8] Route 50 operates on approximately 25-minute headways during peak hours on Monday through Friday.[9] Based on correspondence received from OCTA, there are no immediate

1 City of Cypress Police Department, Service Letter from Tom Bruce, May 18, 2015.
2 About OCPL. http://ocpl.org/services/about (accessed April 8, 2015).
3 OCPL, Helen Richardson, Senior Branch Manager, Cypress Library. Telephone conversation. April 13, 2015.
4 OCPL, Helen Richardson, Senior Branch Manager, Cypress Library. Email correspondence. April 13, 2015.
5 California Department of Finance, May 2015, "Population Estimates for Cities, Counties, and the State January 1, 2014 and 2015," 1/1/15 population (accessed May 5, 2015).
6 0.2 square foot per the City's population of 49,184 in 2015.
7 1.5 books per the City's population of 49,184 in 2015.
8 OCTA. EBusBook. http://www.octa.net/ebusbookfeb15/ (accessed April 8, 2015).
9 OCTA. EBusBook. http://www.octa.net/ebusbookfeb15/ (accessed April 8, 2015).

plans to change Route 50.[1] The average passenger capacity of a 40-foot standard bus operated by OCTA is 46 persons.[2]

The City, in conjunction with OCTA, provides two services for seniors within the City as part of their Senior Mobility Program (SMP): the Nutrition Taxi and Taxi Vouchers. The Nutrition Taxi program provides transportation to the Cypress Senior Center for its Nutrition Program between 9:00 AM and 1:00 PM, Monday through Friday, for residents age 60 or older. The Taxi Voucher Program is a curb-to-curb taxi service providing transportation to medical appointments, grocery shopping, banking centers, etc. Residents age 60 or older who meet income requirements may receive up to six taxi vouchers per month. Funding for the SMP comes from Measure M2, Orange County's local half–cent transportation sales tax measure.

Electricity. The project site is within the service territory of SCE, which provides services through a grid of transmission lines and related facilities. SCE is a regulated public utility that provides energy service to 14 million people with electricity across a service territory of approximately 50,000 square miles in Southern and Central California.[3]

In January 2014, the California Energy Commission (CEC) published the final California Energy Demands for 2014 through 2025.[4] According to the CEC, electricity consumption in the SCE service area was estimated to be 102,984 gigawatt-hours (gWh) in the low-demand scenario and 111,589 gWh in the high-demand scenario in 2020 (the closest year to Project build out). According to the CEC, electricity consumption in the SCE service area is projected to reach between 108,660 gWh in the low-demand scenario and 119,741 gWh in the high-demand scenario by 2025. Peak electricity demand is projected to reach between 24,580 megawatts (MW) and 27,194 MW by 2025. In addition, the CEC estimates that average annual growth in peak mid-demand within SCE's service territory will continue to grow annually by 1.15 percent between 2014 and 2025. Based on written correspondence, SCE would serve the proposed Project's electrical requirements.[5]

Natural Gas. SoCalGas, the service provider for the project site, serves approximately 19 million customers in a 23,000-square-mile service territory. SoCalGas has four storage fields—Aliso Canyon, Honor Rancho, La Goleta, and Playa del Rey—and has a combined storage capacity of 134.1 billion cubic feet.[6]

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1 OCTA, Written Correspondence, Gary Hewitt, Section Manager – Transit & Non-Motorized Planning, May 15, 2015.

2 OCTA, Systemwide Bus Service Standards and Policies, October 5, 2012. Website: http://octa.net/%2Fpdf%2FSERVICESTANDARDGUIDELINESOCTA.pdf (accessed June 15, 2015).

3 SCE, Incorporated Cities and Counties Served by SCE. http://www.edison.com/content/dam/eix/documents/aboutus/our-companies/SCETerritory.pdf (accessed June 4, 2015).

4 CEC, 2014. California Energy Demand Updated Forecast, 2015-2025. http://www.energy.ca.gov/2014publications/CEC-200-2014-009/CEC-200-2014-009-SD.pdf (accessed April 8, 2015).

5 SCE, Will Serve Letter, March 25, 2014.

6 SoCalGas, Storage Expansion Study. https://socalgas.com/regulatory/documents/StorageExpansionStudy2011.pdf (accessed April 8, 2015).

According to the CEC, the mid-case natural gas demand in the SoCalGas service area was forecasted at 7,889 million therms (or 788,712 million cubic feet) in 2015.[1] The CEC prepared three scenarios for forecasting future growth in natural gas demand between 2012 and 2024: a high-energy demand case, a low-energy demand case, and a mid-energy demand case. The CEC forecasted the 2020 low-demand and high-demand cases at 7,220 million therms and 7,370 million therms, respectively (the closest year to Project build out). The low-demand scenario estimates that natural gas demand in the SoCalGas service area would be 7,275 million therms in 2024 (the latest year in the demand forecast), while the high-demand scenario estimates a demand of 7,335 million therms in 2024.

Natural gas provides almost one-third of California's total energy requirements and will continue to be a major fuel in California's energy supply. California imports about 90 percent of its natural gas via pipelines from several production areas in the western United States and western Canada. Once the gas arrives in California, it is distributed by the State's three major gas utilities, one of which is SoCalGas. Based on written correspondence, SoCalGas indicated that it has facilities in the area and the capacity to serve the proposed Project.[2]

Solid Waste. The City currently contracts with Valley Vista, a private solid waste hauler, to collect and dispose of the solid waste/refuse generated by the City. Solid waste/refuse collected in the City by Valley Vista would be transported to one of the Class III landfills operated and maintained by OCWR. Class III landfills only accept non-hazardous municipal solid waste for disposal; no hazardous or liquid waste is accepted. County residents are able to dispose of their household hazardous waste items at any of OCWR's four household hazardous waste collection centers. Currently, OCWR maintains and operates three Class III sanitary landfills, identified below in Table 4.9.A.

Table 4.9.A: Orange County Class III Landfills

Landfill	Location	Approximate Distance from Project Site (miles)	Service
Frank R. Bowerman	11002 Bee Canyon Access Road Irvine, CA 92602	20	Commercial dumping No public dumping
Olinda Alpha	1942 North Valencia Avenue Brea, CA 92823	15	Commercial dumping Public dumping allowed
Prima Deshecha	32250 La Pata Avenue San Juan Capistrano, CA 92675	33	Commercial dumping Public dumping allowed

Source: Orange County Waste and Recycling.

Of the three Class III landfills currently operated by OCWR, the closest active landfill to the project site is the Olinda Alpha Landfill. The Olinda Alpha Landfill, which is currently permitted by the California Department of Resources Recycling Recovery (CalRecycle) to receive a maximum of

1 CEC, 2014. California Energy Demand 2014–2024 Final Forecast, http://www.energy.ca.gov/2013publications/CEC-200-2013-004/CEC-200-2013-004-V1-CMF.pdf (accessed April 8, 2015).

2 SoCalGas, Will Serve Letter, July 21, 2014.

8,000 tons per day (tpd) of waste, currently receives an average of approximately 5,000 tpd.[1] As of October 2005, the Olinda Alpha Landfill had an estimated remaining disposal capacity of 38,578,383 cubic yards.[2] Therefore, the Olinda Alpha Landfill is currently operating at approximately 62.5 percent of its daily capacity. If the State-permitted daily tonnage limit is reached at any County landfill, waste haulers are subject to diversion to local transfer stations located throughout the County. The Olinda Alpha Landfill is scheduled to close in approximately 2030, at which time it would be landscaped to become a County regional park.[3]

Based on written correspondence, Valley Vista Services indicated that it can provide solid waste disposal service for the proposed Project.[4]

Wastewater. The City operates and maintains a sanitary sewer collection and conveyance system that includes a network of gravity sewers, one pump station, and one sewer force main. Approximately 101 miles of pipe, 2,350 manholes and cleanouts, and 14,213 service laterals are included within the City's gravity system.

The City's sanitary sewer collection and conveyance system connects to the OCSD's collection, treatment, and disposal facilities, which include a pair of wastewater treatment plants in Fountain Valley and Huntington Beach. Treatment Plant No. 1, at 10844 Ellis Avenue in Fountain Valley, is located approximately 10 miles southeast of the project site. Treatment Plant No. 2, at 22212 Brookhurst Street in Huntington Beach, is located approximately 12.5 miles southeast of the project site. According to the OCSD's most recent Operation and Maintenance Report (2009–2010), Treatment Plant No. 1 has a total design capacity of 204 million gallons per day (mgd), and Treatment Plant No. 2 has a total design capacity of 168 mgd. Therefore, the two treatment plants have a combined capacity of 372 mgd of primary treated wastewater.[5] The OCSD Annual Report for 2013–2014 reports that the combined average daily flows at Treatment Plant Nos. 1 and 2 were approximately 200 mgd; therefore, the facilities are operating at approximately 54 percent of capacity.[6] Based on written correspondence, OCSD indicated that it would be able to serve the proposed Project.[7]

Potable Domestic Water Service. GSWC provides domestic water service to the project site. GSWC's West Orange service area includes most of the Cities of Cypress, Stanton, and Los Alamitos; small portions of the Cities of Seal Beach, Garden Grove, and La Palma; and the

1 Olinda Alpha Landfill. http://oclandfills.com/landfill/active/olindalandfill/olinda_q_n_a (accessed April 8, 2015).
2 CalRecycle, Facility/Site Summary Details: Olinda Alpha Sanitary Landfill, http://www.calrecycle.ca.gov/SWFacilities/Directory/30-AB-0035/Detail/ (accessed April 8, 2015).
3 Olinda Alpha Landfill. http://ocagcomm.com/gov/waste/landfill/active/olinda.asp (accessed May 27, 2015).
4 Valley Vista Services, Service Letter from David Perez, Valley Vista Service of Orange County.
5 OCSD. 2009-10 Annual Report, Operations and Maintenance, February 1, 2011, http://www.ocsd.com/Home/ShowDocument?id=10348 (accessed April 8, 2015).
6 OCSD. Annual Report 2013/14, http://www.ocsd.com/Home/ShowDocument?id=16708 (accessed April 8, 2015).
7 OCSD, Service Correspondence from Daisy Covarrubias, MPA, March, 30, 2015.

unincorporated community of Rossmoor. Approximately 111,000 residents live within GSWC's West Orange service area.

The 2010 West Orange Urban Water Management Plan (UWMP) demonstrates that GSWC has adequate domestic water supply for future water demands through 2035.[1] GSWC obtains its water supply for the West Orange System from two primary sources: imported groundwater and GSWC operated groundwater wells. Imported water is purchased from the Municipal Water District of Orange County (MWDOC). MWDOC obtains its water supply from the Metropolitan Water District of Southern California (MWD).[2] MWDOC is largely a pass-through provider of MWD's imported water. According to the UWMP, MWD intends to supply 100 percent supply reliability to MWDOC, which in turn provides 100 percent reliability of supply to the West Orange System.[3] Groundwater is extracted from the Orange County Groundwater Basin. The UWMP includes a groundwater supply reliability analysis that demonstrates adequate groundwater supply will be available to GSWC through 2035.[4]

The total projected water demand for customers served by GSWC in 2015 is approximately 18,602 acre-feet per year (afy), consisting of approximately 7,069 afy of imported water and 11,533 afy of local groundwater.[5] GSWC's planned water supplies for 2020, the closest to the proposed project buildout year, total 19,160 afy. Imported water from MWDOC is provided to the GSWC West Orange system through three connections, which have supply capacities of 4,500 gallons per minute (gpm), 11,200 gpm, and 9,000 gpm. These three connections total a supply capacity of 24,700 gpm. GSWC is projecting a 5.6 percent increase in demand over the next 20 years accompanying a projected 6.8 percent increase in population growth.[6] Over the next 20 years, imported water supplies are anticipated to compose the same proportion of GSWC's water supply as under current conditions.

With implementation of the conservation and resource management measures described in the 2010 UWMP by the GSWC and its customers, as applicable, GSWC's imported water and groundwater supplies are expected to be highly reliable through 2035.[7] The 2010 UWMP attributes the reliability of GSWC's water supplies to the projected reliability of MWDOC for imported water supplies; the Orange County Water District's (OCWD) management of the Orange County Groundwater Basin; and conservation-derived supply. The 2010 UWMP also utilizes MWD water supply analyses, which include multiple-dry-year scenarios (i.e., drought conditions) to ensure that water demands will still be satisfied during emergency drought situations.

Based on written correspondence, GSWC indicated that water service is available for the proposed Project from the existing water facilities within Enterprise Drive and Katella Avenue.[8]

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1 GSWC. 2010 Urban Water Management Plan, West Orange, Section 6.1, August 2011
2 GSWC. 2010 Urban Water Management Plan, West Orange, August 2011, http://www.gswater.com/los-alamitos/files/2012/12/WestOrange_2010_UWMP.pdf (accessed April 8, 2015).
3 Ibid at Section 4.6.
4 Ibid at Section 6.1.2.
5 Ibid.
6 GSWC. 2010 Urban Water Management Plan, West Orange, August 2011 (Tables 2-2 and 3-14), http://www.gswater.com/los-alamitos/files/2012/12/WestOrange_2010_UWMP.pdf (accessed April 8, 2015).
7 Ibid.
8 GSWC Will-Serve Letter, July 2, 2015.

Storm Drain. The project site is relatively flat, with a gentle slope downward from a high point at the northeast corner of the project site to a low point approximately 10 feet downgradient at the southwest corner of the project site. Storm water runoff flows from the northeast corner to the southwest corner of the project site, where it collects in a small depression. From this depression, the runoff is conveyed to a 48-inch storm drain line located in Katella Avenue. The existing 100-year peak flow associated with the project site is approximately 20.24 cubic feet per second (cfs).
Drainage flows west via the local drainage system to the subregional OCFCD facility, Katella Storm Channel. Runoff from the storm drain system eventually discharges to the Los Alamitos Channel, Coyote Creek, the San Gabriel River (Reach 1), the San Gabriel River Estuary, San Pedro Bay, and eventually the Pacific Ocean.

4.9.4 Regulatory Setting

Federal Policies and Regulations. There are no federal policies or regulations applicable to public services, utilities, and service systems for the proposed Project.

State Policies and Regulations.

Water Supply Assessment. California Public Resources Code (PRC) Section 21151.9 requires that any proposed "project," as defined in Section 10912 of the Water Code, prepare a Water Supply Assessment (WSA) in compliance with Water Code Section 10910, et seq. Water Code Section 10910 et seq. outlines the necessary information and analysis that must be included in an Environmental Impact Report (EIR) to ensure that a proposed land development has a sufficient water supply to meet existing and planned water demand over a 20-year horizon.

According to WSA requirements, a "project" is defined as any of the following:

- A residential development of more than 500 dwelling units;
- A shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A hotel or motel, or both, having more than 500 rooms;
- An industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one or more of the projects specified above;
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

If a public water system has fewer than 5,000 service connections, a "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing

service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

Because the proposed Project would include the development of 244 dwelling units and 47,876 square feet of commercial/retail space, and because GSWC has more than 5,000 service connections, the proposed Project does not meet the definition of a "project" pursuant to Water Code Section 10912. Therefore, a WSA is not required for the proposed Project.

Drought State of Emergency. Drought conditions in the State of California have prompted the preparation of policies and regulations related to mandatory water use restrictions and conservation efforts. On January 17, 2014, the Office of the Governor declared a State of Emergency for the drought conditions experienced across the State.[1] This declaration directed State officials to take all necessary actions to prepare for these drought conditions and establish a statewide water conservation campaign. On May 5, 2015, the State Water Resources Control Board (SWRCB) adopted mandatory water reductions in urban areas to reduce potable urban water usage by 25 percent statewide. Based on the average residential water use in summer 2014, the regulations assign reduction mandates ranging from 4 to 36 percent to water systems through California. The reduction mandates went into effect June 1, 2015.

GSWC has committed to meeting the new State water conservation and rationing requirements. For the Los Alamitos region, which includes Cypress, Garden Grove, La Palma, Los Alamitos, Rossmoor, Seal Beach, and Stanton, the mandated reduction is 16 percent below 2013 usage levels. In order to achieve the mandated reductions established by the SWRCB, GSWC has created four different stages based on the severity of the drought conditions. When implemented, these stages create surcharges ranging from $2.50 to $10 per 100 cubic feet over a customer's allocation amount (allocations are determined by subtracting the reduction percentage mandated by the SWRCB from the customer's 2013 usage during the same month in 2013). As of July 1, 2015, GSWC has implemented a Stage 1 Mandatory Water Conservation and Rationing Plan that limits outdoor irrigation to 2 days per week before 8:00 AM and after 7:00 PM.[2]

Assembly Bill 341. Assembly Bill (AB) 341 extends the waste diversion requirements established under the California Integrated Waste Management Act of 1989 to the year 2020. In 1989, CalRecycle (then known as the California Integrated Waste Management Board) adopted the California Integrated Waste Management Act of 1989, which requires each city, county, and regional agency to develop a source reduction and recycling element of an integrated waste management plan. Each adopted source reduction and recycling element was required to demonstrate the diversion of 50 percent of all solid waste from landfill disposal or transformation by January 1, 2000. Annual progress reports were required to be filed with the State Legislature that included specified information regarding the act. AB 341 further establishes the policy goal

[1] State of California, Office of Governor Edmund G. Brown Jr. 2014. Governor Brown Declares Drought State of Emergency. http://gov.ca.gov/news.php?id=18368

[2] Golden State Water Company. Los Alamitos Service Area, website: http://www.gswater.com/los-alamitos/ (accessed July 1, 2015).

of the State that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020. AB 341 requires CalRecycle, by January 1, 2014, to provide a report to the Legislature that provides strategies to achieve that policy goal and also includes other specified information and recommendations in addition to the annual progress report. AB 341 is included as Regulatory Compliance Measure GHG-2 below.

State Water Resources Control Board. The *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*, Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System (NPDES) No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ (Construction General Permit), adopted by the SWRCB, regulates construction activity that includes clearing, grading, and excavation resulting in soil disturbance of at least 1 acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than storm water and authorized non-storm water discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4 unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than 1 acre do the following:

- Complete a risk assessment to determine pollution prevention requirements pursuant to the three risk levels established in the Construction General Permit;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the United States;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) that will reduce pollution in storm water discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

Refer to Section 4.6, Hydrology and Water Quality, for further information and discussion. The Construction General Permit is included as Regulatory Compliance Measure WQ-1 below.

Groundwater Discharge Permit. On March 27, 2009, the Santa Ana Regional Water Quality Control Board (RWQCB) adopted the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2009-0003, NPDES No. CAG998001). This permit covers discharge of groundwater and non-storm water construction dewatering waste in the Santa Ana Region. Under this permit, waste discharges must comply with discharge specifications, receiving water limitations, and monitoring and reporting requirements detailed in the permit to ensure that effluent limitations for constituents are not exceeded. Please refer to Section 4.6, Hydrology and Water Quality, for further information and discussion. The NPDES Groundwater Discharge Permit is included as Regulatory Compliance Measure WQ-2 below.

Regional Policies and Regulations.

Metropolitan Water District 2010 Regional Urban Water Management Plan. MWD's 2010 Regional UWMP lists and describes the various uses, demand, supplies, target reductions, and compliance measures for 26 member agencies. These include 14 cities, 11 municipal water districts, and 1 county water authority serving approximately 18.7 million people in Southern California. The 2010 Regional UWMP found that under the current supply demands for a multiple-dry-year scenario (i.e., drought conditions), MWD would have sufficient supply to meet the projected growing demand from 2015 to 2035 while still meeting statewide reduction targets of 20 percent of 2009 levels by 2020. MWD is currently working to develop programs to increase its water supply and create a large surplus during multiple-dry-year scenarios to ensure that water demands will still be addressed during emergency drought situations. With demands projected to be around 2.4 million acre-feet in 2035 during multiple-dry-year scenarios, MWD would have a surplus of 16,000 acre-feet with current capabilities and 771,000 acre-feet with the implementation of the programs under development.

Municipal Water District of Orange County 2010 Urban Water Management Plan. The region served by MWDOC is located in Orange County, California, and includes 26 cities (including the City of Cypress) and water districts, referred to as MWDOC member agencies. MWDOC's 2010 UWMP documents information on all sources of water supplies for the region—imported water, groundwater, surface water, recycled water, and wastewater—as a summary of information for regional planning.[1] The plan concludes that the MWDOC service area will have sufficient existing and planned supplies to meet full service demands under every water-year hydrologic scenario from 2015 through 2035. The plan also evaluates each source of water in the region. The resource mix for meeting total demand includes local groundwater, recycled water, surface water, and imported water from MWD. The plan documents MWDOC's cooperative efforts with its member agencies in developing local supplies and finds that in the region the percentage of its supply from each source will remain approximately the same for the next 25 years, with 45 percent of its supplies from imported water and 55 percent of its supplies from local sources in 2035, even with projected growth occurring.

Local Policies and Regulations.

Golden State Water Company 2010 Urban Water Management Plan. GSWC published its 2010 UWMP, which outlines how GSWC will provide customers with a reliable supply of drinking water for the next 30 years. The 2010 UWMP provides the California Department of Water Resources with information regarding present and future water resources and demands and provides an assessment of GSWC's water resource needs. The 2010 UWMP utilizes factors that were evaluated in ensuring supply reliability in the MWDOC's 2010 UWMP and the MWD's 2010 Regional UWMP.

The UWMP conducts a supply assessment to meet the projected growing demand in its West Orange service area. The UWMP analyzes water supply during multiple-dry-year scenarios to

[1] MWDOC, Final Urban Water Management Plan, 2010.

ensure that water demands will still be addressed during emergency drought situations. The UWMP includes these multiple-dry-year scenarios in its analysis of future water demand.

City of Cypress Municipal Code. The Cypress Municipal Code includes the following requirements that would apply to the proposed Project related to the provision of public services and utilities:

- Section 12-31 (Required Diversion Rates) of the City's Municipal Code requires that demolition, remodeling, and construction projects subject to Chapter 12 shall recycle, reuse, or divert from the landfills or disposal sites a minimum of 50 percent of the construction or demolition debris involved in the construction, remodeling, or demolition project. Section 12-31 of the City's Municipal Code is included as Regulatory Compliance Measure PS-3 below.
- Section 5-1 (California Building Codes—Adopted) adopts the 2013 California Green Building Standards Code, 2013 Edition (Title 24). Generally, the intent of Title 24 is to provide efficiency standards for new construction and the rehabilitation of both residential and nonresidential buildings, including building energy consumption, water conservation, and operational efficiencies. Title 24 regulates building energy consumption for heating, cooling, ventilation, water heating, and lighting with regard to both electricity and natural gas, while also regulating water consumption through the installation of efficient plumbing fixtures. Title 24 is included as Regulatory Compliance Measure GHG-3 below.
- Section 5-3 (California Fire Code, adoption, amendments), adopts the 2013 CFC, with some amendments and modifications. Generally, the intent of the CFC is to prescribe regulations for the safeguarding of life and property from the hazard of fire and explosion. Section 5-3 of the City's Municipal Code is included as Regulatory Compliance Measure PS-1 below.

4.9.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, implementation of the proposed Project would have a significant impact on public services and utilities if it would:

Public Services.

Threshold 4.9.1: 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 *fire protection*;

Threshold 4.9.2: 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 *police protection*;

Threshold 4.9.3: 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 *public schools*;

Threshold 4.9.4: 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 *parks*; or

Threshold 4.9.5: 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 *other public facilities*.

Utilities and Service Systems.

Threshold 4.9.6: Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

Threshold 4.9.7: Require or result in the construction of new water or wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

Threshold 4.9.8: Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

Threshold 4.9.9: Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;

Threshold 4.9.10: Result in a determination by the wastewater 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;

Threshold 4.9.11: Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or

Threshold 4.9.12: Comply with federal, state, and local statutes and regulations related to solid waste.

Energy Consumption. In order to ensure that energy implications are considered in project decisions, Appendix F to the *CEQA Guidelines* requires that EIRs include a discussion of the

potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. The energy impacts of the proposed Project are discussed below in Section 4.9.7.

The analysis in the Initial Study (Appendix A) determined that the proposed Project's impacts with respect to Thresholds 4.9.3 and 4.9.12 would be clearly insignificant and unlikely to occur. Therefore, the public school and solid waste impacts relating to those thresholds are not considered further in this Draft EIR.

4.9.6 Project Impacts

The proposed Project includes the development of a mixed-use project consisting of a senior residential community and commercial/retail improvements on the approximately 33-acre unimproved project site. The proposed development would create demand for public services and utilities not currently present on the project site.

Threshold 4.9.1: **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 *fire protection***

Construction.

Less than Significant Impact. Short-term construction activities associated with the proposed Project would not substantially change the existing fire service needs in the project area. There would be minimal fire protection needs during the temporary construction activities and there are sufficient fire protection services under existing conditions.[1] Furthermore, short-term construction activities would be limited to the project site and would not significantly impact the ability of emergency response vehicles traveling through streets adjacent to the project site.

In addition, the proposed Project would be required to comply with all Occupational Safety and Health Administration (OSHA) requirements regarding site safety during construction. All construction managers and personnel would be trained in emergency response and fire safety, and on-site fire suppression equipment specific to construction activities would be maintained.

In 2012, OCFA Fire Station No. 17, which is 0.51 miles from the project site was rebuilt and expanded to accommodate existing and planned future needs in the service area. No new OCFA fire stations would be required to be developed nor would an existing station need to be expanded to provide adequate fire and emergency medical protection service during project construction.[2] Therefore, construction activities associated with the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental

[1] OCFA, Service Letter Responses, May 18, 2015.
[2] Ibid.

facilities, or the need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection.

Operation.

Less than Significant Impact. Operation of the proposed Project would incrementally increase demand for fire protection and emergency service calls. The proposed Project would be designed to comply with current fire protection standards (see Regulatory Compliance Measure PS-1), which require fire protection devices, such as sprinklers, alarms, adequately spaced fire hydrants, and fire access lanes. The proposed Project would incorporate fire lanes and entry points into its project design to allow ease of access for firefighting equipment in the event of a fire. These access driveways would be developed in accordance with the code requirements for site access widths to allow for firefighting equipment to adequately enter and exit the project site. The proposed Project would also incorporate fire lanes to allow firefighting equipment to reach all portions of the project site. With adherence to the regulatory standards described in Regulatory Compliance Measure PS-1, fire department access would be adequately provided onsite.

As noted above, OCFA Fire Station No. 17 is located approximately 0.51 miles north of the project site. The proposed Project would introduce new residential and commercial/retail uses into the OCFA's service area. Written correspondence from the OCFA states that Fire Station No. 17 was substantially rebuilt and expanded in 2012 with added capacity to accommodate the existing and future fire protection and paramedic needs in the service area and provide prompt assistance to area residents.[1] New Fire Station No. 17 is staffed with six captains, six engineers, and 15 firefighters to serve the project area.[2]

As such, no new OCFA fire stations would be required to be constructed nor would an existing station need to be expanded to provide adequate fire services for the proposed Project. Therefore, operation of the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection. Potential impacts related to the provision of fire protection services for the operation of the proposed Project would be less than significant.

Threshold 4.9.2: **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 *police protection***

[1] Michele Hernandez, OCFA Management Analyst, email correspondence on May, 18, 2015.
[2] Ibid.

Construction.

Less than Significant Impact. Short-term construction activities associated with the proposed Project would not substantially change the existing police service needs in the project area. There would be minimal police protection needs beyond the existing conditions because the proposed Project's construction phasing (as described further in Section 3.0, Project Description) would result in only a portion of the site being under construction at a time, and there are sufficient police protection services under existing conditions.[1] The proposed Project would have patrol and nighttime security lighting to reduce the potential for trespassing and vandalism. Therefore, impacts related to the provision of police protection for construction of the proposed Project would not require the construction of new or expanded police stations, or result in substantial adverse physical impacts associated with the construction or expansion of existing police stations to maintain acceptable service ratios, response times, or other performance objectives. Therefore, the Project's potential impact on police protection services with respect to construction activities would be less than significant.

Operation.

Less than Significant Impact. The proposed Project would incrementally increase demand for police protection and emergency service calls. The proposed Project would adhere to the development standards described in the City's Municipal Code related to public safety, including devices for remote-access gates, security lighting, and surveillance monitoring. Written correspondence from Commander Tom Bruce, Cypress Police Department, on May 18, 2015, states the Cypress Police Department would be able to adequately serve the proposed Project, and states that there are no plans for a new facility to satisfy service needs. The Cypress Police Department acknowledges that there will be an increase in calls for service related to the proposed Project, but concluded that related population growth and anticipated commercial/retail activity would not be considered substantial.[2] Therefore, operation of the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection. Potential impacts related to the provision of police protection services for operation of the proposed Project would be less than significant.

Threshold 4.9.4: **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 *parks***

[1] City of Cypress Police Department, Service Response Letter, May 18, 2015.
[2] Ibid.

Less than Significant Impact. Please refer to Section 4.10, Recreation, of this Draft EIR for a detailed discussion related to the proposed Project's potential impacts to parks and recreational facilities. As discussed in Section 4.10, the addition of approximately 440 new senior residents would result in limited use of existing recreational facilities in the project vicinity. As a senior community, the increased demand to park facilities such as playgrounds, tot lots, soccer and baseball fields is expected to be minimal. This minor demand would be offset by the provision of the onsite amenity center, which includes a community clubhouse, a fitness room, a pool, a spa, an outdoor fireplace, and barbeque and gathering areas for use by residents and their guests), as well as pedestrian pathways and two pocket parks. In addition to providing private recreational amenities, the project applicant would pay park fees in accordance with Cypress Municipal Code Chapter 25, Article 6.

As discussed in Section 4.10, the proposed Project's impact on park and recreational facilities would be less than significant. Moreover, with provision of onsite private amenities and payment of park fees, the proposed Project would not require the construction of new or expansion of existing recreational facilities, or result in substantial adverse physical impacts associated with the construction or expansion of existing recreational facilities to maintain acceptable service ratios or performance objectives. Therefore, the proposed Project's potential impact on parks would be less than significant.

Threshold 4.9.5: 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 *other public facilities*

Public Library.

Construction.

Less than Significant Impact. Short-term construction activities would not have any impacts on the existing OCPL system because there are no nearby libraries that could be impacted by construction activities and construction activities would not generate demand for library services. It is unlikely that the construction workers would increase the demand for library services during the temporary construction of the proposed Project as most workers would commute directly to and from the project site for the sole purpose of working on the proposed Project. Therefore, no new libraries would be required to be developed nor would an existing library need to be expanded to provide adequate public library services during proposed Project construction. Therefore, the proposed Project's potential impact on public libraries during construction would be less than significant.

Operation.

Less than Significant Impact. Demand for library services is typically determined based on the size of the resident population. The OCPL's adopted service standards of 0.2 square foot of library space per capita and 1.5 books per capita were used to evaluate potential impacts of

the proposed Project. The projected increase in population associated with the proposed 244 senior residential units would be approximately 440 persons. Using this standard and the projected future population within the service area of the Cypress Branch of the OCPL at the time of the proposed Project's buildout (50,582 [50,142[1] persons + 440[2] persons]), the Cypress Branch of the OCPL would need to be 10,116[3] square feet in size with 75,873 books.[4] The Cypress Branch currently consists of a 15,000-square-foot facility with approximately 88,000 books; therefore, it exceeds the OCPL standards for size and number of books per capita. The proposed Project's increase in demand for library services is incremental and would not require the construction of a new or expanded public library, or result in substantial adverse physical impacts associated with the construction or expansion of existing public libraries to maintain acceptable service ratios or other performance objectives. Therefore, the proposed Project's potential impact on public libraries would be less than significant.

Public Transportation.

Construction.

Less than Significant Impact. OCTA Route 50 runs along Katella Avenue adjacent to the project site, with the nearest bus stop provided near the southwestern corner of Katella Avenue and Enterprise Drive. Short-term construction activities would be limited to the project site and would not affect existing OCTA services at the bus stop or on Katella Avenue. Construction workers are unlikely to use public transit to commute to the project site, as the majority of workers would drive to the site in their individual vehicles. Many of the workers would need their own vehicles to transport tools, equipment and supplies for the proposed Project. Therefore, no new transit facilities would be required nor would an existing facility need to be expanded to provide adequate public transportation service during project construction. Therefore, the proposed Project's potential impact on provision of public transportation during the construction would be less than significant.

Operation.

Less than Significant Impact. Operation of the proposed Project is not anticipated to result in a substantial increase in demand for transit services provided by OCTA. Project residents would be able to access the existing bus stop on Katella Avenue via Enterprise Drive or the community walkway through the retail/commercial center. Additionally, patrons of the proposed Project could access the retail/commercial center via the existing bus stop on Katella Avenue. OCTA Route 50 currently operates both east and west along Katella Avenue adjacent to the project site. The nearest bus stops are Katella Avenue-Saratoga (eastbound)

1 2019 population, interpolated from the SCAG Adopted 2012 RTP Growth Forecast. http://www.scag.ca.gov/forecast/downloads/excel/2012AdoptedGrowthForecast.xls, (accessed March 25, 2015).
2 Population generated by the proposed Project.
3 0.2 square foot per the City's population of 50,582 in 2019.
4 1.5 books per the City's population of 50,582 in 2019.

and Katella-Enterprise (westbound). Age-qualified seniors could also utilize the SMP services provided by OCTA.

Written correspondence from OCTA[1] indicates that it has no immediate plans for changes to Route 50.[2] A limited-stop bus service is planned in the project area, but it would likely be located east of the project site at the intersection of Katella Avenue/Valley View Street. The *On/Off Summary Report* compiled by OCTA for the February 2015 to June 2015 period for Route 50 indicates that an average of 409 total passengers ride the 34 daily trips westbound in the vicinity of the project site (or an average of 12 passengers per trip). Route 50 eastbound in the vicinity of the project site experienced a total daily ridership of 444 passengers on the 33 daily eastbound trips (or an average of 13.5 passengers per trip). Based on the average passenger capacity of a standard 40-foot bus (46 persons),[3] Route 50 runs at between 26 and 29 percent of capacity in the vicinity of the project site. Therefore, the existing public transit facilities adjacent to the project site have sufficient capacity to serve the proposed Project, and the potential impact related to the provision of public transportation during operation of the proposed Project would be less than significant.

Electricity.

Construction.

Less than Significant Impact. Short-term construction activities would be limited to providing power to the staging area and portable construction equipment and would not substantially increase demand for electricity. The heavy equipment used for construction is primarily powered by diesel fuel. Temporary electric power would be provided via existing utility poles on Katella Avenue and/or Enterprise Drive. Given the limited nature of potential demand for electricity during construction and the availability of existing power lines adjacent to the project site, there would not be a need to construct new or alter existing electric transmission facilities. Impacts to local regional supplies of electricity would be less than significant. Section 4.9.8 below provides a detailed discussion of the energy consumption associated with the proposed Project.

Operation.

Less than Significant Impact. Operation of the proposed Project would increase on-site electricity demand compared to existing conditions. Electricity demands of the proposed Project were provided by the Energy Resources Worksheets (ENVIRON, May 2015). CalEEMod 2013.2.2 was used to calculate the approximate annual electricity demand of each land use category associated with the proposed Project. The project site is currently

1 Gary Hewitt, OCTA Section Manager- Transit & Non-Motorized Planning, Email correspondence on May 15, 2015.
2 Ibid.
3 OCTA, Systemwide Bus Service Standards and Policies, October 5, 2012. Website: http://octa.net/%2Fpdf%2FSERVICESTANDARDGUIDELINESOCTA.pdf (accessed June 15, 2015).

unimproved and does not contain any structures. Therefore, there is no current demand for electricity on the project site.

Table 4.9.B provides the estimated electricity demand at project buildout. As shown in Table 4.9.B, the proposed Project is estimated to consume a total of 2,173,653 kilowatt-hours (kWh) of electricity per year including direct electricity use from the buildings and indirect electricity associated with water use Therefore, the proposed Project would require an increase of approximately 2,173,653 kWh of electricity per year compared to existing conditions.

Table 4.9.B: Existing and Proposed Electricity Demand

	Monthly Electricity Demand (kWh)	**Annual Electricity Demand (kWh)**
Existing Demand	0	0
Proposed Project[1]	181,138	2,173,653
Net Change	**181,138**	**2,173,653**

Source: Energy Resources Worksheets (ENVIRON, May 2015).
[1] Calculations and land use categories provided by CalEEMod Version 2013.2.2.
kWh = kilowatt-hours

All new development is required to comply with Section 5-1 of the City's Municipal Code, which effectively adopts Title 24 Green Building requirements for Cypress (see Regulatory Compliance Measure GHG-3). Project Design Feature NRG-1 includes the provision of energy-efficient appliances within the residential component of the proposed Project, while Project Design Feature NRG-2 includes high-efficiency lighting throughout the proposed Project. The estimated onsite electricity demand associated with the proposed Project reflects adherence to the regulatory standards described in Regulatory Compliance Measure GHG-3 and the implementation of Project Design Features NRG-1 and NRG-2.

In January 2014, the CEC published the final California Energy Demands for the years 2014 through 2025.[1] According to the CEC, electricity consumption in SCE's service area is projected to reach between 102,984 gWh in the low-demand scenario and 111,589 gWh in the high-demand scenario by 2020. Peak electricity demand is projected to reach between 23,657 MW and 25,448 MW by 2020. In addition, the CEC estimates that net peak demand and net energy load within SCE's service territory will continue to grow, with an annual growth in peak mid-demand growth of 1.15 percent between 2014 and 2025. Based on the CEC's projections for the SCE service area in 2020, the maximum project-related annual consumption would represent approximately 0.0018[2] percent of the forecast net energy load. Therefore, the proposed Project's maximum project-related annual electric consumption would be within the SCE forecasted demand. The relationship between supply and demand involves the availability of energy resources and the net incremental demand generated by a

[1] CEC, 2014-2014 Electricity Demand by Planning Area. http://www.energy.ca.gov/2013publications/CEC-200-2013-004/CEC-200-2013-004-V1-CMF.pdf (accessed April 8, 2015).
[2] 1.82 gWh/102,984 gWh.

given project or service area. Service providers utilize demand forecasts in order to provide an adequate supply or plan for surplus in the service area. Due to the inability for service providers to store electricity for future demand, the supply and delivery of electricity to customers is directly based on the demand projections. Therefore, because the proposed Project would represent less than 1 percent of projected demand, the proposed Project would be within the projected demand and supply for the 2020 horizon year.

The supply and distribution network within the area surrounding the project site would remain essentially the same as exists today, and levels of service to off-site users would not be adversely affected. Existing distribution facilities on Katella Avenue and/or Enterprise Drive would provide electrical service to the residential and retail/commercial uses. The proposed Project would not increase electrical demand beyond existing projections from the local electricity provider and the project site is within a developed service area with existing demand. In addition, SCE provided a will-serve letter on March 24, 2014 that indicated it could serve the proposed Project's electrical requirements. The proposed Project's potential impact on electricity demand would be less than significant.

Natural Gas.

Construction.

No Impact. Short-term construction activities would not result in demand for natural gas since construction activities/equipment would not require accessing existing adjacent natural gas facilities. Construction activities would almost exclusively use diesel-powered equipment. Therefore, construction activities would have no impacts related to natural gas services for the construction of the proposed Project, and the proposed Project would not require new or physically altered gas transmission facilities.

Operation.

Less than Significant Impact. Operation of the proposed Project would result in increased demand for natural gas because the site is currently vacant. The estimated natural gas demands of the proposed Project were provided by the Energy Resources Worksheets (ENVIRON, May 2015). CalEEMod 2013.2.2 was used to calculate the approximate annual natural gas demand of each land use category within the proposed Project. Table 4.9.C provides the estimated natural gas demand at project build out. As shown in Table 4.9.C, the proposed Project is estimated to generate a total natural gas demand of 85,807 therms per year,[1] which would be approximately 85,807 therms per year more than existing conditions on the project site. The estimated on-site natural gas demand associated with the proposed Project reflects adherence to the regulatory standard described in Regulatory Compliance Measure GHG-3 and implementation of Project Design Feature NRG-1.

[1] 8,580,659 kBTU/year = 85,807 therms/year.

Table 4.9.C: Existing and Proposed Natural Gas Demand

	Monthly Natural Gas Demand (therms)	Annual Natural Gas Demand (therms)
Existing Demand	0	0
Proposed Project[1]	7,151	85,807
Net Change	**7,151**	**85,807**

Source: Energy Resources Worksheets (ENVIRON, May 2015).
[1] Calculations and land use categories provided by CalEEMod Version 2013.2.2.
BTU = British thermal units
therm = unit of heat energy equal to 100,000 BTU

Based on CEC projections for the SoCalGas service area in 2020 (the closest year for proposed Project buildout for which a natural gas demand forecast for the SoCalGas service area is available), the 2020 forecasted low-demand and high-demand scenarios were 7,220 million therms and 7,370 million therms, respectively. The estimated increase in natural gas demand associated with the proposed Project would represent approximately 0.00119 percent[1] of the forecast natural gas demand.[2]

As noted above, the relationship between supply and demand involves the availability of energy resources and the net incremental demand generated by a given project or service area. Service providers utilize demand forecasts in order to provide an adequate supply or plan for surplus in the service area. According to the 2014 California Gas Report prepared by the California Gas and Electric Utilities, the 2020 projected peak day demand for the SoCalGas service area is 3,372 million cubic feet per day (MMcf/day). The supply from storage withdrawal and flowing supply to the SoCalGas service area has been projected to meet the projected demand at 3,372 MMcf/day (12,727.82 therms/year). Therefore, SoCalGas has adequate supply, pipeline, and storage facilities to address future natural gas needs associated with implementation of the proposed Project. In addition, SoCalGas provided a service letter on July 21, 2014, that confirms that it has facilities available to serve the proposed Project.

The distribution network within the area surrounding the project site would remain essentially the same as exists today, and levels of service to off-site users would not be adversely affected. Existing distribution facilities in Katella Avenue and/or Enterprise Drive would provide natural gas service to the residential and retail/commercial uses. Because the proposed Project would not increase natural gas demand beyond existing projections and no new and/or expanded storage facilities or transmission lines would be required, other than lines to serve the proposed Project, the proposed Project's potential impact on natural gas demand would be less than significant.

[1] 85,807 therms/7,220 million therms = 0.00119 percent.
[2] CEC, 2014. California Energy Demand 2014–2024 Final Forecast, http://www.energy.ca.gov/2013 publications/CEC-200-2013-004/CEC-200-2013-004-V1-CMF.pdf (accessed April 8, 2015).

Therefore, the impact related to the provision of natural gas services for the proposed Project would be less than significant, and the proposed Project would not require new or physically altered natural gas facilities (other than those facilities needed for onsite distribution and hook-up into the existing system). Similarly, no significant impact on local or regional supplies of natural gas would occur as a result of the proposed Project.

Threshold 4.9.6: Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board

Construction.

Less than Significant Impact. The proposed Project is located within the OCSD service territory and would convey wastewater to OCSD Treatment Plants Nos. 1 and 2. The wastewater generated by the proposed Project during construction and operation would be subject to the treatment requirements established by the Santa Ana RWQCB. There would be no increase in wastewater flows as a result of construction activities on the project site. Sanitary services during construction would be provided by portable toilet facilities and all wastewater would be transported off site for treatment and disposal by an authorized private company.

As noted in Section 4.6, Hydrology and Water Quality, of this Draft EIR, the proposed Project would be required to adhere to the regulatory standards described in Regulatory Compliance Measures WQ-1 and WQ-2, including the Construction General Permit (which requires preparation and implementation of a SWPPP) and the Groundwater Discharge Permit (which requires testing and treatment of dewatered groundwater). These permits are approved and regulated by the SWRCB and the Santa Ana RWQCB. Therefore, the proposed Project's adherence to the regulatory standards described in these Regulatory Compliance Measures would ensure that potential construction impacts would not exceed the wastewater requirements of the applicable RWQCB. Therefore, the potential construction impact would not exceed wastewater treatment requirements of the applicable RWQCB and the impact would be less than significant.

Operation.

Less than Significant Impact. Wastewater generated during operation of the Project would be conveyed to OCSD Treatment Plants Nos. 1 and 2. Pollutants generated by the proposed Project would be similar to existing residential and commercial/retail projects in the area. OCSD would be required to comply with all requirements established by the Santa Ana RWQCB. In addition, written correspondence from OCSD demonstrates that it understands the land uses associated with the proposed Project, related wastewater characteristics, and anticipated flow rates.[1] OCSD indicated that it has sufficient capacity to accept wastewater from the proposed Project and properly handle it without exceeding the treatment requirements of the Santa Ana RWQCB Therefore, the potential operational impact would not exceed the wastewater treatment requirements of the applicable RWQCB and the impact would be less than significant.

[1] OCSD, Service Letter Correspondence, Daisy Covarrubias, MPA, Senior Staff Analysts, March 30 and April 16, 2015.

Threshold 4.9.7: Require or result in the construction of new *water* or wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

Water Facilities.

Construction.

Less than Significant Impact. Construction activities would require water primarily for dust mitigation purposes. Water from the existing potable water system that serves the project site area would be used. The proposed Project would not require the construction of new or expanded water conveyance, treatment, or collection facilities with respect to construction activities. Therefore, the impact on water facilities during construction of the proposed Project would be less than significant.

Operation.

Less than Significant Impact. The proposed Project would include an onsite domestic water distribution system to serve the proposed residential and commercial/retail uses. The onsite system would be constructed in compliance with the City's building and plumbing codes in the Municipal Code. The proposed onsite distribution system would connect to the existing GSWC water facilities located within Enterprise Drive and Katella Avenue, which are adjacent to the project site to the south and west.[1] Extension of the water infrastructure from the adjacent streets into the project site would be a routine part of the construction process analyzed in this Draft EIR and would not have a material environmental impact. The water facility improvements would be limited to the project site and connection points to the adjacent, existing GSWC facilities. Therefore, the proposed Project would not require or result in the construction of new water treatment or collection facilities, or the expansion of existing facilities, which could cause a significant environmental impact, and the impact would be less than significant.

Threshold 4.9.8: Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

Construction.

Less than Significant Impact. Grading and construction activities would disturb soils and temporarily modify the storm water flow patterns on the construction site. As described under the analysis of Threshold 4.6.3 in Section 4.6, Hydrology and Water Quality, the proposed Project would obtain a Construction General Permit (Regulatory Compliance Measure WQ-1) that requires preparation of a SWPPP and identification of construction BMPs that must be implemented during Project construction to address potential impacts to hydrology and

[1] Will Serve Letter from GSWC, July 2, 2015.

stormwater drainage, including soil erosion, siltation, spills, and runoff. Adherence to the regulatory standard described in Regulatory Compliance Measure WQ-1 would ensure that any changes in storm water drainage from the project site are controlled during construction. Therefore, the proposed Project would not require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental impacts, and the impact would be less than significant.

Operation.

Less than Significant Impact. The development of the proposed Project would increase impervious surface area on the project site, which would reduce infiltration and modify the existing drainage pattern. The project site has relatively flat topography, and stormwater runoff generally flows in a southwesterly direction. As described in Section 4.6, Hydrology and Water Quality, flows would be collected at catch basins and directed to an onsite storm drain/detention system. The onsite system would flow south to an underground stormwater detention system located beneath the proposed commercial/retail area near Katella Avenue (Project Design Feature WQ-1). Prior to discharging into the detention system, low-flow and first-flush runoff from the project site would be diverted to Modular Wetland Units for filtration and biotreatment. Treated runoff from the units would then discharge back into the internal storm drain lines and into the detention system. The detention system would be sized to accommodate a 100-year peak flow and limit peak flow discharges to the storm drain within Katella Avenue. The underground detention system would discharge via gravity to the existing storm drain line located within Katella Avenue at a controlled rate, per the City's standards.[1] The City allows a maximum of 0.308 cubic feet per second (cfs) per acre-foot of development to be discharged to the Katella Avenue storm drain line. Based on the City's requirement, a maximum of 10.14 cfs could be discharged to the Katella Avenue storm drain line from the project site. The proposed underground detention system would reduce offsite discharge to the City's storm drain system to approximately 7.46 cfs, which is substantially less than the required design flow of 10.14 cfs. The onsite drainage system would adequately control storm water flow so that no new offsite storm water facilities are required.

Because the proposed Project's storm drain system would comply with the City's flood control requirement and reduce the peak discharge, operation of the proposed Project would not adversely affect the capacity of downstream facilities. Therefore, the proposed Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts, so that the proposed Project's impact on storm water drainage facilities would be less than significant.

[1] Fuscoe Engineering, *Preliminary Hydrology Study, Barton Place, 4921 Katella Avenue, Cypress, California*, February 2015.

Threshold 4.9.9: Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed

Construction.

Less than Significant Impact. Short-term demand for water would occur during excavation, grading, and construction activities onsite. Water demand for soil watering (fugitive dust control), cleanup, masonry, painting, and other activities would be temporary and would cease once construction activities are completed. The estimated total average daily potable water demand during construction of the proposed Project was calculated in the Energy Resource Worksheets (ENVIRON, May 2015). The approximate water demand for each construction phase was calculated using CalEEMod 2013.2.2, the maximum disturbed acres per day, and water use assumptions to comply with dust mitigation measures for the proposed Project. The estimated demand was then converted to gallons per day (gpd).The peak daily water usage would vary during the site preparation and grading phases of construction. The total water demand for the duration of construction activities is approximately 1,080,405 gallons.

According to the GSWC's UWMP, the planned water supplies for 2015 (the closest year to the commencement of construction) in the West Orange System would be approximately 18,602 afy.[1] As discussed above, the total water demand for the proposed Project during construction[2] is approximately 1,080,405 total gallons, or an average of approximately 385,859 gallons (or 1.2 acre-feet) per year, which would represent a small portion (0.0065 percent[3]) of the projected water supply in GSWC's West Orange service area in 2015. In 2020, the GSWC West Orange Service area has a planned water supply of 19,160 afy. Therefore, GSWC would have sufficient water supplies available for the proposed Project's construction activities from existing entitlements and resources. No new or expanded water entitlements would be needed. Therefore, the proposed Project's water supply impact associated with short-term construction activities would be less than significant.

Operation.

Less than Significant Impact. An increase in long-term demand for water would occur during operation of the proposed Project. As required for all new development in California, the proposed Project would comply with California State law regarding water conservation measures, including pertinent provisions of Title 24 of the California Government Code (Title 24 and Regulatory Compliance Measure GHG-3) regarding the use of water-efficient fixtures and appliances. The proposed Project would also be required to comply with any applicable local water conservation measures imposed by GSWC or the City of Cypress.

The estimated total average daily potable water demand for the proposed Project was calculated in the Energy Resource Worksheets (ENVIRON, May 2015). CalEEMod 2013.2.2 was used to estimate the approximate annual water demand for each land use category associated with the

1 The 2010 GSWC UWMP indicates that projected supply and demand for the West Orange service area are 18,602 afy.

2 Construction of the proposed Project would take 34 months, or 2.8 years.

3 385,859 gallons = 1.2 acre feet, 1.2 afy/18,602 = 0.0065 percent

proposed Project. The estimated demand was then converted to gallons per day (gpd). The project site is currently unimproved and does not contain any structures. Therefore, there is no current potable water demand on the project site. Table 4.9.D provides the estimated water demand (86,301 gpd) associated with operation of the proposed Project.

Table 4.9.D: Existing and Proposed Project Water Demand

	Projected Daily Water Demand (gpd)
Existing Demand	0
Proposed Project[1]	86,301
Change in Daily Water Demand	**86,301**

Source: Energy Resources Worksheets (ENVIRON, May 2015).
[1] Calculations and land use categories provided by CalEEMod Version 2013.2.2 for operational year 2020.
gpd = gallons per day

GSWC developed its 2010 UWMP based on population, housing, and employment projections for the West Orange System using SCAG data and projections through the year 2035.[1] The proposed Project is consistent the City's General Plan, which also relies on SCAG population and growth estimates. As a result, the anticipated population growth and water demand associated with the proposed Project is accounted for in the SCAG 2035 growth projections that form the basis of the 2010 UWMP.

In the 2010 UWMP, growth projections for the number of service connections and volume of water use were calculated for the years 2015 through 2035 in 5-year increments.[2] Future water demand was estimated using two different methods, a population-based approach and a historical-trend approach, to present a projected water demand range reflecting the inherent uncertainty in growth trends. With respect to water supply, the 2010 UWMP assessed the available water in a normal year, single-dry year, and multiple-dry year scenario for the West Orange System. The water supply for 2020 in the West Orange System would be 19,160 afy under the normal and dry-year scenarios.[3] The water supply for the 2035 normal and dry-year scenarios would be 19,645 afy.[4]

As shown in Table 4.9.D, the total operational water demand for the proposed Project is estimated to be 86,301 gpd. The 2010 UWMP allotted 19,160 afy of supply to the West Orange service area and the proposed Project's allotment from that supply would only be approximately 0.5 percent[5] of the supply in 2020. Similarly, the proposed Project's allotment of water would be well within the entitled water supply of GSWC in the 2035 scenarios.

1 UWMP, Section 2.3: Population, Housing and Employment, August 2011.
2 UWMP, Section 3.3: Projected Water Use, August 2011.
3 UWMP, Tables 6-4, 6-5, and 6-6, August 2011.
4 Ibid.
5 86,301 gpd = 96.7 afy. Therefore, 96.7 afy/19,160 afy = 0.5 percent.

The UWMP also includes a water supply reliability analysis. In general, GSWC's supply is expected to be 100 percent reliable through 2035 based on projected reliability of imported water supplies from the MWD, MWDOC, Orange County Water District's management of the Orange County Groundwater Basin, and conservation-derived supply.[1] The water supply reliability analysis includes normal, dry-year, and multiple dry-year scenarios.

Furthermore, in a letter dated July 2, 2015 (Appendix J), the Orange County District of GSWC indicated that water service is available to the proposed Project. The proposed Project does not require the preparation of a water supply assessment pursuant to California Water Code Sections 10910 and 10912 (SB 610) or California Government Code Sections 65867.5 and 66473.7 (SB 221) as discussed above.

Therefore, GSWC has sufficient water supplies available to serve the proposed Project from existing entitlements and resources. No new or expanded entitlements are needed. The proposed Project's potential impact on domestic water supply would be less than significant.

Threshold 4.9.10: **Result in a determination by the wastewater treatment provider which serves or may serve the project that is has adequate capacity to serve the project's projected demand in addition to the provider's existing commitment**

OR

Threshold 4.9.7: **Require or result in the construction of new water or *wastewater treatment* or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects**

Wastewater Facilities and Treatment.

Construction.

Less than Significant Impact. There would be no increase in wastewater flows as a result of construction activities on the project site. Sanitary services during construction would be provided by portable toilet facilities, which transport waste offsite for treatment and disposal. Construction of the proposed Project would not require or result in the construction of new wastewater treatment or collection facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Similarly, the proposed Project would not result in a determination by the wastewater treatment provider which serves the proposed Project that it has adequate capacity to serve the projected demand in addition to the provider's existing commitment. Therefore, the proposed Project's impact on wastewater treatment capacity and related wastewater facilities with respect to construction activities would be less than significant.

[1] UMWP, Chapter 6: Water Supply Reliability, August 2011.

Operation.

Less than Significant Impact. Development of the proposed Project would increase wastewater generation because the project site would transition from vacant land to senior residential and commercial/retail uses. There is no current wastewater generation on the project site. As part of the normal development process, new sewer lines would be constructed beneath the commercial/retail and residential lots. These onsite wastewater facilities would connect to the existing sewer mains along Katella Avenue and Enterprise Drive, which are adjacent to project site. The project site is located within the OCSD service territory, and wastewater from the proposed Project would be discharged to Treatment Plant Nos. 1 and 2 for treatment.

Table 4.9.E provides the estimated wastewater generation at project buildout based on the OCSD's wastewater generation rates. As shown in Table 4.9.E, the proposed Project is estimated to generate a total wastewater flow of 107,938 gpd during operation. The generation factors used to estimate the average wastewater flow were provided by the OCSD and represent a conservative estimate because the proposed senior residential community would have a density of approximately 8.7 units per acre, which is at the low end of the density range considered in OCSD's generation factor.

Table 4.9.E: Existing and Proposed Wastewater Generation

	Unit of Measurement	Wastewater Generation Factor[1]	Estimated Average Wastewater Flow (gpd)
Existing Site			
Undeveloped	33 acres	0 gpd/acre	0
Proposed Project			
Medium-Density Residential (8–16 du/ac)[2]	28 acres	3,451 gpd/acre	96,628
Commercial/Office	5 acres	2,262 gpd/acre	11,310
Total			**107,938**
Net Change in Daily Wastewater Generation			**107,938**

Source: LSA Associates, Inc. (2015).
1 Email correspondence with Daisy Covarrubias on behalf of OCSD (March 30, 2015).
2 These generation factors were provided by the OCSD and represent a conservative estimate. The proposed Project's residential community would be at a density of 8.7 du/ac.
du/ac = dwelling units per acre
gpd = gallons per day

In written correspondence, OCSD indicated that it has the capacity to service the wastewater flows of from the proposed Project with existing facilities.[1] In addition, OCSD indicated that it intends to rehabilitate and replace sewer lines in the City of Cypress as part of OCSD's long-range planning projects, and that portions of the sewer project are in close proximity to

1 Email correspondence with Daisy Covarrubias on behalf of OCSD (March 30, 2015).

the project site.[1] OCSD's rehabilitation project was developed based on the General Plans from surrounding cities, including Cypress. Therefore, any rehabilitation or enhancements to the existing sewer system would further enhance OCSD's ability to handle the wastewater flows from the proposed Project.

Wastewater generated by the proposed Project would be treated at OCSD Treatment Plant Nos. 1 and 2, which are located in the Cities of Fountain Valley and Huntington Beach, respectively. As described in the OCSD 2013–2014 Annual Report, Treatment Plant Nos. 1 and 2 have a combined available treatment capacity of 172 mgd.[2] The increase in wastewater associated with the proposed Project would represent 0.06[3] percent of the total available daily capacity of Treatment Plant Nos. 1 and 2 when the proposed Project is fully operational. The wastewater flow of 107,938 gpd from the proposed Project would be accommodated within the existing design capacity of Treatment Plant Nos. 1 and 2.

Therefore, the proposed Project would not require the construction of new wastewater treatment or collection facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Also, the wastewater treatment provider which serves the proposed Project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitment. Therefore, the proposed Project's impact on wastewater facilities would be less than significant.

Threshold 4.9.11: Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs

Construction.

Less than Significant Impact. Construction of the proposed Project would not generate demolition waste because there are no structures on the project site. The Initial Study's analysis of hazards and hazardous materials determined that the project site does not contain hazardous materials that would need to be removed from the soil before construction. Based on the conceptual grading plan, certain areas of the project site may be raised to establish the planned finished grade elevation. Construction activities would include importing approximately 93,390 cubic yards of material during the site preparation and grading phases. Thus, no material quantity of soil material would be removed or transported to a landfill. In addition, the construction of the proposed Project would create limited amounts of construction waste, including drywall, scrap lumber, and general construction debris. The proposed Project would be required to adhere to the regulatory standards described in Regulatory Compliance Measure PS-3, which outlines the City's 50 percent diversion rate for construction waste. As discussed below, the Olinda Alpha Landfill has substantial capacity to handle yearly operational loads from the proposed Project. The solid waste generated during construction would be temporary and minimal. Therefore, the proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the proposed Project's solid waste disposal needs and the impact would be less than significant.

1 Email correspondence with Daisy Covarrubias on behalf of OCSD (March 30, 2015).
2 OCSD. Annual Report 2013/14, http://www.ocsd.com/Home/ShowDocument?id=16708 (accessed April 8, 2015).
3 107,938 gpd/172 mgd.

Operation.

Less than Significant Impact. As shown in Table 4.9.F, the operation of the proposed Project is estimated to generate approximately 1,724.9 pounds per day (lbs/day) of solid waste, which equates to 0.86 tpd. The estimated solid waste generated by the proposed Project reflects adherence to the regulatory standards described in Regulatory Compliance Measure GHG-2. The proposed Project's estimated operational solid waste represents approximately 0.011 percent (0.86 tpd/8,000 tpd[1] = 0.00011) of the Olinda Alpha Landfill's current permitted daily capacity.

Table 4.9.F: Existing and Proposed Solid Waste Generation

	Estimated Waste Disposed (lbs/day)
Existing Site	0
Proposed Project[1]	1,724.9
Total	**1,724.9**

Source: *Greenhouse Gas Technical Report* (ENVIRON, May 2015).
Notes: 1 ton = 2,000 pounds
Solid waste generation for the proposed Project assumes compliance with Assembly Bill 341 in accordance with the State goal for 2020 (Regulatory Compliance Measure GHG-2).
[1] Calculations and land use categories provided by CalEEMod Version 2013.2.2.
lbs = pounds

Solid waste would be collected from each residence. Trash collection for the commercial retail uses would occur at four covered trash enclosures located in the commercial parking lot. Solid waste would be emptied on regularly scheduled pickups by a local provider using standard roll-off-type trash trucks. The City provides a recycling program that includes segregated bins, bulky item pickup, and Christmas tree collection, which diverts these materials from disposal in the landfill.

The proposed Project would generate approximately 0.011 percent of the maximum daily permitted capacity of the Olinda Alpha Landfill, which is an insignificant proportion of solid waste compared to the total permitted daily capacity of the Olinda Alpha Landfill. Based on written correspondence, Valley Vista Services indicated that it can provide solid waste disposal service for the proposed Project Therefore, the proposed Project would be served by a landfill with sufficient permitted capacity to accommodate the solid waste disposal needs. The proposed Project's impact on solid waste facilities would be less than significant.

[1] 4,000 tpd - 2,5000 tpd = 1,500 tpd (300,000 lbs/day).

4.9.7 Consistency with Appendix F: Energy Conservation of the CEQA Guidelines

CEQA requires that EIRs include a discussion of the potential energy impacts of a proposed project to the extent relevant and applicable, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (refer to PRC 21100[b][3]). Appendix F to the *CEQA Guidelines* is an advisory document that assists lead agencies in determining whether a project would result in the inefficient, wasteful, and unnecessary consumption of energy. Not all items listed in Appendix F are applicable to every project; however, those items listed in Table 4.9.G are applicable to the proposed Project.

The Energy Resources Worksheets contained in Appendix I were prepared specifically to identify the proposed Project's energy consumption and evaluate how it compares to the criteria in Appendix F.

Construction. Project construction would require consumption of electricity, diesel fuel, and gasoline. Table 4.9.H includes a summary of estimated energy use during construction of the proposed Project. The estimated electricity consumption related to water consumption for the proposed Project's construction activities would total 12,003 kWh. Additional construction activities would include water consumption, lighting, electronic equipment, and other construction activities requiring electrical power during construction. In addition, petroleum-based fuels would be used for on-road construction worker travel and haul trips, as well as for the powering of off-road construction vehicles and equipment. On-road construction trips and off-road construction equipment would collectively consume an estimated total of 163,249 gallons of diesel fuel during construction. Gasoline consumption, including on-road construction trips and off-road construction equipment, is estimated to be 144,954 gallons during project construction. Regulatory Compliance Measure PS-2 reflects adherence with Section 2485 in Title 13 of the California Code of Regulations, which limits the idling of all diesel-fueled commercial vehicles weighing over 10,000 pounds to 5 minutes at any location during construction. Adherence to the regulatory standards described in Regulatory Compliance Measure PS-2 would further reduce the proposed Project's consumption of petroleum-based fuels during construction. Consumption of energy resources during construction of the proposed Project would be temporary and would cease upon completion of construction.

The proposed Project's energy demand during construction would be within the existing and planned utility capacities discussed under Threshold 4.9.5, above. The proposed Project would adhere to the regulatory standards described in Regulatory Compliance Measure PS-2 described in Section 4.9.9, below. Therefore, construction of the proposed Project would not result in the inefficient, wasteful, and unnecessary consumption of energy.

Table 4.9.G: Proposed Project Comparison to *CEQA Guidelines* Appendix F

Appendix F Items for Consideration	Proposed Project
1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.	Construction and operational energy use (including the amount of fuels) are discussed in Threshold 4.9.5 and Tables 4.9.H and 4.9.I, which include summaries of the estimated energy use during construction and operation of the proposed Project. For the operational energy use, the tables below identify the percent of energy reductions associated with the project, and indicate that the proposed Project's energy use is efficient during construction and operation. Construction materials for the proposed Project would be obtained from market supply, and there would be no need to develop new facilities to provide construction materials specifically for the proposed Project.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.	The proposed Project's impacts relative to regional energy supplies are discussed in Threshold 4.9.5. As described in Threshold 4.9.5, the proposed Project would not exceed the demand projections for local and regional energy supplies and would not require additional capacity because the energy demand of the proposed Project would be well within the delivery capabilities and projected loads for SCE and SoCalGas. In addition, the proposed Project would comply with the energy efficiency requirements in Section 5-1 of the City's Municipal Code, which include compliance with the Title 24 Building Energy Efficiency Standards (Regulatory Compliance Measure GHG-3), and would implement Project Design Features NRG-1 and NRG-2. Furthermore, Senate Bill 2 and the California Energy Commission Renewable Portfolio Standards, required utilities to obtain renewable energy as percentages of their energy portfolios. SCE and SoCalGas therefore have acquired renewable energy as part of its energy supply and would service the proposed Project from that supply.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.	The proposed Project's impacts relative to peak and base demands for electricity and other forms of energy are discussed in Threshold 4.9.5. The proposed Project would implement Project Design Features NRG-1 and NRG-2 and would adhere to the regulatory standards described in Regulatory Compliance Measure GHG-3 to reduce operational energy consumption. With implementation of Project Design Features NRG-1 and NRG-2 and adherence to the regulatory standards described in Regulatory Compliance Measure GHG-3, the proposed Project would not exceed the peak and base period demand for energy resources. In addition, the Energy Resources Worksheets indicate that the proposed Project would reduce total electricity consumption substantially, from 3,011,248 kWh/yr to 2,173,653 kWh/yr. This reduction would reduce overall effects on electricity demands.

Table 4.9.G: Proposed Project Comparison to *CEQA Guidelines* Appendix F

Appendix F Items for Consideration	Proposed Project
4. The degree to which the project complies with existing energy standards.	The proposed Project would comply with the energy efficiency requirements in Section 5-1 of the City's Municipal Code (Regulatory Compliance Measure GHG-3). In addition, as demonstrated in the Energy Resource Worksheets, the proposed Project would reduce building electricity use by approximately 31 percent and water-related electricity use by approximately 9 percent.
5. The effects of the project on energy resources.	The energy demands of the proposed Project are well within the delivery capabilities and projected loads for SCE and SoCalGas, as described under Threshold 4.9.5 above. In addition, the proposed Project is designed to reduce overall energy needs and meet the goals of AB 32. In doing so, the proposed Project would not result in inefficient, wasteful, and unnecessary consumption of energy.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.	The proposed Project's impacts relative to transportation energy use are discussed below. The proposed Project would adhere to the regulatory standards described in Regulatory Compliance Measure PS-2, which would reduce the proposed Project's unnecessary consumption of petroleum-based fuels during construction. Because the proposed Project would be located in an urban area currently served by public transportation, its long-term transportation energy use may be reduced if some of the proposed Project's residents and workers use nearby public transportation. OCTA currently provides one bus route in close proximity to the project site, Route 50, which travels between the Village at Orange in the City of Orange and California State University, Long Beach in Long Beach. Additionally, the proposed senior community provides pedestrian access to the commercial/retail center and the bus stop located on Katella Avenue. In addition, the proposed Project would not have any significant and unavoidable traffic impacts, which indicates that energy use associated with transportation would not be wasteful or unnecessarily consumed.

Source: LSA Associates, Inc. (2015).
SCE = Southern California Edison
SoCalGas = Southern California Gas Company

Table 4.9.H: Summary of Estimated Energy Use During Construction

Source	Resource Use	
Electricity		
Water Consumption	12,003	kWh
Lighting During Construction, Electronic Equipment, and Other Construction Activities Necessitating Electrical Power	–	kWh
Electricity Total	12,003	kWh
Diesel		
On-Road Construction Trips	92,331	Gallons
Off-Road Construction Equipment	70,918	Gallons
Diesel Total	163,249	Gallons
Gasoline		
On-Road Construction Trips	144,954	Gallons
Off-Road Construction Equipment	–	Gallons
Gasoline Total	144,954	Gallons

Source: Energy Resources Worksheets (ENVIRON, May 2015).
Notes:
1. Construction water use estimated based on acres disturbed per day per construction phase, construction days per phase, and estimated water use per acre (*Air Pollution Engineering Manual* [Air and Waste Management Association, 1992]).
2. On-road mobile-source fuel use based on vehicle miles traveled data from CalEEMod for all years of construction and fleet-average fuel consumption in gallons per mile from EMFAC2011 for each of the construction years in the SCAQMD.
3. Off-road mobile-source fuel use based on a fuel usage rate of 0.05 gallons of diesel per horsepower-hour, based on SCAQMD's *CEQA Air Quality Handbook,* Table A9-3E.
4. All emissions from off-road construction equipment were assumed to be diesel.

CEQA = California Environmental Quality Act
kWh = kilowatt-hours
SCAQMD = South Coast Air Quality Management District

Operation. Annual operational energy resource use reductions are calculated for the proposed Project to determine whether its energy use was wasteful or inefficient. In addition, the proposed Project was compared to business-as-usual (BAU) scenario to further demonstrate how the proposed Project complies with energy reduction goals. During operation of the proposed Project, energy would be consumed for water usage, solid waste disposal, and vehicle trips. As shown in Table 4.9.I, total operational electricity and natural gas use for the proposed Project would be reduced 28 percent and 10 percent, respectively, from BAU conditions. These reductions can be attributed to the implementation of Project Design Features NRG-1 and NRG-2, described in Chapter 3.0, Project Description, and adherence to the regulatory standards described in Regulatory Compliance Measure GHG-3, which requires consistency with the statewide 2013 Building Energy Efficiency Standards under Title 24, Part 6. Project Design Features NRG-1 and NRG-2 include the provision of energy-efficient appliances and high-efficiency lighting within the residential component of the proposed Project. The proposed Project would be in compliance with applicable requirements regarding energy efficiency and conservation.

Table 4.9.I: Summary of Estimated Operational Annual Energy Resource Use and Projected Reduction in BAU

Source	2020 BAU Annual Resource Use	2020 Project Annual Resource Use	Units	Percent Reduction
Electricity				
Building	2,624,889	1,823,146	kWh/year	31%
Water	386,359	350,507	kWh/year	9%
Total electricity	3,011,248	2,173,653	kWh/year	28%
Natural Gas				
Building	9,525,689	8,580,659	kBTU/year	10%
Mobile				
Gasoline	328,984	328,984	Gallons/year	0%
Diesel	47,620	47,620	Gallons/year	0%

Source: Energy Resources Worksheets (ENVIRON, May 2015).
Notes:
1. The proposed Project's annual resource use incorporates the energy-saving benefits from Project Design Features (e.g., Energy Star appliances and high-efficiency lighting) and regulatory requirements (i.e., California Green Building Standards Code and Title 24, Part 6).
2. Water use, related electricity use, and natural gas use from CalEEMod for operational year 2020.
3. Mobile-source fuel use based on vehicle miles traveled from CalEEMod for operational year 2020 and fleet-average fuel consumption in gallons per mile from EMFAC2011 for operational year 2020 in the South Coast Air Quality Management District.

BAU = business as usual
kBTU = Kilo British Thermal Units
kWh = kilowatt-hours

The proposed Project's energy demand would be within the existing and planned utility capacities and energy demands outlined above. The proposed Project incorporates Project Design Features NRG-1 and NRG-2, as described below, to increase energy efficiency. Its 2020 operational energy use includes reductions from BAU conditions, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions. The proposed Project would result in a demand for approximately 2,173,653 kWh/year of electricity, 8,580,659 kBTU/year of natural gas, 328,984 gallons/year of gasoline, and 47,620 gallons of diesel fuel per year. As discussed under Threshold 4.9.5, above, utility service providers would be able to serve the project site during operation of the proposed Project. The public utility impact analysis above, combined with the Energy Resource Worksheets, considers the potential construction and operational energy impacts associated with transforming the vacant project site into a residential and commercial/retail use. Overall, the proposed Project would reduce energy consumption as compared to BAU conditions and not result in the inefficient, wasteful, or unnecessary consumption of energy.

4.9.8 Regulatory Compliance Measures and Project Design Features

The proposed Project would comply with the following regulatory standards, the implementation of which is intended to reduce impacts related to public services and utilities:

Regulatory Compliance Measure PS-1

City of Cypress Municipal Code Section 5-3 (California Fire Code, adoption, amendments). Prior to issuance of building permits for planned structures, the Public Works Director, or designee,

shall review the building plans to verify that the design conforms to the requirements of the Fire Code as adopted in the City Municipal Code.

Regulatory Compliance Measure PS-2

Section 2485 of Title 13 of the California Code of Regulations. Section 2485 requires that the idling of all diesel-fueled commercial vehicles weighing over 10,000 pounds during construction be limited to 5 minutes at any location.

Regulatory Compliance Measure PS-3

City of Cypress Municipal Code Section 12-31 (Required Diversion Rates). The proposed Project shall comply with the City's 50 percent diversion rate for construction waste.

Regulatory Compliance Measure GHG-2

Assembly Bill 341. The proposed Project would comply with applicable provisions of Assembly Bill 341, which establishes statewide solid waste diversion goals to achieve by 2020 by reducing, recycling, or composting solid waste.

Regulatory Compliance Measure GHG-3

2013 Building Energy Efficiency Standards. The proposed Project would meet the statewide 2013 Building Energy Efficiency Standards, formally known as Title 24, Part 6.

Regulatory Compliance Measure WQ-1

Construction General Permit. Prior to the first grading permit for the proposed Project, the project applicant shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, Permit No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit) or subsequent permit. The project applicant shall provide the Waste Discharge Identification Number to the City Engineer, or designee, to demonstrate proof of coverage under the Construction General Permit. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the proposed Project in compliance with the requirements of the Construction General Permit. The SWPPP shall identify construction Best Management Practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is

minimized and to control the discharge of pollutants in storm water runoff as a result of construction activities.

Regulatory Compliance Measure WQ-2 **NPDES Groundwater Discharge Permit.** If groundwater dewatering during excavation for the proposed Project is required, then with respect to such dewatering the project applicant shall comply with the requirements of the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2009-0003, NPDES No. CAG998001) or subsequent permit. The project applicant shall comply with all applicable provisions in the permit, including water sampling, analysis, and reporting of dewatering-related discharges. The project applicant shall submit a Notice of Intent for coverage under the permit to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 45 days prior to the start of dewatering. Groundwater discharge shall not commence until an authorization letter is received from the Santa Ana RWQCB. Upon completion of groundwater dewatering activities, the project applicant shall submit a Notice of Termination to the Santa Ana RWQCB.

The following Project Design Features, identified in Chapter 3.0 of this Draft EIR and listed below, have been incorporated into the proposed Project's design to reduce or lessen potential impacts related to electricity consumption.

Project Design Feature NRG-1 **Energy-Efficient Appliances.** Where appliances are offered by homebuilders, Energy Star appliances, including clothes washers, dishwashers, and refrigerators, shall be installed in the residences.

Project Design Feature NRG-2 **High-Efficiency Lighting.** High-efficiency lightbulbs and lighting fixtures shall be installed in residential and non-residential buildings pursuant to applicable code standards.

4.9.9 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measures PS-1, PS-2, PS-3, GHG-2, GHG-2, WQ-1, and WQ-2, and the incorporation of Project Design Features NRG-1 and NRG-2, all potential impacts related to public services and utilities would be reduced to a less than significant level and no mitigation is required.

4.9.10 Cumulative Impacts

The utility service providers for the project area plan for future growth and demand based on potential development forecasted to occur within their service areas, and take into consideration land use plans and regional population growth forecasts. The proposed Project would not require a General Plan or Specific Plan amendment and is consistent with the population growth projections contained in SCAG's current RTP/SCS. Because the utility service providers have already accounted for future regional growth (including the proposed Project, the related projects, and other development throughout the region) in their projections, the demand for utilities and services generated by the proposed Project in combination with the related projects would not be cumulatively significant, as discussed in more detail below.

Fire Protection. The geographic area for cumulative analysis of fire protection services is defined as the service territory of Fire Station No. 17. As stated above, Fire Station No. 17 was rebuilt and expanded to accommodate existing and planned future needs in its service area. Because the proposed Project is within the development intensity allowed by applicable SCAG projections, the General Plan growth assumptions, and less than the development intensity permitted in the Amended Specific Plan, the proposed Project's need for fire protection services would be accommodated by Fire Station No. 17. While the proposed Project would increase calls for service, the increase in calls for service is within the planned service capacity of the station. Therefore, the proposed Project would not have a cumulatively significant impact on the provision of fire services.

Of the 17 related projects, 8 are within the service territory of Fire Station No. 17. Operation of the related projects is anticipated to increase the overall demand for fire protection services provided by Fire Station No. 17. As discussed in Section 4.8, Population and Housing, the cumulative population and housing growth from the proposed Project and the related projects in the City of Cypress would be within the SCAG forecasted population and housing growth for the City and the General Plan. Thus, the proposed Project and the related projects' consistency with SCAG growth forecasts indicates they would be accounted for in OCFA's long-term growth planning for fire and other public facilities. The recently rebuilt and expanded Fire Station No. 17 is intended to accommodate existing and projected growth and is considered adequate to service the current and forecasted growth in the project area. Additional demands for fire protection services would be funded by existing funding sources (i.e., property taxes and government funding), to which the proposed Project and related projects would contribute. Therefore, the proposed Project and the applicable related projects would not have a significant cumulative impact on fire protection services.

Police Protection. The geographic area for cumulative analysis of police protection services is defined as the service area for the Cypress Police Department. Based on written correspondence, the Cypress Police Department indicated that the population growth and commercial activity associated with the proposed Project would not be substantial enough to create a cumulative impact on police services. In addition, the Cypress Police Department indicated that it currently serves the City's entire population, there are no current expansion plans, and it would be able to adequately serve the proposed Project with existing resources. The City is almost entirely built out, with most new development occurring as in-fill or redevelopment projects. Because the proposed Project is within the development intensity permitted by the Amended Specific Plan and the growth assumptions in the General Plan, the potential development of the project site was taken into account as part of the

projections and plans for the Cypress Police Department. While the proposed Project would increase calls for service, the increase in calls for service is within the planned service capacity of the Department.

Of the 17 related projects, 8 are within the City. As discussed in Section 4.8, Population and Housing, the cumulative population and housing growth from the proposed Project and the related projects in the City of Cypress would be within the SCAG forecasted population and housing growth for the City and the General Plan. Thus, the proposed Project and the related projects' consistency with SCAG growth forecasts indicates that they would be accounted for in the Cypress Police Department's long-term growth planning for police protection services and facilities. Therefore, the proposed Project and the applicable related projects would not result in a significant cumulative impact on police protection services.

Parks. Section 4.10, Recreation, of this Draft EIR contains a detailed discussion of the proposed Project's potential impact on parks and recreational facilities. As discussed therein, the proposed Project and the applicable related projects would not result in a significant cumulative impact to park and recreational facilities and the incremental contribution of the proposed Project to a potentially significant impact would not be cumulatively considerable.

Public Libraries. The geographic area for the cumulative analysis of public libraries is defined as the service territory for the OCPL system. As stated above, the OCPL adopted service standards of 0.2 square foot of library space per capita and 1.5 books per capita were used to evaluate the potential impacts of the proposed Project. The City currently exceeds the OCPL system's book and square footage requirements, and the additional residents associated with the proposed Project and the related projects would not exceed the OCPL system's ability to meet demand with existing library services. Therefore, the proposed Project and the related projects would not have a cumulatively significant impact on library services.

Public Transportation. The geographic area for the cumulative analysis of transit services is defined as the service territory for OCTA, which includes 16 of the related projects. As previously discussed, OCTA Route 50 currently runs at between 25 and 29 of capacity in the project vicinity, so that it could easily accommodate bus use associated with the proposed Project and the applicable related projects. Based on OCTA's ability to meet the future transit demands within the project vicinity, the proposed Project and the applicable related projects would not result in a cumulative significant transit impact

Electricity. The geographic area for the cumulative analysis of impacts to the provision of electricity is the service territory of SCE. SCE's service area covers approximately 50,000 square miles in Southern and Central California, with the provision of energy service to approximately 14 million across the service territory.[1] As discussed above, the CEC estimates that net peak demand and net

[1] SCE, Our Service Territory. https://www.sce.com/wps/portal/home/about-us/who-we-are/leadership/our-service-territory/ (accessed April 15, 2015).

energy load within SCE's service territory will continue to grow, with an annual growth in peak mid-demand of 1.15 percent between 2014 and 2025. The projections for electricity supply capacity demand rates in the SCE service territory are based on regional population and economic growth forecasts and accounts for potential future development within SCE's service area.

As discussed in Section 4.8, Population and Housing, the cumulative population and housing growth from the proposed Project and the related projects in the City of Cypress would be within the SCAG forecasted population and housing growth for the City and the General Plan. Thus, the proposed Project and the related projects' consistency with SCAG growth forecasts indicates they would be accounted for in the growth forecasts utilized by SCE. Therefore, SCE would have adequate capacity for increased electrical demands associated with implementation of the proposed Project and the related projects within its service territory, and the construction of new or altered electrical facilities would not be required.

In addition, compliance with Title 24, Part 6 of the California Administrative Code regulates energy consumption in new construction as well as building energy consumption for heating, cooling, ventilation, water heating, and lighting for the proposed Project and the related projects. As set forth in Section 5-1 of the City's Municipal Code, which codifies Title 24, Part 6 (Regulatory Compliance Measure GHG-3), the proposed Project and the related projects within SCE's service area would be designed, and would be subject to control measures (e.g., energy-efficient design), that would reduce electricity use.

For these reasons, the proposed Project and the related projects would not result in a cumulatively significant impact on electricity facilities.

Natural Gas. The geographic area for the cumulative analysis of impacts to the provision of natural gas is the service territory for SoCalGas. The SoCalGas service area covers approximately 23,000 square miles, from San Luis Obispo to the Mexican border. There are several new supply and storage projects under consideration at the State level. If approved, these projects could add as much as 1,700 million cubic feet per day of natural gas to the statewide system, of which SoCalGas is a part.[1] Moreover, in the past few years, the State has supported construction of gas transmission transportation capacity in excess of the quantity of gas it consumes.[2]

The projections for natural gas supply capacity demand rates in the SoCalGas service territory are based on regional population and economic growth forecasts, and accounts for potential future development within the SoCalGas service area, including the additional demand for natural gas generated by the related projects. For this reason, the projected demand for natural gas in the SoCalGas service territory is inherently cumulative in nature. Therefore, because the cumulative population and housing growth from the proposed Project and the related projects in the City of Cypress would be within the SCAG forecasted population and housing growth for the City, SoCalGas would have adequate capacity for increased natural gas demands associated with implementation of the proposed Project and the related projects within its service territory.

[1] W. William Wood Jr. Natural Gas Infrastructure. May 2009.
[2] Ibid.

In addition, compliance with Title 24, Part 6 of the California Administrative Code regulates energy consumption in new construction as well as building energy consumption for heating, cooling, ventilation, water heating, and lighting for the proposed Project and the related projects. As set forth in Section 5-1 of the City's Municipal Code (which codifies Title 24, Part 6) (Regulatory Compliance Measure GHG-3), the proposed Project and the related projects would utilize building designs and control measures (e.g., energy-efficient design) to reduce natural gas use.

For these reasons, the proposed Project and the related projects would not result in a significant cumulative impact on natural gas facilities.

Solid Waste. The geographic area for the cumulative analysis of impacts to the provision of solid waste disposal services is Orange County (the area served by the OCWR). According to CalRecycle, all counties within the State are required to have an approved Countywide Integrated Waste Management Plan (CIWMP), which outlines methods for waste diversion that demonstrate sufficient solid waste disposal capacity for a minimum of 15 years. In compliance with AB 939, the County prepared a CIWMP, which is kept current, that demonstrates the required 15-year disposal capacity and allows disposal of a maximum daily imported waste stream of 1,000 tpd. The projections for solid waste disposal capacity in the OCWR service area are based on a comparison of existing landfill capacity to regional population and economic growth forecasts, and account for potential future development within the County, including the additional demand for solid waste disposal generated by the proposed Project and the related projects. For this reason, the projected demand for solid waste disposal in the OCWR service area is inherently cumulative in nature. Therefore, because the cumulative population and housing growth from the proposed Project and the related projects would be within the SCAG forecasted population and housing growth for the City, OCWR would have adequate capacity to serve the projected solid waste disposal needs of the proposed Project and related projects.

Furthermore, based on their current daily maximum permitted disposal capacities and current average daily tonnage, the Alpha Olinda Landfill will reach capacity in 2025, the Frank R. Bowerman Landfill will reach capacity in 2053, and the Prima Deshecha Landfill will reach capacity in 2067. Therefore, there is currently sufficient permitted capacity within the existing OCWR system serving Orange County to provide adequate future capacity for the County's solid waste needs. Individual projects in the County, including the proposed Project and the related projects within the OCWR service area, would be required to incorporate measures to reduce solid waste during construction as outlined in Section 12-31 (Required Diversion Rates) of the City's Municipal Code (Regulatory Compliance Measure PS-3) or the corresponding requirements of the cities in which other related projects are located.

Therefore, based on the future capacity within OCWR facilities, and anticipated compliance with State and local statutes and regulations related to solid waste, which require reductions in solid waste generation (see, e.g., Regulatory Compliance Measure GHG-3), the proposed Project and the related projects would not result in a cumulatively significant impact on solid waste facilities.

Wastewater. The geographic area for the cumulative analysis for wastewater treatment is defined as the City and the OCSD service area. Within its service area, the OCSD uses United States Census

Bureau population information, as well as information regarding existing and zoned land uses , to project current and future wastewater flows.[1] For this reason, the projected demand for wastewater treatment is cumulative in nature.

The wastewater capacities of OCSD Treatment Plant Nos. 1 and 2 are designed to accommodate the growth forecast within the OCSD service area and development outlined in the General Plans for jurisdictions within its service area. Therefore, the cumulative population and housing growth from the proposed Project and the related projects would be within the SCAG forecasted population and housing growth, the OCSD would have adequate capacity for the increased wastewater treatment demand associated with implementation of the proposed Project and the related projects within its service area.

Furthermore, OCSD is currently in the planning phase of the Rehabilitation of the Western Regional Sewers project, which would further improve OCSD sewer facilities in the vicinity of the project site.[2] Individual projects in the OCSD service area, including the related projects, would address the localized capacity of OCSD facilities and identify whether new or upgraded facilities are required.

For these reasons, the proposed Project and the related projects would not result in a cumulatively significant impact to wastewater generation.

Potable Water. The geographic area for the cumulative analysis of water infrastructure is the West Orange service area of GSWC, which includes 12 of the related projects. According to GSWC, the existing facilities serving the project site have sufficient capacity to meet the water demand from the proposed Project and other projects within the GSWC service area. The projections for potable water demand in the GSWC West Orange service area are based on regional population and economic growth forecasts, and account for potential future development within its service area, including the additional demand for water generated by the related projects. According to the GSWC UWMP for the West Orange service area, by 2035, population is estimated to increase at a 0.4 percent growth rate per year, and households and employment are expected to grow at annual growth rates of 0.3 percent and 0.6 percent, respectively, for the same period. For this reason, the projected demand for water supply in the GSWC West Orange service area is inherently cumulative in nature. Therefore, because the cumulative population, housing and employment growth from the proposed Project and the related projects in the GSWC West Orange service area would be within the SCAG forecasted population and housing growth, GSWC would have adequate capacity for the increased demand for potable water associated with the development of the proposed Project and the related projects within its service area. Therefore, the proposed Project and the related projects would not have a cumulatively significant impact on water supply or facilities.

4.9.11 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to public services, utilities, or energy consumption.

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1 Email correspondence with Daisy Covarrubias on behalf of OCSD (March 30, 2015).

2 OCSD Capital Improvement Program Fiscal Year 13/14 Update. 2014. http://www.ocsd.com/home/showdocument?id=16479 (accessed April 9, 2015).

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4.10 RECREATION

4.10.1 Introduction

This section describes the parks and other recreational facilities near the project site and evaluates the potential impacts of the proposed Project on those facilities. This section also discusses the existing setting of recreational facilities within and near the City and sets forth the relevant regulatory requirements that apply to the analysis of the proposed Project's impact on recreational facilities. This section is based, in part, on information provided in the Conservation/Open Space/Recreation Element of the City's General Plan and applicable provisions of the City's Municipal Code.

4.10.2 Methodology

Impacts to recreational facilities were assessed based on the potential for the proposed Project to generate increased demand on recreational facilities that could result in deterioration of, or contribute toward substantial accelerated deterioration of, those facilities or require the construction of new facilities or expansion of existing facilities that could have an adverse physical effect on the environment. For the purposes of this analysis, "recreational facilities" are defined as parks and designated public areas used for active or passive recreation. The Conservation/Open Space/Recreation Element states that recreational resources include parks, schools, community facilities, and privately owned recreational facilities. The City's Municipal Code and the Conservation/Open Space/Recreation Element contain requirements for the dedication of land, or the payment of parks fees, or both, for recreational purposes in connection with residential development projects, based on a standard of 3 acres of park and recreational land for each 1,000 residents.

4.10.3 Existing Environmental Setting

Existing Project Site. The approximately 33-acre project site is currently undeveloped. The project site was formerly a golf course that closed in 2004. The features related to the golf course have been removed and the site has been regraded, except for the portion of the site along Katella Avenue.

Existing Recreational Facilities Within the City. There are currently a total of 19 developed public parks in the City, which range in size from the approximately 0.17-acre Laurel Park to the 22-acre Oak Knoll Park. Altogether, the City has approximately 82 acres of parks. The City classifies parks as community, neighborhood, or mini-facilities based on size. In addition to the City's parks, Cypress residents enjoy access to recreational facilities at 11 K-12 schools, which add approximately 100 additional acres to the City's recreational facilities[1], and 9 acres of open space and recreational facilities at Cypress Community College. Fees are charged by Cypress Community College for use of its facilities other than its track and tennis courts.

[1] Douglas Hawkins, City Planner, City of Cypress, email correspondence, July 15, 2015.

Community Parks. Arnold Cypress Park (14.5 acres) and Oak Knoll Park (22 acres) are the two major community parks located in the City. Community parks serve neighborhoods and offer recreational opportunities for large groups. These parks are generally over 10 acres in size and include a variety of facilities, such as active recreational facilities such as athletic fields and group picnic areas. In addition, these large parks often include community centers.

Neighborhood Parks. Neighborhood parks are smaller in size than community parks and typically range in size from 3 to 5 acres. Within the City, the 14 neighborhood parks encompass approximately 45 acres. Neighborhood parks are often located adjacent to elementary schools and normally include tot lots, picnic facilities, and a multi-use court.

Mini-Parks. Mini-parks are less than 1 acre in size and are usually located near schools or residential developments. The City's three mini-parks serve as playgrounds for children or as a place for people to relax in an urban environment. There are 1.26 acres of mini-parks within the City.

Regional Parks. Currently, there are no regional parks within the City; however, seven regional park facilities are located in surrounding communities:

- The City of Long Beach operates El Dorado Regional Park approximately 2 miles west of the project site. El Dorado Regional Park incorporates approximately 450 total acres. Recreational amenities within the park include an archery range, barbeque and picnic areas, 5 miles of bike paths, a campground, a 100-acre nature center, two stocked fishing lakes, a physical fitness course, and playgrounds for children.
- The County of Orange (County) operates Ralph B. Clark Regional Park, which is located approximately 7 miles northeast of the project site. Ralph B. Clark Regional Park incorporates approximately 104 total acres. Recreational amenities within the park include picnic areas, hiking and biking trails, playgrounds for children, sports fields, baseball and softball diamonds, volleyball courts, tennis courts, an amphitheater, and a lake.
- Heartwell Park is approximately 3.6 miles northwest of the project site, in the City of Long Beach. The park incorporates approximately 123 total acres. Recreational facilities within the park include a stocked fishing pond, bike paths, a physical fitness course, picnic areas, baseball diamonds, athletic fields, tennis courts, basketball courts, and volleyball courts.
- Cerritos Regional Park is approximately 2.8 miles north of the project site, in the City of Cerritos. The park incorporates approximately 84 total acres. Recreational amenities within the park include a swimming pool, a stocked fishing pond, baseball diamonds, a gymnasium, a multipurpose room, and picnic areas.
- Rynerson Park is approximately 3.1 miles northwest of the project site, in the City of Lakewood. The park incorporates approximately 40 total acres. Recreational facilities within the park include bike paths, baseball diamonds, a wildflower meadow, picnic acres, a physical fitness circuit, a 1.5-mile fitness trail, and an amphitheater.

- El Rancho Verde Park and Bicycle Path is approximately 3 miles north of the project site, in the Cities of La Palma and Buena Park. The park incorporates approximately 5.25 total acres. Recreational facilities within the park include a botanical garden, exercise stations, playgrounds for children, and a 12-mile bike path.
- The Bolsa Chica Wetlands are approximately 6.3 miles south of the project site, in the City of Huntington Beach. The wetlands are an approximately 1,400-acre nature reserve. Recreational amenities surrounding the wetlands include walking trails, guided tours, educational programs, and volunteer programs.

Schools. City residents also enjoy access to open space and recreational facilities at 11 K-12 schools, contributing approximately 100 acres to the City's open space and recreation resources. School sites are available for public recreational use after school hours and on weekends.

In addition to these K-12 schools, Cypress Community College contains 93 acres of open space (inclusive of parking) and includes large playing fields, a running track, tennis courts, a swimming pool, and handball courts. These facilities are available for public use during specified hours by reservation. Fees are charged for use of the Cypress Community College facilities with the exception of the track and tennis courts.

Community Facilities. The City has a number of community facilities that host many of its recreation and cultural programs. These facilities include the Cypress Community Center, the Cypress Civic Center and the Cypress Senior Center. These facilities provide a multitude of uses to help meet the recreational needs of the City's residents.

Other Public Facilities. A portion of one public golf course, the Navy Golf Course, is located within the City of Cypress. This 220-acre, 27-hole golf complex is owned by the United States Department of the Navy. Additionally, four other public golf courses are located within five miles of the proposed Project:

- The El Dorado Park Golf Course is approximately 2.3 miles west of the project site, in the City of Long Beach. This golf course includes an 18-hole golf course, occupying approximately 275 total acres. The El Dorado Park Golf Course is open to the public and includes an event center.
- The Heartwell Golf Course is approximately 3.5 miles northwest of the project site, in the City of Long Beach. This golf course includes an 18-hole golf course, occupying approximately 37 total acres. The Heartwell Golf Course is open to the public and includes a restaurant.
- The Recreation Park Golf Course is approximately 4.8 miles southwest of the project site, in the City of Long Beach. This golf course includes an 18-hole golf course, occupying approximately 170 total acres. The Recreation Park Golf Course is open to the public and includes a clubhouse, banquet facility, and garden gazebo.

- The Dad Miller Golf Course is approximately 5 miles northeast of the project site, in the City of Anaheim. This golf course includes an 18-hole golf course, occupying approximately 60 total acres. The Dad Miller Golf Course is open to the public and includes a clubhouse and a banquet hall.

Private Recreation Facilities. Private athletic clubs in the City also offer recreational facilities, including the approximately 37,500-square-foot 24 Hour Fitness facility approximately 600 feet east of the project site. The majority of these facilities, although privately owned, are open to the public subject to a user fee. These private recreational amenities within the City also help meet residents' recreation needs by providing swimming, racquet and court sports, and exercise classes.

Additionally, many of the residential developments and commercial/industrial open space facilities within the City feature recreational amenities, including clubhouses, pools, tennis courts, and other related recreational facilities. Although they are not included in the City's parkland inventory, these facilities complement public recreational amenities.

4.10.4 Regulatory Setting

State Regulations.

Quimby Act of 1975. The State Quimby Act (California Government Code § 66477) allows the legislative body of a city or county to require by ordinance the dedication of land, the payment of an in-lieu park fee, or a combination thereof, for the approval for a final tract or parcel map. In cases where such dedication or park fee is not obtained through a map, they may be imposed when building permits are issued. The following conditions must be met to comply with the Quimby Act:

- The city or county ordinance must include definitive standards for determining the proportion of a subdivision to be dedicated and the amount of any fee to be paid in lieu thereof.
- The legislative body must adopt a general plan containing a recreation element, and any proposed park or recreational facility must be consistent with the principles and standards established in the element.

Local Regulations.

City of Cypress Municipal Code. The City of Cypress Municipal Code Chapter 25, Article 6, Section 25-41, Provision of Park and Recreational Facilities, states that "every subdivider who subdivides land shall dedicate a portion of such land, pay a fee, or do both as set forth in this article for the purpose of providing park and recreational facilities, including recreational community gardening facilities, to help serve the future residents of such subdivision."

Accordingly, Section 25-43 of the Municipal Code establishes a standard of 3 acres of land per 1,000 residents for park and recreational purposes, and an additional 1.5 acres of land per

1,000 residents for such purposes that are made available at K-12 schools. This code standard is also consistent with Conservation/Open Space/Recreation Element Policy COSR-6.1, as discussed below. The proposed Project would comply with the applicable provisions in Chapter 25, Article 6, Park and Recreational Facilities, of the City's Municipal Code (Regulatory Compliance Measure REC-1), which require the payment of a park fee, the dedication of land for park and recreational purposes, or both, based on a standard of 3 acres of land for park and recreational purposes for each 1,000 residents.

City of Cypress Conservation/Open Space/Recreation Element. The Conservation/Open Space/Recreation Element of the City's General Plan describes existing park and recreational facilities within the City, compares the existing acreage of facilities to the standard set forth in the City's Municipal Code (described above) and identifies goals and policies for the provision of parks and recreational facilities.

According to the Conservation/Open Space/Recreation Element, the City currently has a total supply of approximately 82 acres of park and recreational facilities. Based on the City's most recent 2014 estimated population of 48,886 residents[1], and the standard of 3 acres for each 1,000 residents in Section 25-43 of the Municipal Code, the City should optimally have approximately 146.7 acres of park and recreational facilities within its boundaries to serve its existing population. Therefore, the City currently has a deficiency of approximately 65 acres (146.7 – 82). The K-12 schools in the City currently have approximately 100 acres of open space and recreational facilities. Using the 2014 population figure, and based on the City standard of 1.5 acres of such facilities for each 1,000 residents, the available acreage at school facilities should be approximately 73 acres. Therefore, the City currently has an excess of K-12-school open space and recreational facilities of approximately 27 acres (100 – 73). The deficit and excess described above do not take into account the approximately 9 acres of open space and recreational facilities available for public use at Cypress Community College.

The following policy in the Conservation/Open Space/Recreation Element applies to the proposed Project:

> **COSR-6.1:** Continue to require new developments to provide recreational opportunities for their residents in accordance with the City's park standard, three acres of parkland per 1,000 residents.

4.10.5 Thresholds of Significance

In accordance with Appendix G of the *CEQA Guidelines* and the City's *Initial Study Environmental Checklist*, implementation of the proposed Project would have a significant impact on recreational facilities if it would:

[1] State of California Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2014, With 2010 Benchmark. Sacramento, California, May 2014, http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/documents/E-5_2014_Internet_Version.xls (accessed April 3, 2015).

Threshold 4.10.1: 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; or

Threshold 4.10.2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.10.6 Impacts

Threshold 4.10.1: 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

Less Than Significant Impact. The proposed Project includes the development of 244 senior housing residential units. Approximately 47,900 square feet of commercial/retail space would be constructed on an approximately 5-acre parcel on the southern portion of the project site. Each resident in the senior residential community would have access to an approximately 1-acre amenity center that includes a community clubhouse, fitness room, pilates/yoga terrace, a pool, a spa, bocce ball, an outdoor fireplace, and barbeque and gathering areas, or substantially equivalent features. The senior residential community also includes landscaped pedestrian paths that connect the residences with the amenity center and two pocket parks and a small community garden. These recreational amenities are included as Project Design Feature REC-1. As described in Section 4.8, Population and Housing, it is anticipated that the proposed Project would include approximately 440 senior residents, based on 1.8 persons per unit.[1]

As previously discussed, based on the City's standard of 3 acres of park and recreational facilities for each 1,000 residents, the City currently has a deficit of approximately 65 acres. However, the City currently has a surplus of open space and recreational facilities at K-12 schools, with an additional approximately 9 acres of open space and recreational facilities available for public use at Cypress Community College.

In any event, the development of the proposed Project would not materially increase the use of existing park and recreational facilities such that substantial physical deterioration of those facilities would occur or be accelerated. The proposed senior residential community would generate minimal demand on park facilities such as tot lots, playgrounds, soccer fields, baseball diamonds, and basketball courts, which are designed primarily for use by children and younger adults. As a result, the proposed Project would create much less demand on several types of existing recreation facilities than a typical family-oriented community.

[1] Based on a study entitled "Housing America's Older Adults: Meeting the Needs of an Aging Population," published by the Joint Center for Housing Studies of Harvard University (2014), the share of couples over age 50 who continue to live with their children decreases with age, while the share of single-person households steadily increases with age. Therefore, the expected resident generation rate is two residents per unit for 80 percent of the units and one resident per unit for 20 percent of the units.

In addition, convenience drives the level of use for recreational facilities, and since the proposed Project contains onsite recreational and social amenities that are specifically designed for seniors (as described in Project Design Feature REC-1), its residents are far more likely to use an onsite amenity that is a walkable distance rather than driving to more distant facilities, including the City's Senior Center. Also, the proposed Project's commercial/retail component is unlikely to place any significant demands on local recreation facilities. Future employees of the commercial/retail component likely already live in the area, so no new recreational demand would be created by the employees.

In any event, the City's Municipal Code provides assurance that impacts to recreational facilities remain less than significant by requiring every subdivider to either dedicate land, pay a park fee, or do both, for the purposes of providing park and recreational facilities (Regulatory Compliance Measure REC-1).

As discussed above, the proposed Project's demographic inherently results in limited demand for public recreation facilities, and residents of the senior community would have access to the onsite recreational amenities included in Project Design Feature REC-1. Therefore, the proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of any such facility would occur or be accelerated, and the proposed Project's impact would be less than significant. The project applicant's payment of the applicable park fees described in Regulatory Compliance Measure REC-1 would further reduce this less than significant impact.

Threshold 4.10.2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment

Less Than Significant Impact. The proposed senior residential community would include approximately 440 new residents. The project design includes an onsite recreational amenity center that includes a community clubhouse, a fitness room, a pilates/yoga terrace, a pool, a spa, bocce ball, an outdoor fireplace, and barbeque and gathering areas for use by residents and their guests, or substantially equivalent features, as well as pedestrian pathways, two pocket parks, and a small community garden (Project Design Feature REC-1). The project site would be graded to allow the development of the proposed senior residential community and commercial/retail uses. The proposed onsite recreational facilities are within the footprint of grading activity and would not disturb any offsite areas. The full extent of construction activities has been assessed in other sections of this Draft EIR, including the air quality, greenhouse gas emissions, noise, and traffic/transportation sections. The inclusion of the onsite recreational facilities as part of the proposed Project would not result in adverse physical effects on the environment. As discussed above under Threshold 4.10.1, the proposed Project would not cause or accelerate the substantial physical deterioration of existing recreational facilities, so it would not require the construction or expansion of offsite recreational facilities.

In addition to providing onsite recreational amenities, the project applicant would pay applicable park fees as described in Regulatory Compliance Measure REC-1. Therefore, the proposed Project would not include recreational facilities or require the construction or expansion of

recreational facilities, which would have an adverse physical effect on the environment. Potential impacts would be less than significant.

4.10.7 Regulatory Compliance Measures and Project Design Features

The proposed Project would comply with the following regulatory standard, the implementation of which is intended to reduce impacts related to recreational facilities:

Regulatory Compliance Measure REC-1: **Payment of Park Fees.** The project applicant shall comply with the applicable provisions of Chapter 25, Article 6, Park and Recreational Facilities, of the City's Municipal Code.

The proposed Project includes the following Project Design Feature related to recreational facilities:

Project Design Feature REC-1 **Onsite Recreational Amenities.** The senior residential community shall include, for the use of its residents, an approximately 1-acre amenity center that includes a community clubhouse, a fitness room, a pilates/yoga terrace, a pool, a spa, bocce ball, an outdoor fireplace, and barbeque and gathering areas, or substantially equivalent features.

4.10.8 Mitigation Measures

With adherence to the regulatory standards described in Regulatory Compliance Measures REC-1 and the incorporation of Project Design Feature REC-1, the proposed Project would result in less than significant impacts related to recreation and no mitigation measures are required.

4.10.9 Cumulative Impacts

The project site is located within the City and the proposed Project is subject to the City's Municipal Code requirement for payment of park fees, the dedication of land for park and recreational purposes, or both. Therefore, for purposes of this analysis, the geographic area for potential cumulative impacts on recreational facilities is the City. The proposed Project, in conjunction with related projects in the City, would increase the City's population. However, the proposed Project includes onsite recreational facilities for its residents, which reduces the project demand for offsite recreational facilities. In addition, the project applicant would pay the park fees described in Regulatory Compliance Measure REC-1. Moreover, the applicants for the related projects that involve residential development in the City would also be required to either dedicate land and/or pay park fees for the purposes of providing park and recreational facilities consistent with the City's Municipal Code requirements to offset their respective impacts related to parks and recreation.

Therefore, the cumulative impact of the proposed Project and the applicable related projects would be less than significant with respect to recreational facilities and, in any event, the proposed Project's contribution to a potentially significant cumulative impact on park and recreational facilities would not be cumulatively considerable.

4.10.10 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to recreational facilities.

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4.11 TRANSPORTATION/TRAFFIC

4.11.1 Introduction

This section analyzes the existing and planned transportation and circulation conditions for the proposed Project and the surrounding area, and identifies circulation impacts that may result during, or subsequent to, the development of the proposed Project. The analysis contained in this section is based in part on the *Traffic Impact Study for Barton Place at Katella Avenue and Enterprise Drive in the City of Cypress* (*Traffic Impact Study*) prepared by Kimley-Horn and Associates, Inc. (Kimley-Horn) in April 2015 (Appendix K to this Draft Environmental Impact Report [EIR]).

4.11.2 Methodology

Study Area. Based on consultation with staff of the Cities of Cypress and Los Alamitos, it was determined that the study area for analysis with respect to the proposed Project's potential traffic impacts would include the following 19 intersections:

1. Cerritos Avenue at Los Alamitos Boulevard;
2. Cerritos Avenue at Bloomfield Street;
3. Cerritos Avenue at Lexington Drive/Denni Street;
4. Cerritos Avenue at Moody Street;
5. Cerritos Avenue at Walker Street;
6. Cerritos Avenue at Valley View Street;
7. Katella Avenue at Interstate 605 (I-605) northbound ramp;
8. Katella Avenue at Los Alamitos Boulevard;
9. Katella Avenue at Bloomfield Street;
10. Katella Avenue at Lexington Drive;
11. Katella Avenue at Cottonwood Way;
12. Katella Avenue at Enterprise Drive;
13. Katella Avenue at Siboney Street;
14. Katella Avenue at Winners Circle;
15. Katella Avenue at Walker Street;
16. Katella Avenue at Valley View Street;
17. Farquhar Avenue at Los Alamitos Boulevard;
18. Farquhar Avenue at Lexington Drive; and
19. Orangewood Avenue at Valley View Street.

The study area also includes the following two freeway mainline segments on I-605 in both the northbound and southbound directions:

1. Junction Interstate 405 (I-405) to Katella Avenue; and
2. Katella Avenue to Spring Street.

Analysis Scenarios. This traffic analysis evaluates weekday morning and evening peak-hour operations for the following scenarios:

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year 2018 (Cumulative Conditions) Without Project
- Opening Year 2018 (Cumulative Conditions) With Project

Analysis Methodology for City and County Intersections.

Signalized Intersections – Intersection Capacity Utilization Methodology. This analysis focuses on the proposed Project's potential off-site traffic-related impacts and addresses the proposed Project's peak-hour impacts at the 19 study intersections, 17 of which are signalized and 2 of which are unsignalized.

In accordance with the County of Orange (County) Congestion Management Plan (CMP), signalized intersection operation is evaluated using the Intersection Capacity Utilization (ICU) methodology, which provides a comparison of the theoretical hourly vehicular capacity of an intersection to the number of vehicles actually passing through that intersection during a given hour. The ICU calculations assume a per-lane capacity of 1,700 vehicles per hour (vph) with a clearance interval of 0.05.

The results of the evaluation are reported in terms of level of service (LOS), which is represented by letter grades "A" (uncongested, free-flow conditions) through "F" (congested, over-capacity conditions). A summary description of each LOS and the corresponding volume/capacity (v/c) ratio for signalized intersections is provided in Table 4.11.A.

Unsignalized Intersections – Highway Capacity Manual Methodology. Unsignalized intersections are evaluated using the Highway Capacity Manual (HCM) methodology. The HCM methodology analysis determines the average total delay for each vehicle making any movement from a stop-controlled minor street as well as left turns from a major street. Delay values are calculated based on the relationship between traffic on the major street and the availability of acceptable gaps in the traffic stream through which conflicting traffic movements can be made. A summary description of each LOS for unsignalized intersections and the corresponding delay, expressed in seconds per vehicle, is provided in Table 4.11.B.

Table 4.11.A: Level of Service Descriptions for Signalized Intersections

Level of Service	ICU Value	Description
A	0.00–0.60	EXCELLENT – No vehicle waits longer than one red light and no approach phase is fully used.
B	0.61–0.70	VERY GOOD – An occasional approach phase is fully utilized; drivers may begin to feel somewhat restricted within groups of vehicles.
C	0.71–0.80	GOOD – Occasionally drivers may have to wait through more than one red light; back-ups may develop behind turning vehicles.
D	0.81–0.90	FAIR – Delays may be substantial during portions of the rush hours, but enough lower-volume periods occur to permit clearing of developing lines, preventing excessive back-ups.
E	0.91–1.00	POOR – Represents the most vehicles that the intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.00	FAILURE – Back-ups from nearby locations or on cross-streets may restrict or prevent movement of vehicles out of the intersection approaches. Delays occur with increasing queue lengths.

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
ICU = Intersection Capacity Utilization

Table 4.11.B: Highway Capacity Manual Level of Service Descriptions for Unsignalized Intersections

Delay (seconds/vehicle)	Level of Service		Description
	V/C ≤ 1.0	V/C > 1.0	
≤ 10.0	A	F	Little or no delay
> 10.0 – ≤ 15.0	B	F	Short traffic delays
> 15.0 – ≤ 25.0	C	F	Average traffic delays
> 25.0 – ≤ 35.0	D	F	Long traffic delays
> 35.0 – ≤ 50.0	E	F	Very long traffic delays
> 50.0	F	F	Severe congestion

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
V/C = volume/capacity

Analysis Methodology for Off-Ramp Intersection and Freeway Mainline Segments. Intersections on State highway facilities, which are controlled by the California Department of Transportation (Caltrans), are also analyzed using the HCM methodology, as required by the 2002 *Caltrans Guide for the Preparation of Traffic Impact Studies* (*Caltrans Guide*). For this analysis, one intersection is located on a State highway facility:

- Katella Avenue at the I-605 northbound ramps.

As described above, the HCM methodology measures average seconds of delay per vehicle based on a number of technical parameters, such as peak hourly traffic volumes, number of lanes, type of signal operation, signal timing, and signal phasing in the calculations. A description of each LOS, based on delay parameters per the HCM, is provided in Table 4.11.C.

Table 4.11.C: Highway Capacity Manual Level of Service Descriptions for Signalized Intersections

Level of Service	Signalized Intersection Delay (sec)	Description
A	≤10	EXCELLENT – No vehicle waits longer than one red light and no approach phase is fully used.
B	> 10 – ≤ 20	VERY GOOD – An occasional approach phase is fully utilized; drivers begin to feel somewhat restricted within groups of vehicles.
C	> 20 – ≤ 35	GOOD – Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	> 35 – ≤ 55	FAIR – Delays may be substantial during portions of the rush hours, but enough lower-volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	> 55 – ≤ 80	POOR – Represents the most vehicles that the intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 80	FAILURE – Backups from nearby locations or on cross-streets may restrict or prevent movement of vehicles out of the intersection approaches. Delays occur with increasing queue lengths.

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
Caltrans = California Department of Transportation
sec = seconds

The analysis of freeway mainline segments is also conducted in accordance with the *Caltrans Guide*, which specifies application of the HCM operational methodology.

4.11.3 Environmental Setting

Existing Roadway System. Regional access to the project site is provided by I-605, I-405, State Route 22 (SR-22) and State Route 91 (SR-91). I-605 is located approximately 2 miles west of the project site, while I-405 and SR-22 are located approximately 3.5 miles to the south. SR-91 is located approximately 5 miles north of the project site and provides access to the Inland Empire. Local access to the project vicinity is provided by several arterial and commuter roadways, described below.

Cerritos Avenue. Cerritos Avenue is classified as an east-west Primary Roadway in the Circulation Elements of the Cities of Cypress and Los Alamitos. Cerritos Avenue provides access from the City of Long Beach in the west, where is it named Spring Street, to the City of Anaheim in the east, where it terminates at Walnut Street near Disneyland. Cerritos Avenue has a partial interchange with I-605 approximately 1.5 miles west of the project site. This roadway provides two travel lanes in each direction, separated by a painted median. On-street parking is prohibited and the speed limit varies between 40 and 45 miles per hour (mph).

Katella Avenue. Katella Avenue is a six-lane roadway through the Cities of Cypress and Los Alamitos, with a center median and turn lanes at major intersections. Katella Avenue is designated as a Smart Street through the Cities of Cypress and Los Alamitos, and is designated on the Orange County CMP as a CMP facility. The posted speed limit varies between 35 and 45 mph through the study area.

Los Alamitos Boulevard. Los Alamitos Boulevard varies from a four-lane to a six-lane divided roadway, traversing the City of Los Alamitos in a north-south direction. The posted speed limit on Los Alamitos Boulevard is 35 mph north of Katella Avenue and 40 mph south of Katella Avenue. On-street parking is permitted along some segments of the roadway. The street name changes to Norwalk Boulevard to the north of the City of Cypress, and to Seal Beach Boulevard to the south.

Bloomfield Street. Bloomfield Street is a four-lane roadway with a center two-way turn lane divider along some segments of the roadway. The posted speed limit on Bloomfield Street is 40 mph north of Cerritos Avenue and 35 mph south of Cerritos Avenue. On-street parking is generally permitted along Bloomfield Street.

Denni Street/Lexington Drive. Denni Street/Lexington Drive is a north-south roadway. Denni Street/Lexington Drive begins at Lincoln Avenue in Cypress and ends at the Joint Forces Training Base in Los Alamitos. The name changes from Denni Street to Lexington Drive at Cerritos Avenue. For most of its length, Denni Street is a four-lane undivided roadway with a posted speed limit varying between 35 and 40 mph. Lexington Drive is generally a two-lane undivided roadway. On-street parking is mostly prohibited. Along some segments, Class II bike lanes are provided, while other segments are designated Class III bike routes.

Moody Street. Moody Street is a north-south Primary Roadway stretching from Cerritos Avenue on the south, northward through the Cities of La Palma, Cerritos, and others. Moody Street changes name to Carmenita Road north of SR-91. It is a four-lane roadway with Class II bike lanes on both sides, divided by a painted median. On-street parking is prohibited on both sides and the posted speed limit is 40 mph.

Walker Street. Walker Street is a north-south Secondary Roadway that begins at Katella Avenue and ends at Interstate 5 (I-5). It is a four-lane roadway divided by a painted median. For a short segment south of Cerritos Avenue, Walker Street has three northbound lanes. Class II bike lanes are generally provided on Walker Street throughout the project vicinity. The posted speed limit is 45 mph.

Valley View Street. Valley View Street is a north-south Major Roadway providing regional access between several cities in Orange and Los Angeles Counties. Valley View Street is a six-lane roadway, divided by a raised landscaped median, with Class II bike lanes on both sides. On-street parking is prohibited for its entire length, and the posted speed limit is 45 mph.

Existing Peak-Hour Traffic Volumes. Existing peak-hour turning movement counts were collected on a typical (non-holiday) Thursday in November 2014 at the 19 study intersections. Existing lane configurations and traffic control at each of the study intersections are shown on Figure 4.11.1 (all figures are provided at the end of the text in this section to enhance the section's readability). Existing morning and evening peak-hour traffic turning movement volumes for the study intersections are shown on Figure 4.11.2. Copies of the traffic count data forms are provided in Appendix B to the *Traffic Impact Study.*

Existing Peak-Hour Traffic Conditions. Existing peak-hour operations were evaluated using the ICU methodology for signalized study intersections and the HCM delay methodology for unsignalized intersections. The results of the analysis are summarized in Table 4.11.D, which shows that all signalized study intersections are currently operating at LOS D or better during both peak hours. The average vehicle delay results for the unsignalized intersections of Katella Avenue at Enterprise Drive (#12) and Farquhar Avenue at Lexington Drive (#18) indicate that both intersections are currently operating at LOS A during both peak hours on an overall intersection basis. Intersection analysis worksheets are provided in Appendix C to the *Traffic Impact Study.*

Table 4.11.D: Summary of Peak-Hour Intersection Operation – Existing Conditions

			AM Peak Hour		PM Peak Hour	
Int. #	**Intersection**	**Traffic Control**	**ICU/ Delay**	**LOS**	**ICU/ Delay**	**LOS**
1	Cerritos Avenue at Los Alamitos Boulevard	S	0.826	D	0.861	D
2	Cerritos Avenue at Bloomfield Street	S	0.836	D	0.711	C
3	Cerritos Avenue at Lexington Drive/Denni Street	S	0.628	B	0.712	C
4	Cerritos Avenue at Moody Street	S	0.561	A	0.707	C
5	Cerritos Avenue at Walker Street	S	0.688	B	0.638	B
6	Cerritos Avenue at Valley View Street	S	0.774	C	0.771	C
7	Katella Avenue at I-605 Northbound Ramp	S	0.380	A	0.569	A
8	Katella Avenue at Los Alamitos Boulevard	S	0.784	C	0.783	C
9	Katella Avenue at Bloomfield Street	S	0.740	C	0.760	C
10	Katella Avenue at Lexington Drive	S	0.557	A	0.596	A
11	Katella Avenue at Cottonwood Way	S	0.417	A	0.445	A
12	Katella Avenue at Enterprise Drive	U	0.30	A	0.30	A
13	Katella Avenue at Siboney Street	S	0.453	A	0.540	A
14	Katella Avenue at Winners Circle	S	0.437	A	0.559	A
15	Katella Avenue at Walker Street	S	0.638	B	0.647	B
16	Katella Avenue at Valley View Street	S	0.696	B	0.757	C
17	Farquhar Avenue at Los Alamitos Boulevard	S	0.634	B	0.629	B
18	Farquhar Avenue at Lexington Drive	U	8.3	A	8.9	A
19	Orangewood Avenue at Valley View Street	S	0.786	C	0.710	C

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
Notes: ICU value is expressed in volume-to-capacity ratio.
Average delay is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **Bold** indicates unacceptable LOS.

I-605 = Interstate 605
ICU = Intersection Capacity Utilization
Int. = intersection
LOS = level of service
S = signalized intersection
U = unsignalized intersection

4.11.4 Regulatory Setting

Federal Regulations and Policies. There are no relevant federal transportation/traffic regulations applicable to the proposed Project.

State Regulations and Policies. As previously discussed, intersections on State highway facilities and freeway mainlines, which are controlled by Caltrans, are analyzed using the HCM methodology, as required by the *Caltrans Guide* (Caltrans, December 2002). One study intersection—Katella Avenue at the I-605 northbound ramps—is located within a State highway facility. In addition, the two study freeway mainline segments—Junction I-405 to Katella Avenue and Katella Avenue to Spring Street on I-605—are located within a State highway facility.

Regional Regulations and Policies.

Orange County Congestion Management Program. The Orange County Transportation Authority (OCTA) is a multimodal transportation agency that began in 1991 with the consolidation of seven separate agencies. OCTA serves Orange County residents and travelers by providing: countywide bus and paratransit service; Metrolink rail service; the 91 Express Lanes; freeway, street, and road improvement projects; individual and company commuting solutions; motorist aid services; and regulation of taxi operations. State law requires that a CMP be developed, adopted, and updated biennially for every county that includes an urbanized area, and requires that it include every city and the county government within that county. As the Congestion Management Agency for Orange County, OCTA is responsible for implementing the Orange County CMP for the County.

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

The County of Orange CMP Highway System is shown on Figure 4.11.3. Within the Cities of Cypress and Los Alamitos, the CMP Highway System includes two arterials: Valley View Street and Katella Avenue. The intersections of Katella Avenue at Valley View Street and Katella Avenue at the I-605 northbound ramps are the only CMP intersections in the study area. Both intersections are study intersections.

Based on CMP requirements, a Traffic Impact Analysis (TIA) is required for CMP purposes for any proposed development generating 2,400 or more daily trips, except that for developments that will directly access a CMP Highway System roadway segment, the threshold for requiring a TIA is reduced to 1,600 or more trips per day. The proposed Project is estimated to generate a total of 3,458 daily trips and would take access directly from Katella Avenue, which is a CMP facility. As such, a TIA is required for CMP purposes.

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

segment on which the project traffic would represent 3 percent or more of the roadway segment's LOS E capacity.

Local Regulations.

Parking. The applicable parking requirements for the proposed Project are set forth in Section IV.E of the Amended Specific Plan, which in turn references certain applicable parking requirements set forth in the Cypress Zoning Ordinance. The minimum parking requirements for the proposed uses are as follows:

- **Shopping Center:**
  - One space per 225 square feet
- **Restaurant:**
  - One space per 100 square feet
- **Senior Housing:**
  - One garage space per dwelling unit; and
  - One uncovered guest space per 20 dwelling units.

4.11.5 Thresholds of Significance

In accordance with Appendix G to the *CEQA Guidelines* and the City's *Initial Study/Environmental Checklist*, the proposed Project would have a significant impact on transportation/traffic if it would:

Threshold 4.11.1 Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

Threshold 4.11.2 Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

Threshold 4.11.3 Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

Threshold 4.11.4 Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

Threshold 4.11.5 Result in inadequate emergency access;

Threshold 4.11.6 Result in inadequate parking capacity; or

Threshold 4.11.7 Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The analysis in the Initial Study (Appendix A) determined that the proposed Project impacts with respect to Thresholds 4.11.3, 4.11.4, 4.11.5, 4.11.6, and 4.11.7 would be clearly insignificant and unlikely to occur. Therefore, the transportation/traffic impacts relating to Thresholds 4.11.3, 4.11.4, 4.11.5, and 4.11.7 are not considered further in this Draft EIR.

Although the Initial Study determined that the proposed Project would not result in a significant parking impact with respect to Threshold 4.11.6, the proposed Project's parking impact is analyzed below in order to provide a full discussion of the potential parking impacts.

With respect to Threshold 4.11.1, as discussed below, the Cities of Cypress and Los Alamitos, as well as Caltrans, have plans and policies to measure the effectiveness of the performance of the circulation system with regard to intersections and State highway facilities. However, there are no relevant plans, ordinances, or policies establishing measures of effectiveness for the performance of the circulation system specifically relating to non-motorized modes of transportation, including mass transit and pedestrian and bicycle paths. Therefore, the analysis below with respect to Threshold 4.11.1 will focus on the proposed Project's impacts on intersections, streets, highways, and freeways.

Intersection and Freeway Mainline Performance Criteria/Significance Thresholds. The City of Cypress' LOS standard for intersection operation is LOS D, except at intersections along Valley View Street, Lincoln Avenue, and Katella Avenue. These arterials carry a significant amount of regional through traffic and, as such, the City has adopted LOS E as the standard for intersections along these three arterials.

The City of Los Alamitos' standard for intersection operation is LOS D, except at intersections along Katella Avenue, where the LOS standard is LOS E, consistent with the CMP.

Based on these City of Cypress and City of Los Alamitos standards, a project traffic impact would be considered significant if it would:

- Cause an intersection operating at an acceptable LOS to deteriorate to an unacceptable LOS; or
- Add 0.01 or more to the peak-hour ICU at an intersection already operating at an unacceptable LOS.

For State-controlled intersections, LOS standards and impact criteria specified by Caltrans will apply. The *Caltrans Guide* states that "Caltrans endeavors to maintain a target Level of Service at the transition between LOS C and LOS D on State highway facilities. If an existing State highway facility is operating at less than the target LOS, the existing Level of Service is to be maintained."

The *Caltrans Guide* does not establish a threshold of significance for State highway intersections, but consistent with custom and practice, the following threshold of significance will be used:

- A significant project impact would occur at a State highway study intersection where the addition of project-generated trips (1) causes the peak-hour LOS of the study intersection to change from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E, or F), or (2) causes an intersection already operating at a deficient LOS to deteriorate to a worse LOS.

With respect to freeway mainline segments, the *Caltrans Guide* includes trip generation thresholds, which function as screening criteria to determine whether a full traffic impact study or some lesser analysis is required with respect to a project's impact on freeway mainline segments. Pursuant to those thresholds, a traffic impact study prepared in accordance with the requirements in the *Caltrans Guide* is required if a project:

- Generates over 100 peak-hour trips assigned to a State highway facility;
- Generates 50 to 100 peak-hour trips assigned to a State highway facility and the affected State highway facility is experiencing noticeable delay, approaching unstable traffic flow conditions (LOS C or D); or
- Generates 1 to 49 peak-hour trips assigned to a State highway facility and the affected State highway facility is experiencing significant delay with unstable or forced traffic flow conditions (LOS E or F).

If a proposed project meets one of the above thresholds, a traffic impact study or other additional traffic analysis is required. Freeway mainline analysis results are expressed in terms of density, which measures the number of passenger cars per lane mile (pc/mi/ln) on the freeway mainline. In accordance with the *Caltrans Guide*, the target LOS for freeway mainline segments is the transition between LOS C and D, which is a density of 35.0 pc/mi/ln. If the existing density exceeds the target LOS, the existing LOS is to be maintained.

Table 4.11.E shows the study intersections, the jurisdiction in which each intersection is located, and the type of traffic control (i.e., signalized or unsignalized) and LOS standard for each intersection.

4.11.6 Project Impacts

Threshold 4.11.1 Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Project Trip Generation. Daily and peak-hour trip generation estimates have been prepared for the proposed Project. Trip generation estimates are based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (9th Edition) trip rates. These trip rates are shown in Table 4.11.F.

Table 4.11.E: Study Intersections and LOS Standard

Int. No.	Intersection	Jurisdiction	Traffic Control	LOS Standard
1	Cerritos Avenue at Los Alamitos Boulevard	Los Alamitos	S	D
2	Cerritos Avenue at Bloomfield Street	Los Alamitos	S	D
3	Cerritos Avenue at Lexington Drive/Denni Street	Cypress/Los Alamitos	S	D
4	Cerritos Avenue at Moody Street	Cypress	S	D
5	Cerritos Avenue at Walker Street	Cypress	S	D
6	Cerritos Avenue at Valley View Street	Cypress	S	E
7	Katella Avenue at I-605 Northbound Ramp	Caltrans	S	C
8	Katella Avenue at Los Alamitos Boulevard	Los Alamitos	S	E
9	Katella Avenue at Bloomfield Street	Los Alamitos	S	E
10	Katella Avenue at Lexington Drive	Cypress/Los Alamitos	S	E
11	Katella Avenue at Cottonwood Way	Cypress/Los Alamitos	S	E
12	Katella Avenue at Enterprise Drive	Cypress/Los Alamitos	U	E
13	Katella Avenue at Siboney Street	Cypress/Los Alamitos	S	E
14	Katella Avenue at Winners Circle	Cypress/Los Alamitos	S	E
15	Katella Avenue at Walker Street	Cypress/Los Alamitos	S	E
16	Katella Avenue at Valley View Street	Cypress	S	E
17	Farquhar Avenue at Los Alamitos Boulevard	Los Alamitos	S	D
18	Farquhar Avenue at Lexington Drive	Los Alamitos	U	D
19	Orangewood Avenue at Valley View Street	Cypress	S	E

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
I-605 = Interstate 605
Int. = intersection
LOS = level of service
S = Signalized
U = Unsignalized

Table 4.11.F: Summary of Project Trip Generation

Land Use	ITE Code	Unit	Trip Generation Rates[1]						
				AM Peak Hour			PM Peak Hour		
			Daily	In	Out	Total	In	Out	Total
Senior Adult Housing – Detached	251	DU	3.680	0.077	0.143	0.220	0.165	0.105	0.270
Senior Adult Housing – Attached	252	DU	3.440	0.067	0.124	0.190	0.138	0.092	0.230
Shopping Center	820	KSF	42.700	0.595	0.365	0.960	1.781	1.929	3.710
High-Turnover (Sit-Down) Restaurant	932	KSF	127.150	5.946	4.865	10.810	5.910	3.940	9.850
Land Use	**Quantity**	**Unit**	**Trip Generation Estimates**						
				AM Peak Hour			**PM Peak Hour**		
			Daily	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Senior Adult Housing – Detached	152	DU	559	12	22	34	25	16	41
Senior Adult Housing – Attached	92	DU	316	6	11	17	13	8	21
Subtotal Residential Trips			***875***	***18***	***33***	***51***	***38***	***24***	***62***
- Internal Capture[2]			***-123***	***0***	***0***	***0***	***-6***	***-4***	***-10***
Total Residential Trips			***752***	***18***	***33***	***51***	***32***	***20***	***52***
Shopping Center	36.500	KSF	1,559	22	13	35	65	70	135
High-Turnover (Sit-Down) Restaurant	11.378	KSF	1,447	68	55	123	67	45	112
Subtotal Retail/Restaurant Trips			***3,006***	***90***	***68***	***158***	***132***	***115***	***247***
- Internal Capture[2]			***-421***	***0***	***0***	***0***	***-20***	***-17***	***-37***
- Pass-by Trips[3]			***-81***	***0***	***0***	***0***	***-43***	***-38***	***-81***
Total Retail/Restaurant Trips			**2,504**	**90**	**68**	**158**	**69**	**60**	**129**
Total Project Trips			**3,256**	**108**	**101**	**209**	**101**	**80**	**181**

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).

1 Source: ITE *Trip Generation Manual*, 9th Edition.

2 Source: ITE *Trip Generation Manual – Volume 1: User's Guide and Handbook*. The Handbook does not provide internal capture rates for the AM peak hour. The daily internal capture is 14%. The PM peak-hour internal capture is 15%.

3 Source: ITE *Trip Generation Manual – Volume 1: User's Guide and Handbook*. The Handbook only provides pass-by rates for the PM peak hour. The daily pass-by is the total of the PM peak hour inbound and outbound pass-by trips. The pass-by rate is 34% for retail and 43% for restaurants. The pass-by reduction is applied to the net retail and restaurant trips after the internal capture reduction is applied.

DU = dwelling units
ITE = Institute of Transportation Engineers
KSF = thousand square feet

The trip generation estimates for the proposed Project were developed by adding together the trips generated by the residential, commercial/retail, and restaurant uses. A characteristic of multi-use developments is the potential for interaction among the uses in terms of walk trips or vehicular trips between land uses. For example, a pedestrian connection between the residential and commercial/ retail components of the proposed Project will be provided. Residents may make trips to the restaurant and shops by walking there from their homes. As a result, the total inbound and outbound vehicular trips to and from the project site may be reduced. The resulting reduction in off-site vehicular trips is known as internal capture.

In addition, it is recognized that not all trips into and out of the proposed Project will be "new" trips on the roadway system serving the project site. Some trips to the commercial/retail and restaurant uses will consist of "pass-by" trips (i.e., motorists who are already traveling on the surrounding roadways from one place to another). Common pass-by trips for a commercial center would be individuals who stop to eat, shop, or run errands on their way to or from work or school.

The trip generation estimates for the proposed Project include trip adjustments for internal trip capture between the site uses and pass-by trips for the commercial/retail and restaurant uses, based on the ITE *Trip Generation Manual Vol. 1: User's Guide and Handbook*. The trip rates and resulting project trip generation estimates are shown in Table 4.11.F. The proposed Project would generate approximately 3,256 vehicle trips on a daily basis, with 209 trips in the morning peak hour and 181 trips in the evening peak hour.

Project Trip Distribution and Assignment. Trip distribution assumptions for the proposed Project were developed based on the likely origins and destinations of residents, patrons, and employees. Residents of the residential portion of the proposed Project are assumed to distribute primarily to local businesses and commercial centers, with a small percentage of trips distributed to the freeways.

Patrons of the commercial and restaurant uses are assumed to come primarily from nearby residential neighborhoods. Trip distribution assumptions during the morning and afternoon peak hours for the residential and retail portions of the proposed Project are shown on Figures 4.11.4 and 4.11.5, respectively.

Project-related traffic entering and exiting the project site using Enterprise Drive will be restricted to right-in/right-out-only movements. The existing southbound restriction, which prohibits traffic on southbound Enterprise Drive from turning left or crossing Katella Avenue and entering the residential neighborhood to the south, will be maintained. Project traffic will be prohibited from making left turns to or from Katella Avenue. In addition, the existing eastbound restriction at the Katella Avenue/ Enterprise Drive intersection, which prohibits left turns from Katella Avenue onto Enterprise Drive to access the project site, will be maintained. As a result, traffic approaching the project site from the west on Katella Avenue would pass Enterprise Drive and make a U-turn at Siboney Street. Likewise, traffic leaving the project site and destined to travel east on Katella Avenue will need to make a U-turn at Lexington Drive.

Based on these trip distribution assumptions, the project trips that would be added to the street system were calculated and are shown on Figure 4.11.6.

Existing Plus Project Conditions. This section addresses the traffic-related impacts associated with adding project-related trips to existing traffic volumes. The Existing Plus Project scenario is a hypothetical scenario that assumes the proposed Project would be fully operational at the present time, with no other changes to area traffic volumes or the street network serving the project site. This analysis assumes full development of the proposed Project and full absorption of project traffic on the circulation system at the present time.

Existing Plus Project Peak-Hour Intersection Analysis.

Less Than Significant Impact. Project-related trips were added to existing traffic volumes to forecast Existing Plus Project conditions. Morning and evening peak-hour traffic volumes for this scenario are shown on Figure 4.11.7. A summary of the resulting intersection LOS is provided in Table 4.11.G. As review of this table shows, all signalized study intersections would continue to operate at LOS D or better under Existing Plus Project conditions, and the two unsignalized intersections would continue to operate at LOS A on an overall intersection basis during both peak hours. Therefore, the proposed Project would not result in a significant impact at any study intersections in the Existing Plus Project peak-hour scenario. Intersection analysis worksheets are provided in Appendix C to the *Traffic Impact Study*.

Existing Plus Project Analysis of Peak-Hour Operations on State Highway Off-Ramp Intersection.

Less Than Significant Impact. The intersection of Katella Avenue at the I-605 northbound ramps was analyzed for each of the study scenarios using the HCM delay methodology. The results of the analysis are summarized in Table 4.11.H. The intersection of Katella Avenue at the I-605 northbound ramps currently operates at LOS A during the morning and evening peak hours, and would continue to do so with the addition of project traffic under Existing Plus Project conditions. Therefore, the proposed Project would also not result in a significant impact at the intersection of Katella Avenue at the I-605 northbound ramps in the Existing Plus Project peak-hour scenario, based on the HCM methodology.

Existing Plus Project Analysis of Peak-Hour Operations on Freeway Mainline Segments.

Less Than Significant Impact. Annual average daily traffic (AADT) freeway volumes were obtained from the *2013 Traffic Volumes on California State Highways* traffic volumes book, which is the most recent traffic volumes book posted on the Caltrans website (www.dot.ca.gov). Daily traffic volumes were converted to peak-hour directional volumes using the HCM methodology. The results of the analysis are expressed in terms of vehicular density in each peak hour, in each direction, in accordance with HCM methodology. The freeway analysis worksheets are provided in Appendix D to the *Traffic Impact Study.* A summary of the results of the freeway mainline analysis is presented below.

Table 4.11.G: Summary of Peak-Hour Intersection Operation Existing Plus Project Conditions

			AM Peak Hour						PM Peak Hour					
			Without Project		With Project				Without Project		With Project			
Int. #	Intersection	Traffic Control	ICU/ Delay	LOS	ICU/ Delay	LOS	Project Impact	Impact Sig?	ICU/ Delay	LOS	ICU/ Delay	LOS	Project Impact	Impact Sig?
1	Cerritos Ave. at Los Alamitos Blvd.	S	0.826	D	0.827	D	0.001	No	0.861	D	0.862	D	0.001	No
2	Cerritos Ave. at Bloomfield St.	S	0.836	D	0.838	D	0.002	No	0.711	C	0.713	C	0.002	No
3	Cerritos Ave. at Lexington Dr./ Denni St.	S	0.628	B	0.649	B	0.021	No	0.712	C	0.729	C	0.017	No
4	Cerritos Ave. at Moody St.	S	0.561	A	0.568	A	0.007	No	0.707	C	0.711	C	0.004	No
5	Cerritos Ave. at Walker St .	S	0.688	B	0.701	B	0.013	No	0.638	B	0.645	B	0.007	No
6	Cerritos Ave. at Valley View St.	S	0.774	C	0.776	C	0.002	No	0.771	C	0.776	C	0.005	No
7	Katella Ave. at I-605 NB Ramp	S	0.380	A	0.381	A	0.001	No	0.569	A	0.570	A	0.001	No
8	Katella Ave. at Los Alamitos Blvd.	S	0.784	C	0.787	C	0.003	No	0.783	C	0.784	C	0.001	No
9	Katella Ave. at Bloomfield St.	S	0.740	C	0.745	C	0.005	No	0.760	C	0.767	C	0.007	No
10	Katella Ave. at Lexington Dr.	S	0.557	A	0.571	A	0.014	No	0.596	A	0.599	A	0.003	No
11	Katella Ave. at Cottonwood Wy.	S	0.417	A	0.427	A	0.010	No	0.445	A	0.454	A	0.009	No
12	Katella Ave. at Enterprise Dr.	U	0.30	A	0.50	A	0.20	No	0.30	A	0.40	A	0.10	No
13	Katella Ave. at Siboney St.	S	0.453	A	0.459	A	0.006	No	0.540	A	0.549	A	0.009	No
14	Katella Ave. at Winners Cir.	S	0.437	A	0.443	A	0.006	No	0.559	A	0.571	A	0.012	No
15	Katella Ave. at Walker St.	S	0.638	B	0.645	B	0.007	No	0.647	B	0.654	B	0.007	No
16	Katella Ave. at Valley View St.	S	0.696	B	0.703	B	0.007	No	0.757	C	0.760	C	0.003	No
17	Farquhar Ave. at Los Alamitos Blvd.	S	0.634	B	0.635	B	0.001	No	0.629	B	0.629	B	0.000	No
18	Farquhar Ave. at Lexington Dr.	U	8.3	A	8.3	A	0.000	No	8.9	A	8.9	A	0.000	No
19	Orangewood Ave. at Valley View St.	S	0.786	C	0.790	C	0.004	No	0.710	C	0.714	C	0.004	No

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
Notes: ICU value is expressed in volume-to-capacity ratio.
Average delay is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **Bold** indicates unacceptable LOS.
I-605 = Interstate 605
ICU = Intersection Capacity Utilization
LOS = level of service
NB = northbound
S = signalized intersection
U = unsignalized intersection

Table 4.11.H: Summary Katella Avenue at I-605 Northbound Ramps Intersection Operation (HCM Methodology)

Scenario	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Existing Conditions	2.3	A	7.6	A
Existing Plus Project	2.3	A	7.5	A
Opening Year 2018 Without Project	2.3	A	7.7	A
Opening Year 2018 With Project	2.3	A	7.7	A

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
Notes: Intersection operation is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **bold** indicates unacceptable LOS.
HCM = Highway Capacity Manual
I-605 = Interstate 605
LOS = level of service

Peak-hour freeway volumes and analysis results by segment and by direction are summarized in Table 4.11.I for Existing Conditions without and with the proposed Project. As shown in Table 4.11.I, with the addition of project traffic, both the Junction I-405 to Katella Avenue and the Katella Avenue to Spring Street segments on I-605 would operate at LOS B or C during the morning and evening peak hours in both the northbound and southbound directions. Table 4.11.I also shows that the proposed Project would only add four to seven peak-hour trips to each segment.

Based on the analysis reflected in Table 4.11.I, the previously described third trip generation threshold (1 to 49 peak-hour trips) applies here because the proposed Project would only add 4 to 7 peak-hour trips to the Junction I-405 to Katella Avenue and Katella Avenue to Spring Street segments in both the northbound and southbound directions. However, that trip generation threshold does not require any further traffic analysis because none of the segments would operate at LOS E or F with project traffic. Specifically, the northbound Junction I-405 to Katella Avenue segment currently operates at LOS B and would continue to do so with Project traffic during the morning peak hour. The remaining segments would otherwise operate, or continue to operate, at LOS C with project traffic.

In addition, even if further traffic analysis was required pursuant to the Caltrans Guide, the proposed Project would not have a significant impact on freeway mainline traffic. As shown in Table 4.11.I, the study freeway segments would all operate at LOS C or better during both peak hours, with densities ranging from 16.9 to 23.0 pc/mi/ln under Existing Plus Project Conditions. This is well within the Caltrans target LOS for freeway mainline operation (transition between LOS C and D/density of 35.0 pc/mi/ln). Table 4.11.I further demonstrates that the addition of project traffic in the peak hours would have a minimal effect on the freeway segment operation, with no changes in LOS and a project-related increase in density of 0.0 to 0.1 pc/mi/ln.

Table 4.11.I: Summary of Freeway Mainline Operations Existing Plus Project Conditions

Freeway: I-605																	
		Existing Conditions						Existing With Project						Project Impact			
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour		PM Peak Hour	
Freeway Segment	**Lanes**	**Volume**	**Density (pc/mi/ln)**	**LOS**	**Volume**	**Density (pc/mi/ln)**	**LOS**	**Volume**	**Density (pc/mi/ln)**	**LOS**	**Volume**	**Density (pc/mi/ln)**	**LOS**	**Volume**	**Density (pc/mi/ln)**	**Volume**	**Density (pc/mi/ln)**
Northbound																	
Junction I-405 to Katella Avenue	5	5,267	16.8	B	6,593	21.1	C	5,273	16.9	B	6,600	21.1	C	6	0.1	7	0.0
Katella Avenue to Spring Street	5	5,746	18.4	C	7,192	23.0	C	5,751	18.4	C	7,196	23.0	C	5	0.0	4	0.0
Southbound																	
Spring Street to Katella Avenue	5	7,066	22.6	C	6,340	20.3	C	7,071	22.6	C	6,345	20.3	C	5	0.0	5	0.0
Katella Avenue to Junction I-405	5	6,477	20.7	C	5,812	18.6	C	6,484	20.7	C	5,817	18.6	C	7	0.0	5	0.0

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
I-405 = Interstate 405
I-605 = Interstate 605
LOS = level of service
pc/mi/in = passenger cars per lane per mile

Construction Traffic

Less Than Significant Impact. The construction of the proposed Project would generate construction-phase traffic with respect to the grading of the project site and construction of the proposed improvements. The duration of construction is expected to be approximately 8 months for the site work and approximately 29 months for building construction, with approximately 3 months of overlapping grading and construction activities. This results in a total construction period of approximately 34 months.

Large construction equipment such as bulldozers, loaders, scrapers, backhoes, water trucks, and pavers would be required during various construction phases. Such equipment would generally be delivered to the project site at the start of the construction phase and kept onsite until its term of use ends. A staging area would be designated toward the center of the project site for construction equipment and supplies to be stored during construction.

Throughout construction, the size of the work crew reporting to the project site each day would vary from approximately 20 to 75 workers, depending on the project phase. Parking for construction workers would be provided on site during all phases of construction. Workers would not be allowed to park on local streets.

Earthwork for the proposed Project would require approximately 93,390 cubic yards of fill, which would require the import of approximately 5,836 truckloads of dirt during the grading phase. The haul route for construction traffic would be along the designated truck routes (Katella Avenue and Valley View Street) to either I-605 or I-405.

Temporary delays in traffic may occur due to oversized vehicles traveling at lower speeds on Katella Avenue turning into the project site. Such delays would be occasional and of short duration. The traffic generated by construction activity would be limited in duration and would not materially impact the LOS at any study intersections or freeway mainline segments.

For the reasons described above, the proposed Project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account relevant components of the circulation system, including intersections, streets, highways, and freeways. Therefore, the impact would be less than significant.

Threshold 4.11.2 Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

Less than Significant Impact. The LOS E capacities of Katella Avenue and Valley View Street (the two CMP roadways near the project site) and the forecast daily project traffic volumes on those segments are shown on Figure 4.11.8. This figure demonstrates that the project-related daily traffic volumes exceed the 3 percent threshold only on Katella Avenue directly east of the project site. The

project-related daily traffic volumes on all other roadway segments would be less than 3 percent of the daily roadway LOS E capacities at the study area boundaries, and therefore the traffic analysis has been carried out far enough to satisfy CMP requirements. In other words, the traffic analysis herein analyzes intersection impacts beyond the point where the project-related daily traffic represented 3 percent or more of the road segment LOS E capacity and concludes that the proposed Project would not result in a significant traffic impact at any CMP intersection in the project vicinity. Therefore, the traffic analysis herein complies with CMP requirements, and traffic impacts related to the CMP would be less than significant.

Threshold 4.11.6 Result in inadequate parking capacity.

Provision of Parking.

Less than Significant Impact. Table 4.11.J provides a summary of the proposed Project's parking requirements based on the minimum parking ratios required by Section IV.E of the Amended Specific Plan and the parking provided, as shown on the project site plan (refer to Figure 3.6 in Chapter 3.0, Project Description, in this Draft EIR). The minimum parking requirement for the commercial/retail/restaurant area is 277 spaces. The surface parking lot for the commercial/retail/restaurant area would include 277 spaces and would therefore satisfy the commercial/retail/restaurant parking requirement. The minimum parking requirement for the senior residential community is 257 parking spaces, including 244 garage spaces and 13 open guest spaces. The proposed Project would include 566 parking spaces for that use, including 488 garage spaces and 78 open guest spaces. This would result in a surplus of 309 residential parking spaces.

Table 4.11.J: Summary of Project Parking

Use	Unit	Quantity	1 Space Per	Required Parking
Commercial/Retail	SF	36,500	225 SF	163
Restaurant	SF	11,376	100 SF	114
Total Required				***277***
Total Provided				***277***
Senior Housing Garage Parking	DU	244	1 DU	244
Senior Housing Guest Parking	DU	244	20 DU	13
Total Required				***257***
- Garage Parking Provided				***488***
- Guest Parking Provided				***78***
Total Provided				***566***

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
DU = dwelling unit
SF = square feet

Accordingly, the proposed Project would satisfy the parking requirement for the commercial/ retail and restaurant uses, and would substantially exceed the parking requirement for the senior

residential community. Therefore, the proposed Project would be in compliance with the applicable parking requirements in the Amended Specific Plan and, to the extent applicable, the Cypress Zoning Ordinance. Thus, the proposed Project's parking impacts with respect to the parking capacity would be less than significant.

4.11.7 Mitigation Measures

The proposed Project would not result in any significant adverse impacts related to transportation/ traffic and no mitigation measures are required.

4.11.8 Cumulative Impacts

A future, cumulative traffic forecast was developed to evaluate Opening Year (Cumulative Conditions) for the anticipated opening year, which is 2018.

The cumulative forecast for Opening Year 2018 was developed using the "build-up" process, starting with adding a background, or ambient, growth factor to existing peak-hour volumes at the study intersections. While the ambient growth rate for the Cypress area typically has been assumed to be 0.5 percent per year (due to the relatively limited amount of development in the surrounding area), for the purposes of this analysis, an ambient growth rate of 1 percent per year (compounded) was applied to conservatively account for growth in surrounding areas.

In addition to ambient growth, cumulative traffic volumes from reasonably foreseeable projects in the vicinity of the project site were included in the Opening Year baseline traffic volumes. Reasonably foreseeable (or related) projects consist of projects that are approved but not yet built, as well as projects that are in various stages of the application and approval process but have not yet been approved.

Information regarding related projects was requested from the Cities of Cypress and Los Alamitos and other surrounding cities, including Hawaiian Gardens, La Palma, Stanton, Buena Park, Garden Grove, and Rossmoor. The related projects located in the project vicinity were considered in the Cumulative Conditions analysis, including projects in Cypress, Los Alamitos, Hawaiian Gardens, La Palma, Stanton, Buena Park, and a project on Joint Forces Training Base (JFTB) in Los Alamitos. A summary of the related projects is provided in Table 4.0.A in this Draft EIR**.** The location of each of the related projects relative to the project site is shown on Figure 4.0.1.

Project trip generation estimates for each of the related projects were derived from approved traffic studies, to the extent available, or from calculations based on the ITE trip generation rates where approved studies were unavailable. A summary of the estimated cumulative trip generation for the related projects is provided in Table 4.11.K. The distribution of cumulative trips associated with the related projects at the study intersections was based on approved traffic studies, to the extent available, or was estimated by Kimley-Horn where approved studies were unavailable. Cumulative trips associated with the related projects at the study intersections are shown on Figure 4.11.9.

Table 4.11.K: Summary of Related Projects Trip Generation

	Trip Generation Estimates						
		AM Peak Hour			PM Peak Hour		
Project No.	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
City of Cypress							
1	6,786	96	59	155	194	195	389
2	6,128	375	163	538	309	198	507
3	447	9	26	35	30	17	47
4	88	1	6	7	5	3	8
5	112	1	7	8	7	3	10
6	94	1	6	7	5	3	8
7	331	4	21	25	20	10	30
8	1,889	14	3	17	105	52	157
Subtotal	**13,986**	**487**	**288**	**775**	**570**	**429**	**999**
City of Los Alamitos							
9	1,168	100	44	144	57	146	203
Subtotal	**1,168**	**100**	**44**	**144**	**57**	**146**	**203**
City of Hawaiian Gardens							
10	9,499	140	83	223	319	231	550
Subtotal	**9,499**	**140**	**83**	**223**	**319**	**231**	**550**
Joint Forces Training Base Los Alamitos							
11	442	52	7	59	10	47	57
Subtotal	**442**	**52**	**7**	**59**	**10**	**47**	**57**
City of Stanton							
12	192	4	11	15	13	7	20
13	210	4	13	17	14	8	22
Subtotal	**402**	**8**	**24**	**32**	**27**	**15**	**42**
City of Buena Park							
14	638	13	38	51	42	25	67
Subtotal	**638**	**13**	**38**	**51**	**42**	**25**	**67**
City of La Palma							
15	67	1	4	5	4	3	7
Subtotal	**67**	**1**	**4**	**5**	**4**	**3**	**7**
City of Garden Grove							
16	26	3	0	3	3	0	3
17	123	7	6	13	5	5	10
Subtotal	**149**	**10**	**6**	**16**	**8**	**5**	**13**
Total	**26,351**	**811**	**494**	**1,305**	**1,037**	**901**	**1,938**

Sources: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015); Project Traffic Impact Studies, where available; Institute of Transportation Engineers *Trip Generation Manual* (9th Edition) trip estimates if traffic studies were not available.
Note: Trip estimates represent net new trips for related projects or the portions of related projects that are not yet completed.

Opening Year 2018 Without Project Conditions for Intersection Operations. The ambient growth and traffic volumes from the related projects were added to the existing peak-hour volumes to develop Opening Year 2018 Without Project peak-hour forecasts. The resulting peak-hour volumes are shown on Figure 4.11.10.

The results of the Opening Year 2018 Without Project intersection analysis are summarized in Table 4.11.L. Review of this table shows that, with the addition of ambient growth and the traffic from the related projects, each of the study intersections would continue to operate at LOS D or better, with the exception of:

- Cerritos Avenue at Los Alamitos Boulevard (PM LOS E).

Table 4.11.L: Summary of Peak-Hour Intersection Operation Opening Year 2018 Without Project

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			ICU/Delay	LOS	ICU/Delay	LOS
1	Cerritos Ave. at Los Alamitos Blvd.	S	0.883	D	0.926	**E**
2	Cerritos Ave. at Bloomfield St.	S	0.892	D	0.766	C
3	Cerritos Ave. at Lexington Dr./Denni St.	S	0.746	C	0.809	D
4	Cerritos Ave. at Moody St.	S	0.613	B	0.765	C
5	Cerritos Ave. at Walker St.	S	0.741	C	0.705	C
6	Cerritos Ave. at Valley View St.	S	0.810	D	0.833	D
7	Katella Ave. at I-605 NB Ramp	S	0.397	A	0.607	B
8	Katella Ave. at Los Alamitos Blvd.	S	0.844	D	0.834	D
9	Katella Ave. at Bloomfield St.	S	0.787	C	0.821	D
10	Katella Ave. at Lexington Dr.	S	0.619	B	0.674	B
11	Katella Ave. at Cottonwood Wy.	S	0.444	A	0.492	A
12	Katella Ave. at Enterprise Dr.	U	0.50	A	0.50	A
13	Katella Ave. at Siboney St.	S	0.489	A	0.614	B
14	Katella Ave. at Winners Cir.	S	0.471	A	0.610	B
15	Katella Ave. at Walker St.	S	0.706	C	0.728	C
16	Katella Ave. at Valley View St.	S	0.759	C	0.817	D
17	Farquhar Ave. at Los Alamitos Blvd.	S	0.671	B	0.660	B
18	Farquhar Ave. at Lexington Dr.	U	8.6	A	9.9	A
19	Orangewood Ave. at Valley View St.	S	0.834	D	0.758	C

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
Notes: Intersection operation is expressed in volume-to-capacity ratio.
LOS shown in **Bold** indicates unacceptable LOS.
I-605 = Interstate 605
ICU = Intersection Capacity Utilization
Int. = intersection
LOS = level of service
NB = northbound
S = signalized intersection
U = unsignalized intersection

The addition of background growth and cumulative traffic from the related projects would cause this intersection to worsen from LOS D to LOS E during the evening peak hour. All other signalized intersections would continue to operate at LOS D or better, and the two unsignalized intersections would continue to operate at LOS A on an overall intersection basis during both peak hours.

Opening Year 2018 With Project Conditions for Intersection Operations.

Less than Significant Impact. Project-related peak-hour traffic volumes for the proposed Project were added to the Opening Year 2018 Without Project traffic volumes to develop Opening Year 2018 With Project traffic forecast volumes. The resulting peak-hour traffic volumes are shown on Figure 4.11.11.

The intersection analysis was conducted with the addition of project trips, and the results are summarized in Table 4.11.M. As Table 4.11.M shows, all study intersections would continue to operate within their target LOS with the addition of project traffic, with the exception of:

- Cerritos Avenue at Los Alamitos Boulevard (PM LOS E).

The intersection of Cerritos Avenue at Los Alamitos Boulevard was forecast to operate at LOS E during the evening peak hour in the Opening Year 2018 Without Project scenario, and would continue to do so with the addition of project traffic. The proposed Project's contribution to this intersection would be nominal (0.001 increase in ICU during the morning peak hour and 0.002 increase in ICU during the afternoon peak hour) and therefore would not result in a significant impact to this intersection. The two unsignalized intersections would continue to operate at LOS A on an overall intersection basis during both peak hours. Therefore, the proposed Project's cumulative intersection impacts would be less than significant.

Opening Year 2018 With Project Analysis of Peak-Hour Operations on State Highway Off-Ramp Intersection.

Less Than Significant Impact. The intersection of Katella Avenue at the I-605 northbound ramps was analyzed for each of the study scenarios using the HCM delay methodology. The results of the analysis are summarized in Table 4.11.H. The intersection of Katella Avenue/I-605 northbound ramps currently operates at LOS A during both peak hours and would continue to do so with the addition of project traffic under Opening Year 2018 With Project conditions. Therefore, the proposed Project would also not result in a significant impact at the intersection of Katella Avenue/I-605 northbound ramps in the Opening Year 2018 With Project peak-hour scenario based on the HCM methodology, and the proposed Project's cumulative impact on State highway intersections would be less than significant.

Opening Year 2018 With Project Analysis of Peak-Hour Operations on Freeway Mainline Segments.

Less Than Significant Impact. Peak-hour freeway volumes and analysis results for Opening Year 2018 Conditions, without and with the project, are summarized in Table 4.11.N. As shown in Table 4.11.N, with the addition of project traffic, both the Junction I-405 to Katella Avenue and Katella Avenue to Spring Street segments on I-605 would operate at LOS B or C during the peak hours in both the northbound and southbound directions. Table 4.11.N also shows that the proposed Project would only add four to seven peak-hour trips to each segment.

Table 4.11.M: Summary of Peak-Hour Intersection Operation Opening Year 2018 With Project

			AM Peak Hour						PM Peak Hour					
			Without Project		With Project		Project	Impact	Without Project		With Project		Project	Impact
Int. #	Intersection	Traffic Control	ICU/ Delay	LOS	ICU/ Delay	LOS	Impact	Sig?	ICU/ Delay	LOS	ICU/ Delay	LOS	Impact	Sig?
1	Cerritos Ave. at Los Alamitos Blvd.	S	0.883	D	0.884	D	0.001	No	0.926	**E**	0.928	**E**	0.002	No
2	Cerritos Ave. at Bloomfield St.	S	0.892	D	0.894	D	0.002	No	0.766	C	0.767	C	0.001	No
3	Cerritos Ave. at Lexington Dr./ Denni St.	S	0.746	C	0.767	C	0.021	No	0.809	D	0.826	D	0.017	No
4	Cerritos Ave. at Moody St.	S	0.613	B	0.620	B	0.007	No	0.765	C	0.769	C	0.004	No
5	Cerritos Ave. at Walker St.	S	0.741	C	0.754	C	0.013	No	0.705	C	0.712	C	0.007	No
6	Cerritos Ave. at Valley View St.	S	0.810	D	0.813	D	0.003	No	0.833	D	0.837	D	0.004	No
7	Katella Ave. at I-605 NB Ramp	S	0.397	A	0.398	A	0.001	No	0.607	B	0.608	B	0.001	No
8	Katella Ave. at Los Alamitos Blvd.	S	0.844	D	0.848	D	0.004	No	0.834	D	0.836	D	0.002	No
9	Katella Ave. at Bloomfield St.	S	0.787	C	0.792	C	0.005	No	0.821	D	0.827	D	0.006	No
10	Katella Ave. at Lexington Dr.	S	0.619	B	0.631	B	0.012	No	0.674	B	0.684	B	0.010	No
11	Katella Ave. at Cottonwood Wy.	S	0.444	A	0.453	A	0.009	No	0.492	A	0.503	A	0.011	No
12	Katella Ave. at Enterprise Dr.	U	0.50	A	0.70	A	0.20	No	0.50	A	0.70	A	0.20	No
13	Katella Ave. at Siboney St.	S	0.489	A	0.491	A	0.002	No	0.614	B	0.629	B	0.015	No
14	Katella Ave. at Winners Cir.	S	0.471	A	0.477	A	0.006	No	0.610	B	0.621	B	0.011	No
15	Katella Ave. at Walker St.	S	0.706	C	0.713	C	0.007	No	0.728	C	0.734	C	0.006	No
16	Katella Ave. at Valley View St.	S	0.759	C	0.765	C	0.006	No	0.817	D	0.821	D	0.004	No
17	Farquhar Ave. at Los Alamitos Blvd.	S	0.671	B	0.671	B	0.000	No	0.660	B	0.661	B	0.001	No
18	Farquhar Ave. at Lexington Dr.	U	8.6	A	8.6	A	0.0	No	9.9	A	9.9	A	0.0	No
19	Orangewood Ave. at Valley View St.	S	0.834	D	0.838	D	0.004	No	0.758	C	0.762	C	0.004	No

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
Notes: Average delay is expressed in seconds of delay per peak-hour vehicle.
LOS shown in **Bold** indicates unacceptable LOS.
ICU value is expressed in volume-to-capacity ratio.
I-605 = Interstate 605
ICU = Intersection Capacity Utilization
Int. = intersection
LOS = level of service
NB = northbound
S = signalized intersection
U = unsignalized intersection

Table 4.11.N: Summary of Freeway Mainline Operations Opening Year 2018 With Project Conditions

Freeway: I-605																	
Freeway Segment	Lanes	Opening Year 2018 Without Project						Opening Year 2018 With Project						Project Impact			
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour		PM Peak Hour	
		Volume	Density (pc/mi/ln)	LOS	Volume	Density (pc/mi/ln)	LOS	Volume	Density (pc/mi/ln)	LOS	Volume	Density (pc/mi/ln)	LOS	Volume	Density (pc/mi/ln)	Volume	Density (pc/mi/ln)
Northbound																	
Junction I-405 to Katella Avenue	5	5,347	17.1	B	6,693	21.4	C	5,353	17.1	B	6,700	21.4	C	6	0	7	0
Katella Avenue to Spring Street	5	5,833	18.7	C	7,301	23.3	C	5,838	18.7	C	7,305	23.3	C	5	0	4	0
Southbound																	
Spring Street to Katella Avenue	5	7,172	22.9	C	6,435	20.6	C	7,177	22.9	C	6,440	20.6	C	5	0	5	0
Katella Avenue to Junction I-405	5	6,574	21	C	5,899	18.9	C	6,581	21	C	5,904	18.9	C	7	0	5	0

Source: *Traffic Impact Study*, Kimley-Horn and Associates, Inc. (2015).
I-405 = Interstate 405
I-605 = Interstate 605
LOS = level of service
pc/mi/in = passenger cars per lane per mile

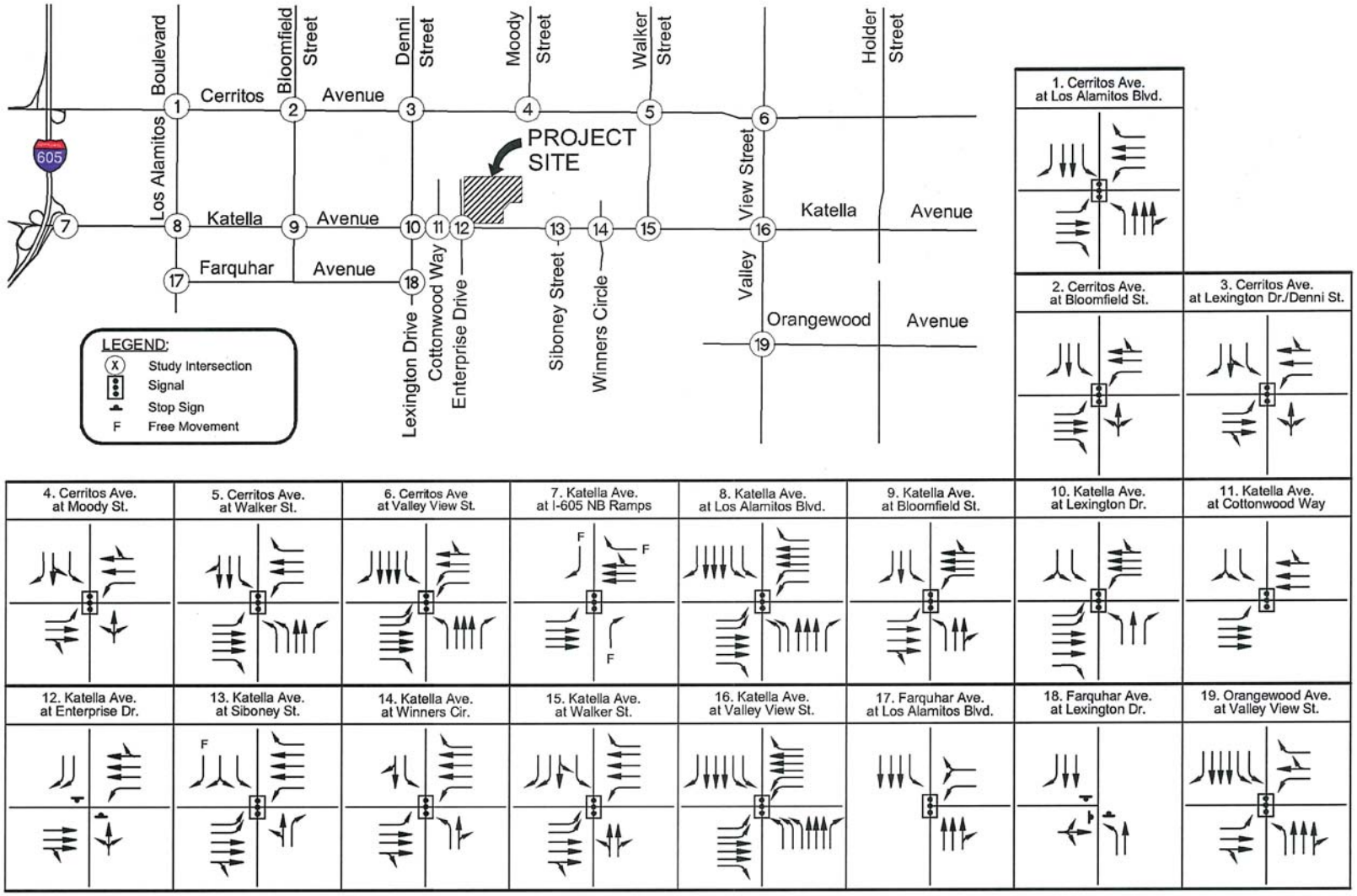
Based on the analysis reflected in Table 4.11.N, the previously described third trip generation threshold (1 to 49 peak-hour trips) applies here because the Project would only add 4 to 7 peak-hour trips to the Junction I-405 to Katella Avenue and Katella Avenue to Spring Street segments in both the northbound and southbound directions. However, that trip generation threshold does not require any further traffic analysis because none of the segments would operate at LOS E or F with project traffic. Specifically, the northbound Junction 405 to Katella Avenue segment would continue to operate at LOS B with project traffic during the AM peak hour. The remaining segments would otherwise operate, or continue to operate, at LOS C with project traffic.

In addition, even if further traffic analysis was required pursuant to the *Caltrans Guide*, the proposed Project would not have a significant impact on freeway mainline traffic. As shown on Table 4.11.N, the study freeway segments would all operate at LOS C or better during both peak hours, with densities ranging from 17.1 to 23.3 pc/mi/ln under Opening Year 2018 With Project Conditions. This is well within the Caltrans target LOS for freeway mainline operation (transition between LOS C and D/density of 35.0 pc/mi/ln). Table 4.11.N further demonstrates that the addition of project traffic in the peak hours would have a minimal effect on the freeway segment operation, with no changes in LOS and a project-related increase in density of less than 0.1 pc/mi/ln.

Therefore, the proposed Project would not result in a significant impact on the study freeway mainline segments in the Opening Year 2018 With Project peak-hour scenario, based on the HCM methodology, and the proposed Project's cumulative impact on freeway mainline segments would be less than significant.

4.11.9 Level of Significance

The proposed Project would have no significant and unavoidable impacts related to transportation/ traffic.



LSA

FIGURE 4.11.1

N

Barton Place

Existing Lane Configuration and Traffic Control

SOURCE: Kimley Horn

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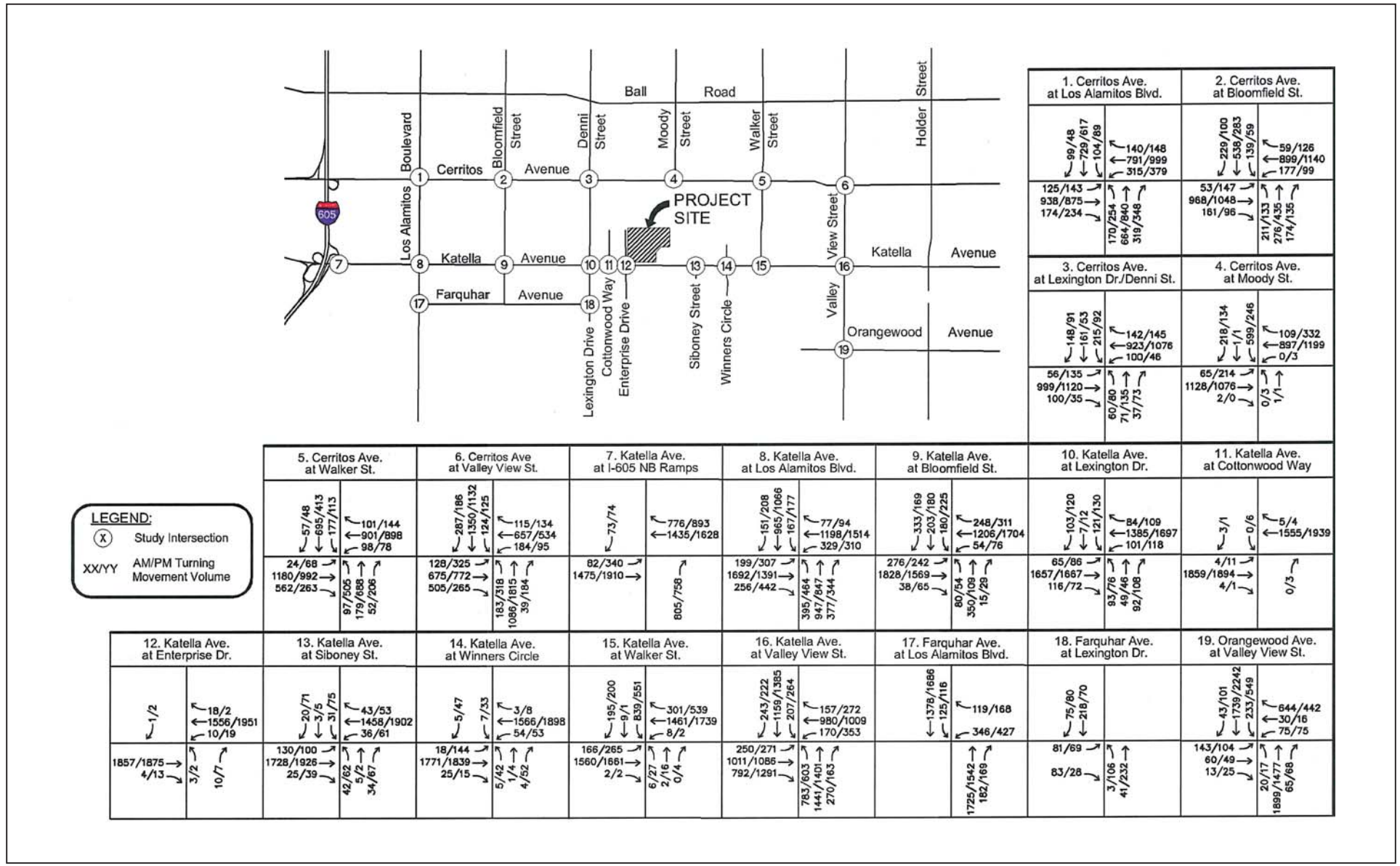

LSA

FIGURE 4.11.2

Barton Place

Existing Peak Hour Traffic Volumes

SOURCE: Kimley Horn

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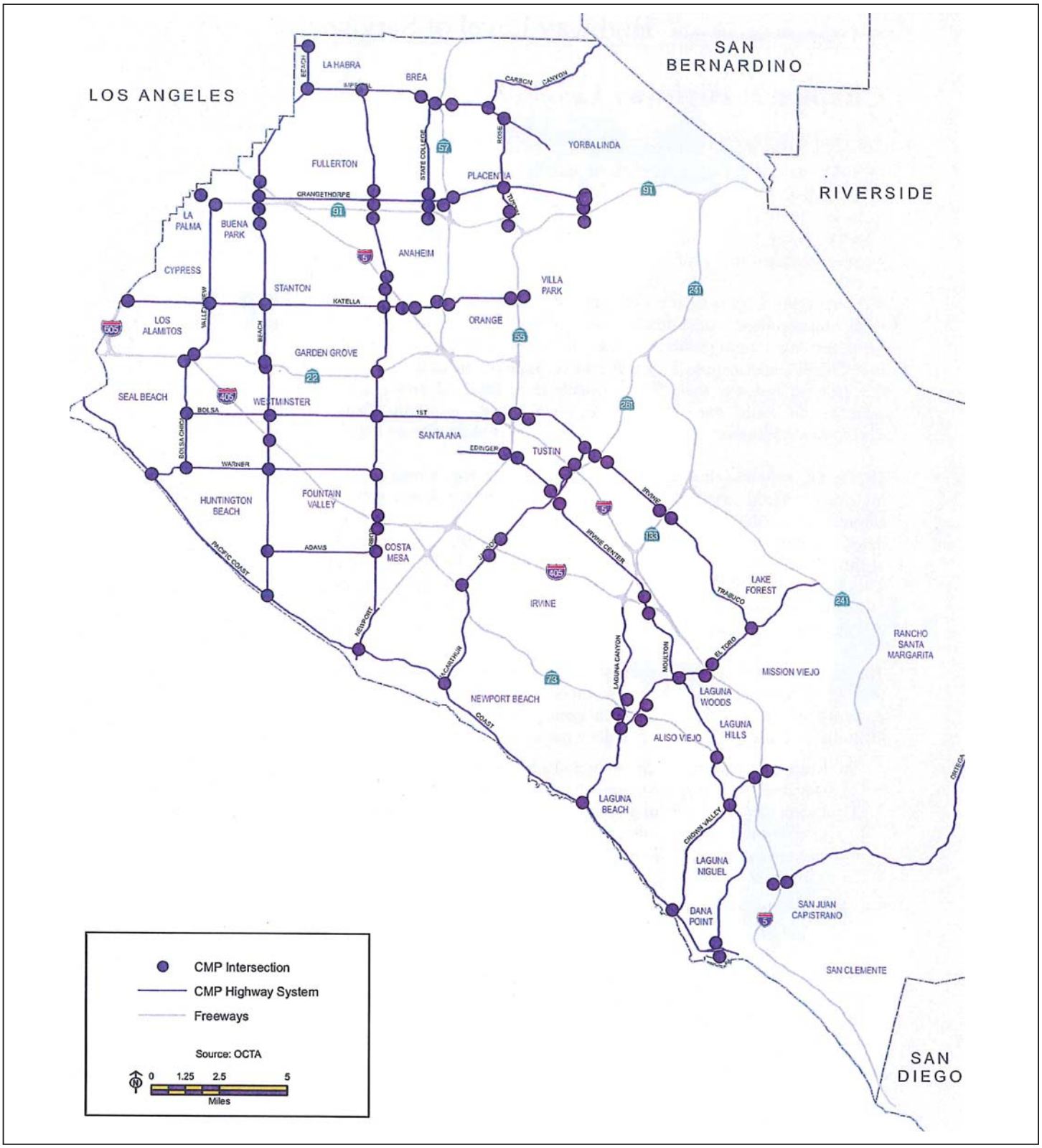

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FIGURE 4.11.3

Barton Place

County of Orange CMP Highway System

SOURCE: Kimley Horn

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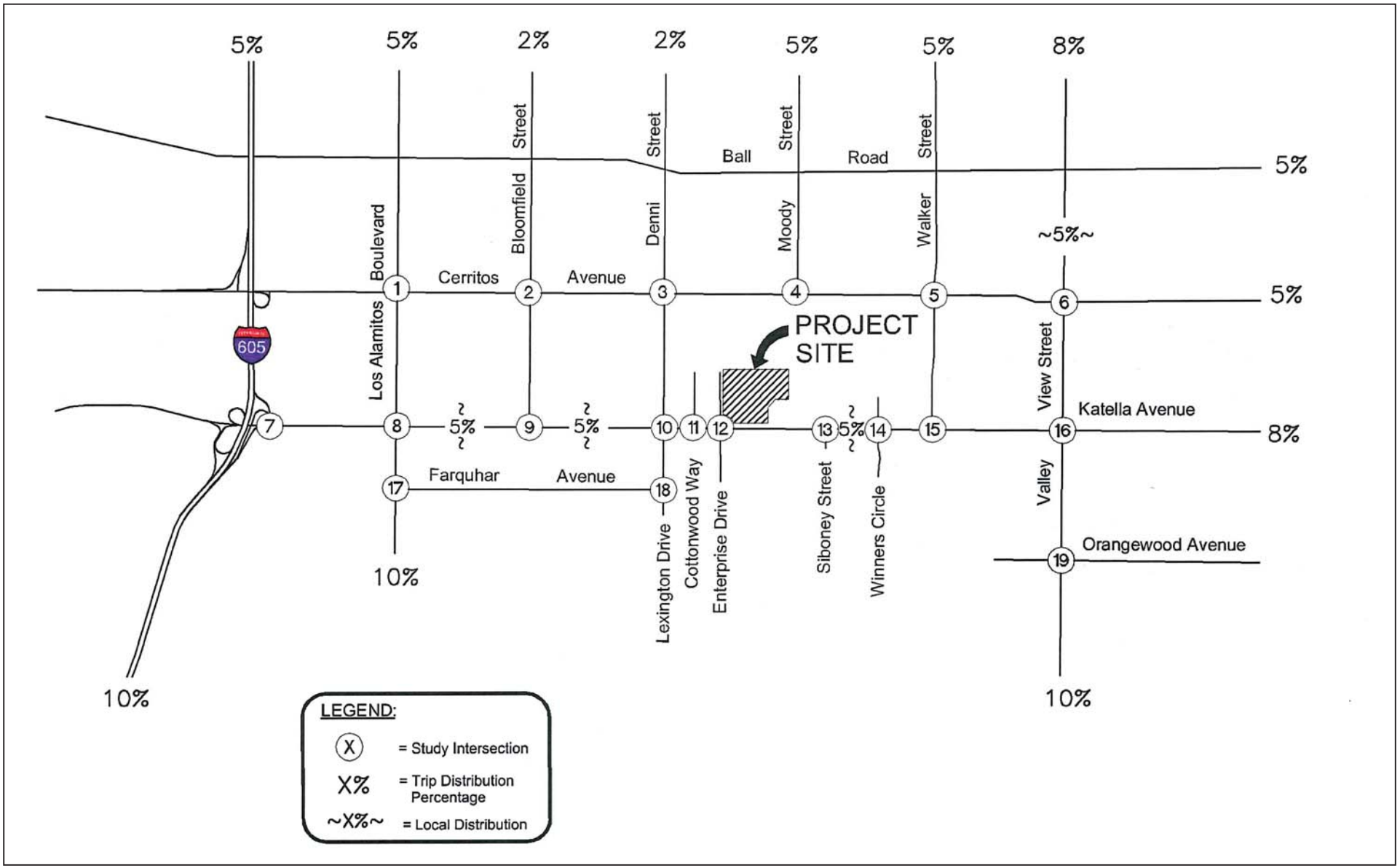

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FIGURE 4.11.4

N

Barton Place

Project Trip Distribution - Residential

SOURCE: Kimley Horn

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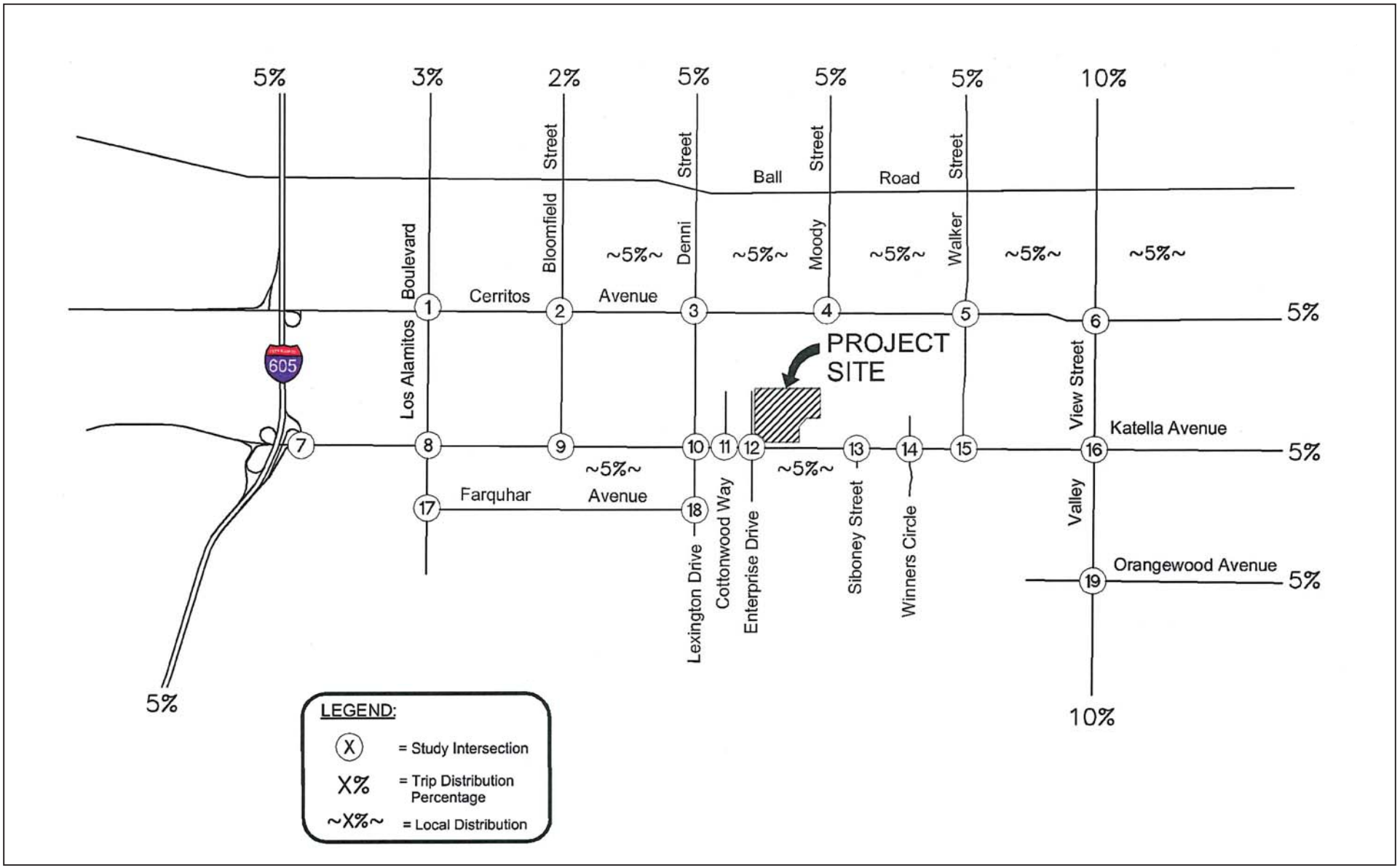

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FIGURE 4.11.5

N

Barton Place

Project Trip Distribution - Retail/Restaurant

SOURCE: Kimley Horn

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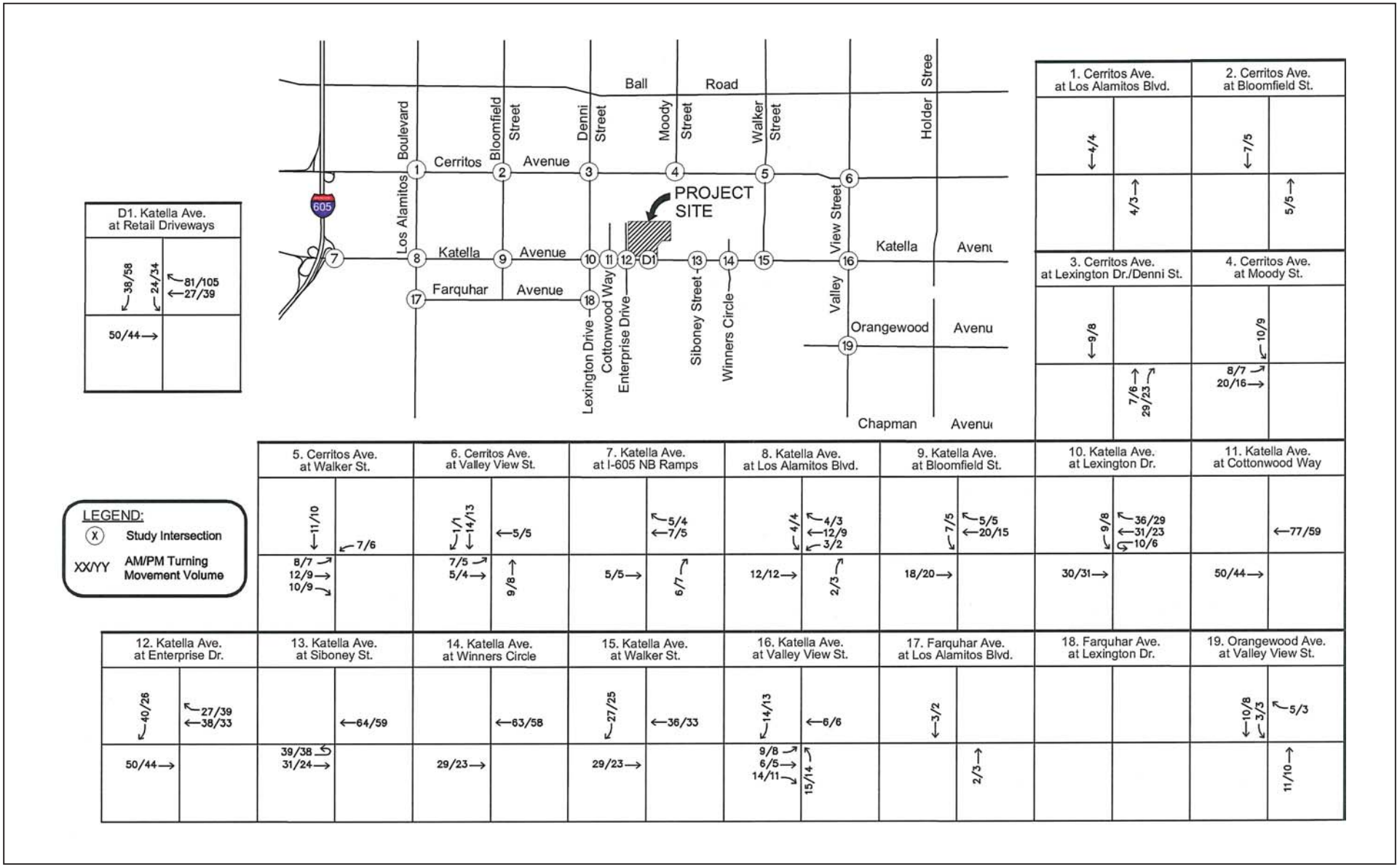

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FIGURE 4.11.6

Barton Place

Project-Related Peak Hour Traffic Volumes

SOURCE: Kimley Horn

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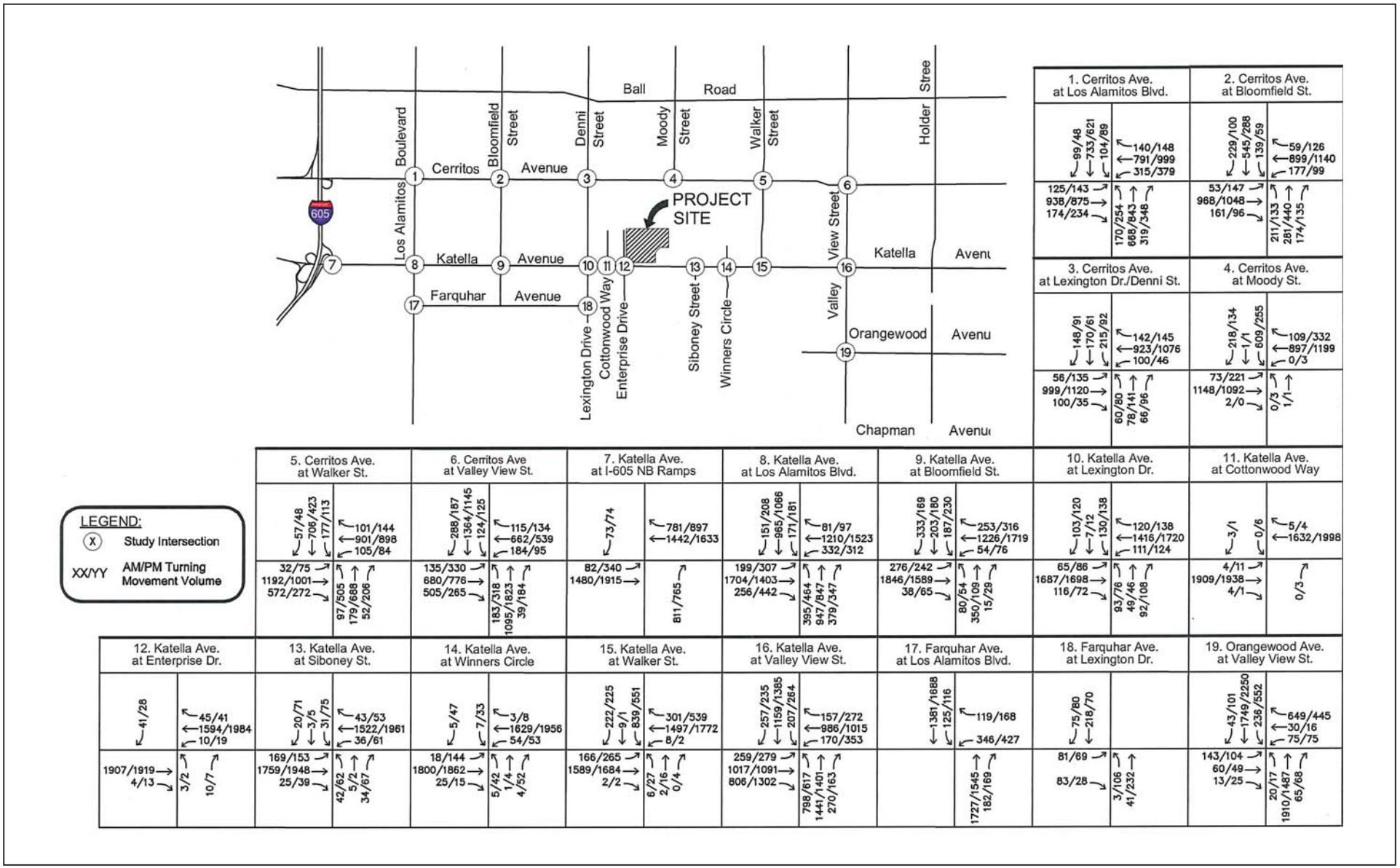

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FIGURE 4.11.7

Barton Place

Existing Plus Project Peak Hour Traffic Volumes

SOURCE: Kimley Horn

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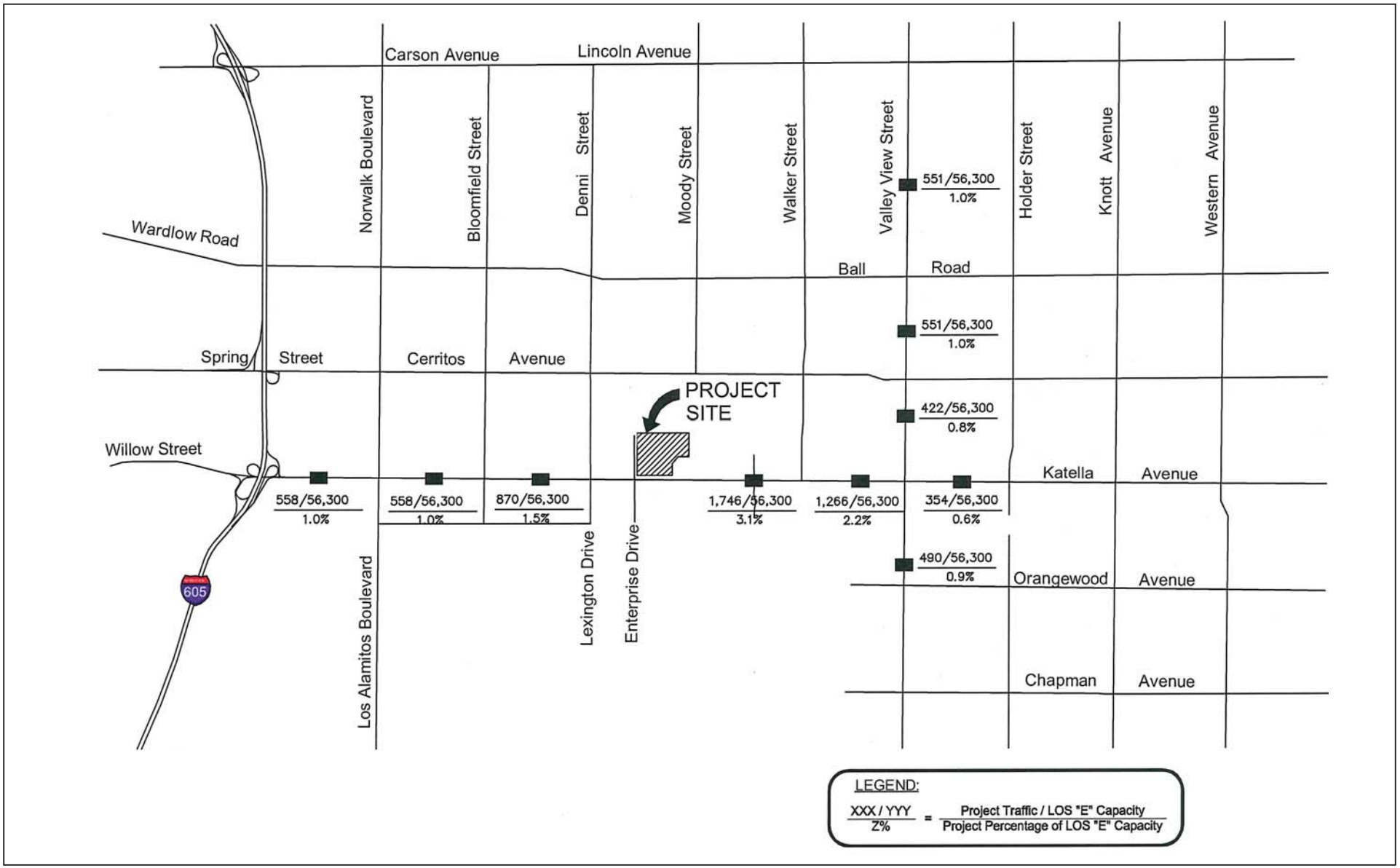

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FIGURE 4.11.8

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Barton Place

CMP Study Area Determination

SOURCE: Kimley Horn

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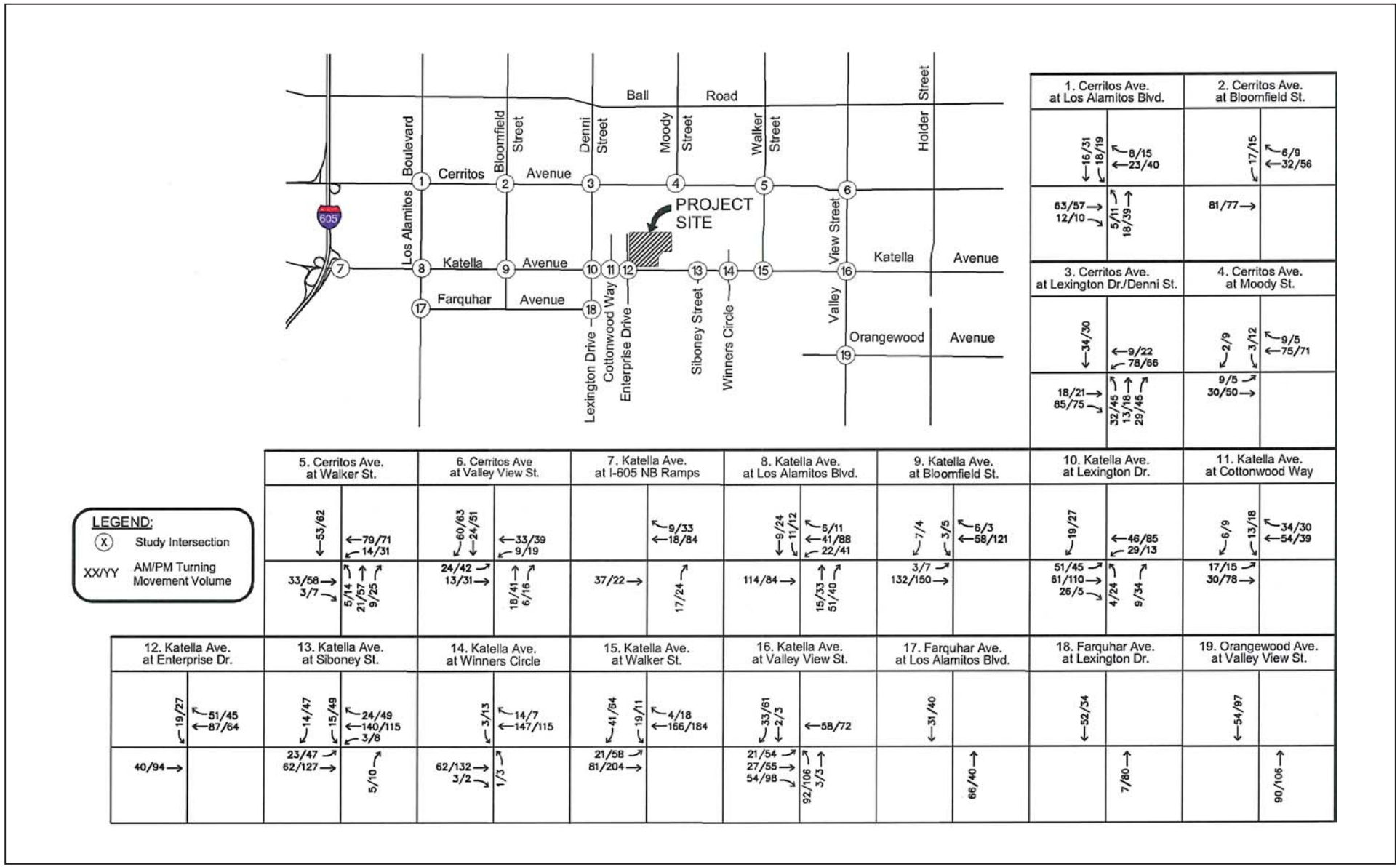

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FIGURE 4.11.9

Barton Place

Cumulative Peak Hour Traffic Volumes (Related Projects Only)

SOURCE: Kimley Horn

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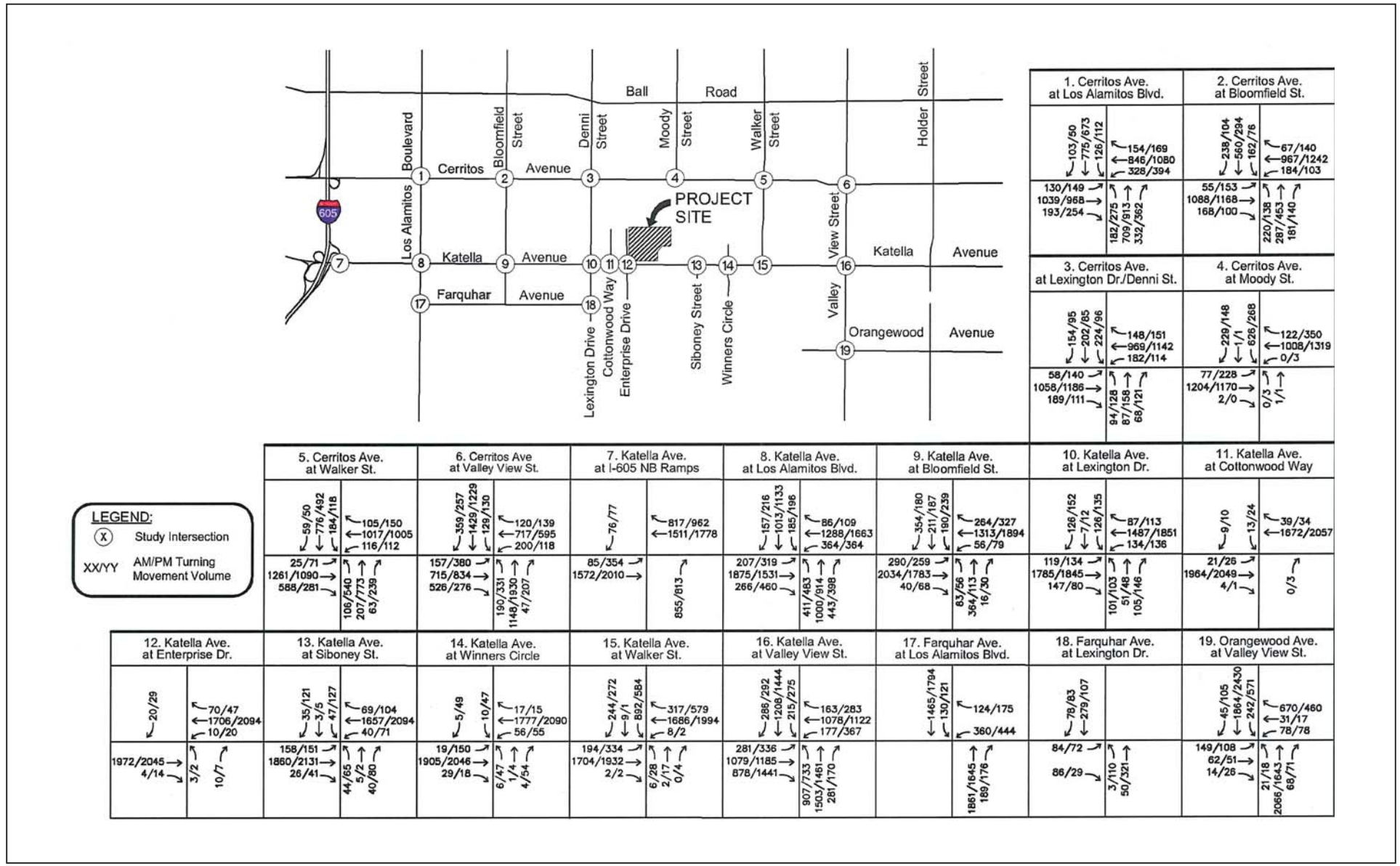

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FIGURE 4.11.10

Barton Place

Opening Year 2018 Without Project Peak Hour Traffic Volumes

SOURCE: Kimley Horn

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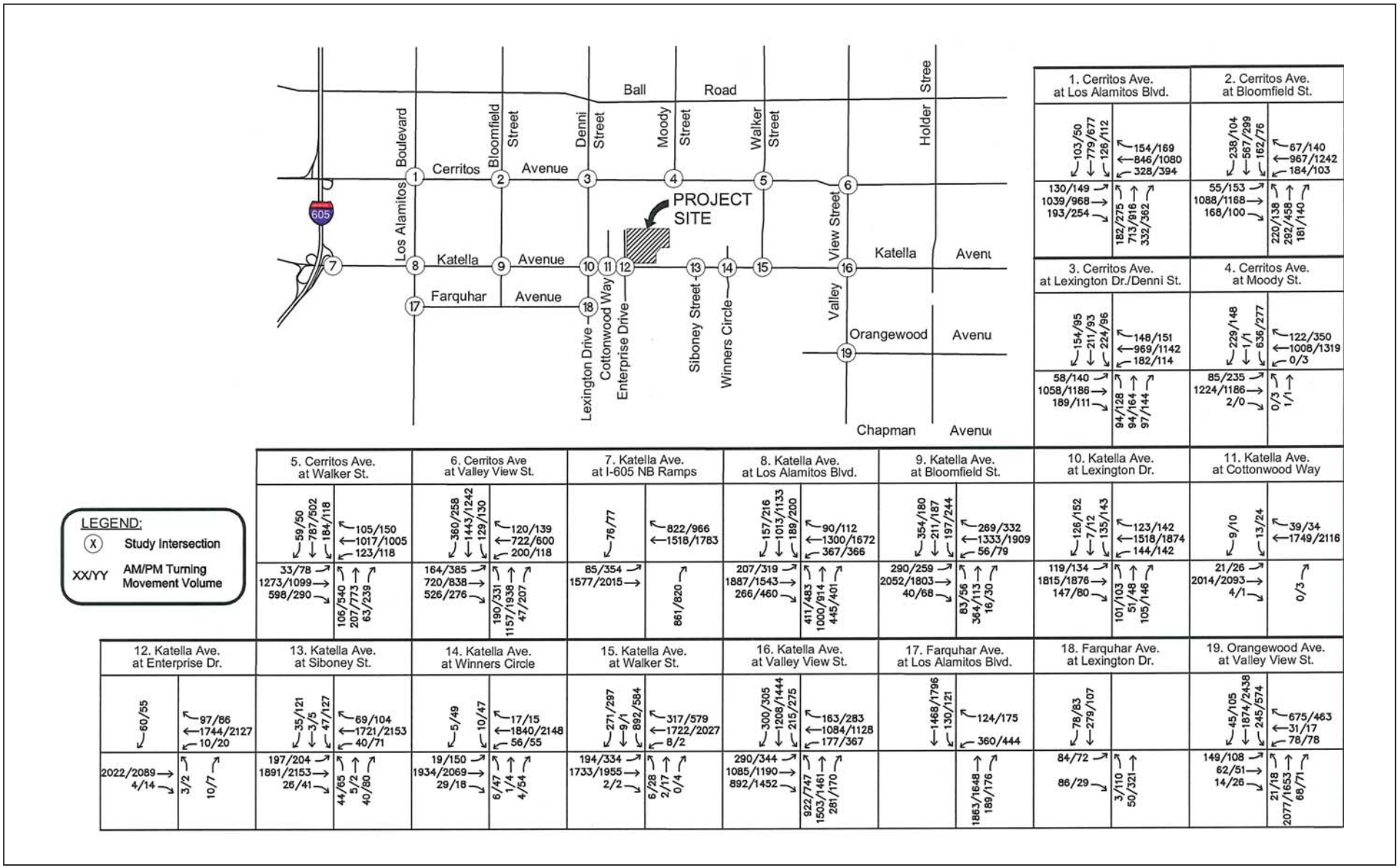

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FIGURE 4.11.11

Barton Place

Opening Year 2018 With Project Peak Hour Traffic Volumes

SOURCE: Kimley Horn

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5.0 ALTERNATIVES

5.1 INTRODUCTION

The *CEQA Guidelines* require that an environmental impact report (EIR) identify and evaluate a reasonable range of project alternatives that would "feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any significant effects of the project, and evaluate the comparative merits of the alternatives" (*CEQA Guidelines*, Section 15126.6). This chapter identifies potential alternatives to the proposed Barton Place Project (Project) and evaluates them as required by CEQA.

Section 15126.6 of the *CEQA Guidelines* sets forth the intent and requirements for the alternatives analysis to be provided in an EIR, including the following provisions:

- The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly (Section 15126.6[b]).
- The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (1) failure to meet most of the basic project objectives, (2) infeasibility, or (3) inability to avoid significant environmental impacts (Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project (Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact (Section 15126.6[e][1]). The "no project" analysis shall discuss the existing conditions at the time the Notice of Preparation is published and at the time the environmental analysis is commenced, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (Section 15126.6[e][2]).
- The range of alternatives required in an EIR is governed by the "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail

only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project (Section 15126.6 (f)).

- An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative (Section 15126.6[f][3]).

5.2 SELECTION OF ALTERNATIVES

Section 21100 of the Public Resources Code and Section 15126.6 of the *CEQA Guidelines* require an EIR to identify and discuss a "no project" alternative and a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the proposed project and avoid or substantially lessen at least one significant environmental impact. However, as previously discussed, this Draft EIR has not identified any significant environmental impacts relating to the proposed Project with the implementation of feasible mitigation measures. Accordingly, the selected Project alternatives would avoid or substantially lessen one or more of the less than significant Project impacts. The alternatives considered in this Draft EIR are as follows:

- **Alternative 1: No Project/No Build:** No development would occur on the project site and the existing condition of the site as vacant, undeveloped land would not change.
- **Alternative 2: Reduced Density:** This alternative is a 30 percent reduction in the density of the senior homes and commercial/retail space. The number of homes in the senior residential community would be reduced from 244 to 170, and the amount of commercial/retail space would be reduced from 47,876 square feet of floor area to approximately 33,515 square feet.
- **Alternative 3: All Residential (No Commercial/Retail):** This alternative is a senior residential community that occupies the entire project site and includes 288 homes. The commercial/retail component of the proposed Project would be eliminated and replaced with an additional 44 for-sale homes (based on the proposed density of approximately 8.7 dwelling units per acre).

A complete discussion of each alternative is provided below.

In accordance with *CEQA Guidelines* Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less than, similar to, or greater than the corresponding impacts of the proposed Project. Furthermore, each alternative is evaluated to determine the extent to which the project objectives, identified in Chapter 3.0, Project Description, of this Draft EIR, would be attained by the alternative. The evaluation of each of the alternatives follows the process described below:

a. The environmental impacts of the alternative are determined for each environmental issue area analyzed in Chapter 4.0, Environmental Impact Analysis, of this Draft EIR, assuming that each alternative would implement similar regulatory compliance measures, project design features, and mitigation measures as the proposed Project.

b. Post-mitigation significant and non-significant environmental impacts of the alternative and the proposed Project are compared for each environmental issue area as follows:

- **Less:** Where the impact of the alternative would be clearly less adverse or more beneficial than the impact of the proposed Project, the comparative impact is said to be "less."
- **Greater:** Where the impact of the alternative would clearly be more adverse or less beneficial than the proposed Project, the comparative impact is said to be "greater."
- **Similar:** Where the impact of the alternative and the proposed Project would be roughly equivalent, the comparative impact is said to be "similar."

c. The comparative analysis of the impacts is followed by a general discussion of the extent to which the Project objectives are attained by the alternative.

A summary matrix that compares the impacts associated with the proposed Project with the impacts of each of the analyzed alternatives is provided below in Table 5.C on page 5-24.

5.3 ALTERNATIVES INITIALLY CONSIDERED BUT REJECTED AS INFEASIBLE

The following is a brief discussion of the alternatives that were considered during the scoping process but rejected for detailed analysis in this Draft EIR.

5.3.1 All Commercial/Retail

The Amended Specific Plan permits a variety of commercial/retail uses in Planning Area 6 and Planning Area 9. Accordingly, the entire 33-acre project site could be developed entirely with commercial/retail uses at an average floor area ratio (FAR) of up to 0.6:1, which equates to approximately 862,500 square feet of commercial space. This alternative was rejected from further consideration because it would not meet many of the project objectives and would have substantially greater environmental impacts than the proposed Project with respect to traffic, air quality, greenhouse gases (GHG), aesthetics, energy consumption, and noise.

5.3.2 Mixed-Use Project with Apartments

The project applicant originally shared with the City and the community a development plan that included 375 senior residential units, including 150 rental units in a four-story apartment building (55 feet in height), and approximately 50,000 square feet of commercial/retail space. Based on comments received from the community during the scoping process, the project applicant revised the development proposal to eliminate the apartment building due to its size and height and substantially reduced the number of residential units from 375 to 244. The increased density associated with the original development proposal would result in substantially greater environmental impacts as compared to the proposed Project. Therefore, the original development proposal was eliminated from further consideration because it would increase rather than reduce the potential for significant environmental impacts.

5.3.3 Alternative Site

As described above, Section 15126.6(f)(2) of the *CEQA Guidelines* requires consideration of potential alternative locations for the proposed Project. Only developments or locations that would avoid or substantially lessen any of the significant impacts of the proposed Project need be considered for inclusion in the EIR. If it is determined that no feasible alternative locations exist, the EIR must disclose the reasons for this conclusion.

The project applicant already owns the project site and it is particularly suitable for the proposed Project because in June 2012, Cypress voters approved "Measure L," which included the Amended Specific Plan to allow the proposed senior housing and commercial/retail uses. In addition, the project applicant does not own or control any other property within the City of Cypress or the project vicinity. Moreover, the project applicant cannot reasonably acquire or control an alternative site in a timely fashion that would allow for the implementation of a project with similar uses and square footage.

In any event, it appears that no other property in the City or the project area would support a development similar to the proposed Project. The surrounding area is highly urbanized and no land is currently available for development that is large enough and has the appropriate zoning to develop the proposed Project. The area governed by the Amended Specific Plan includes the northern portion of the former Cypress Golf Club, which was located on the south side of Cerritos Avenue to the west and north of the Los Alamitos Race Course. Approximately 20 acres of that land is now vacant and unused. However, the use of this potential alternative site for the proposed Project is infeasible for several reasons. First, it is not large enough for the proposed Project, which requires a 33-acre site. Second, the project applicant does not own or control this land and it is not available for purchase. Third, neither the General Plan nor the Amended Specific Plan permits the proposed uses on the northern portion of the former Golf Club and, pursuant to "Measure D," a 1990 initiative, Cypress voters would have to approve amendments to the General Plan and the Amended Specific Plan to permit those uses pursuant to a further voter initiative. Such an initiative was previously proposed and disapproved by Cypress voters in June 2013.

In addition, development of the proposed Project at an alternative site (assuming one was available) could potentially result in some environmental impacts that exceed the proposed Project's environmental impacts, depending on the proximity of the alternate site to sensitive uses. Conversely, given that the project site is located in a highly urbanized area, it is unlikely that relocating the proposed Project to another site would substantially lessen any of its impacts.

For these reasons, no alternative site is considered feasible because the project applicant does not own or control another vacant site in the project area, no suitable alternative site is available that would achieve the underlying purpose and objectives of the Project, and an alternative site would likely not reduce environmental impacts as compared to the development of the proposed Project on the project site. Therefore, this alternative was rejected from further consideration.

5.4 PROJECT PURPOSE AND OBJECTIVES

Each project alternative is analyzed to determine whether it achieves the objectives of the proposed Project. The basic purpose of the proposed Project is to provide a mixed-use senior

residential housing and commercial/retail development. As stated in Section 3.0, Project Description, the following project objectives have been established for the proposed Project to aid decision-makers in their review of the proposed Project, the project alternatives, and their comparative environmental impacts:

- Provide new senior housing and commercial/retail uses allowed under the Amended Specific Plan.
- Provide a substantial amount of high-quality senior housing for local and area residents to help meet the increasing market demand for age-restricted housing.
- Revitalize the vacant former golf course site with a well-designed, attractively landscaped, mixed-use project.
- Provide senior housing in close proximity to existing and future commercial/retail services and medical facilities.
- Develop a project that furthers the goals of the City's Housing Element to provide a wide range of housing stock to meet the existing and future needs of Cypress residents, provide housing opportunities for the growing number of senior households in the City, and help satisfy the City's obligation to provide its fair share of regional housing needs with regard to market-rate housing.
- Develop a senior housing community near a major transportation corridor to allow a range of transportation options for project residents.
- Develop a project that will invigorate the local economy by providing new employment and business opportunities.
- Develop a senior residential community with sufficient housing units to support the size, scale, and operation of amenities and common areas necessary to attract senior residents while maintaining reasonable monthly homeowner dues.
- Provide land uses that capitalize on the project site's frontage along Katella Avenue to attract commercial/retail tenants and customers to the project site.
- Provide land uses along Katella Avenue that are compatible with the existing commercial/ retail uses on Katella Avenue and provide a buffer between Katella Avenue and the new senior residential community.
- Provide commercial/retail improvements that generate new sources of revenue for the City through increased property values and retail sales.
- Provide a mix of uses on the project site that are linked by a convenient pedestrian circulation system to reduce vehicle trips.
- Provide a mix of uses on the project site that will reduce vehicle trips as compared to the higher-vehicle-trip uses permitted on the project site.
- Provide a walkable retail/commercial amenity for the new senior residential community.
- Provide for-sale senior housing to increase the opportunity for senior residents in the City and region to own their own homes in a community of their peers.

5.5 ALTERNATIVE 1: NO PROJECT/NO BUILD ALTERNATIVE

5.5.1 Description

In accordance with Section 15126.6 of the *CEQA Guidelines*, the No Project/No Build Alternative assumes that no development of the project site would reasonably be expected to occur in the foreseeable future if the proposed Project is not approved, so that the project site would remain vacant and unused. The project site has already been vacant and unused for over 10 years. The project applicant has proposed a mixed-use project that consists primarily of senior housing, together with a modest amount of commercial/retail space. These uses were largely approved by Cypress voters approximately three years ago as part of Measure L (which included the Amended Specific Plan), and the proposed density of both the senior housing and the commercial/retail space is substantially less then permitted under the Amended Specific Plan. For these reasons, it is reasonably expected that the physical condition of the project site would remain as it is today for the foreseeable future if the proposed Project was not approved.

5.5.2 Comparative Environmental Analysis of the No Project/No Build Alternative

Aesthetics. Under the No Project/No Build Alternative, the existing visual character and quality of the project site and its surroundings would not be altered. The project site is currently undeveloped and has no night lighting. In comparison, the proposed Project would alter the visual character and quality of the project site and introduce new nighttime light sources and glare. Therefore, like the proposed Project, which would have less than significant aesthetic impacts, the No Project/No Build Alternative's aesthetic impacts would be less than significant, but less than the aesthetic impacts associated with the proposed Project.

Air Quality. The No Project/No Build Alternative would not require grading or construction. Therefore, no air pollutant emissions (particulate matter less than 10 microns in diameter [PM_{10}], carbon monoxide [CO], nitrogen oxides [NO_X], etc.) related to grading, construction, vehicle trips, and operational uses would be generated under this alternative. In comparison, the construction and operation of the proposed Project would generate air pollutants. Therefore, like the proposed Project, which would have less than significant air quality impacts, the No Project/ No Build Alternative's impacts on air quality would be less than significant and less than the air quality impacts associated with the proposed Project.

Biological Resources. The No Project/No Build Alternative would not involve any grading or site work. In comparison, the proposed Project would require grading of the entire project site and removal of existing vegetation, which could potentially impact migratory birds if trees that contain nests are removed during the nesting season. Therefore, unlike the proposed Project, which would have less than significant impacts on biological resources with implementation of mitigation, the No Project/No Build Alternative would have less than significant impacts on biological resources, and this alternative would have less impacts related to biological resources than the proposed Project.

Geology and Soils. The No Project/No Build Alternative would not require any grading or site work. Therefore, when compared to the proposed Project, grading impacts would be less than the proposed Project. In addition, no people or structures would be exposed to site-specific geologic hazards, including seismic hazards, potential liquefaction, and unstable soils, under this alternative. Therefore, unlike the proposed Project, which would have less than significant geology and soils impacts with implementation of mitigation, the No Project/No Build Alternative would have less than significant geology and soils impacts without mitigation, and this alternative would have less geology and soils impacts than the proposed Project.

Greenhouse Gases. The No Project/No Build Alternative would not generate any direct or indirect GHG emissions because the project site would remain undeveloped and vacant. Under this alternative, there would be no impact on any applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, like the proposed Project, which would have less-than-significant GHG impacts, the No Project/No Build Alternative would have less than significant GHG impacts, and this alternative would have less GHG impacts than the proposed Project.

Hydrology and Water Quality. The No Project/No Build Alternative would not require the construction of new impermeable surfaces (e.g., roof, paving, hardscape) and no grading would occur. Therefore, no soil disturbance would occur under this alternative and there would be no impacts on water quality or the current drainage pattern, except that the development of the proposed Project would reduce the 100-year peak flow from 20.2 cubic feet per second (cfs) to 7.46 cfs with the construction of the proposed detention system. Therefore, like the proposed Project, which would have less than significant hydrology and water quality impacts, the No Project/No Build Alternative would have less than significant hydrology and water quality impacts, and this alternative would have less hydrology and water quality impacts than the proposed Project, except that it would result in a substantially higher 100-year peak flow.

Noise. The No Project/No Build Alternative would not involve any grading, construction, vehicle, or truck trips. Therefore, the noise impacts that are typically associated with grading and construction would not occur under this alternative. In addition, operational noise would occur with the long-term occupancy of the new senior residential community and commercial/retail uses under the proposed Project. However, because no new housing or commercial/retail space would be constructed under the No Project/No Build Alternative, there would be no increase in noise levels. Therefore, like the proposed Project, which would have less than significant noise impacts, the No Project/No Build Alternative would have less than significant noise impacts, and this alternative would have less noise impacts than the proposed Project.

Population and Housing. No new population would be added at the project site under the No Project/No Build Alternative, so it would not induce substantial population growth. In comparison, the proposed Project would result in a direct, though not substantial, increase in population within the project area. Therefore, like the proposed Project, which would have a less than significant impact on population growth, the No Project/No Build Alternative would have

less than significant impacts on population growth, and this alternative would have less impact than the proposed Project.

Public Services, Utilities, and Energy Use.

Public Services. The No Project/No Build Alternative would not result in an increase in demand for fire protection and emergency services or police protection services because no new housing or commercial/retail improvements would be developed on the project site. In addition, the No Project/No Build Alternative would not increase the demand for parks, libraries, and other public facilities because there would be no new residents on the project site. Therefore, like the proposed Project, which would have less than significant public services impacts, the No Project/No Build Alternative would have less than significant public services impacts, and this alternative would have less impacts than the proposed Project.

Utilities. The No Project/No Build Alternative would not include any new development, so it would not require any enhancement or new construction of public facility infrastructure relating to water, wastewater, or solid waste. Therefore, the project site would not contribute any wastewater to the sewer system or place any additional demand on the water, sewer, or other utility systems or supplies. In addition, storm water drainage facilities would not need to be expanded. Therefore, like the proposed Project, which would have less than significant impacts on utilities and services, the No Project/No Build Alternative would have less than significant impacts on utilities, and this alternative would have less impacts than the proposed Project.

Energy Conservation. The No Project/No Build Alternative would not increase electricity, natural gas, or fuel consumption because no new development would occur and the project site would remain vacant. Furthermore, the No Project/No Build Alternative would not require new supply facilities, distribution infrastructure, or capacity-enhancing alterations to existing electrical, natural gas, or fuel facilities, nor would it conflict with any energy conservation plan. Therefore, like the proposed Project, which would have less than significant impacts on energy conservation, the No Project/No Build Alternative would have less than significant impacts on energy conservation, and this alternative would have less impacts than the proposed Project.

Recreation. The No Project/No Build Alternative would not increase the use of existing parks, and no new recreational facilities would need to be expanded because no new residents would occupy the project site. In comparison, the proposed Project would generate some additional demand for recreational facilities, but would not cause the substantial physical deterioration of existing recreational facilities or require the construction or expansion of recreational facilities, in part because the proposed Project includes an amenity center for project residents. Therefore, like the proposed Project, which would have less than significant recreation impacts, the No Project/No Build Alternative would have less than significant recreation impacts, and this alternative would have less impacts than the proposed Project.

Transportation/Traffic. The No Project/No Build Alternative would not generate any new vehicle trips because it does not involve any new development. In comparison, the proposed Project would generate vehicle trips associated with the proposed senior housing and commercial/ retail uses. Therefore, like the proposed Project, which would have less than significant transportation/traffic impacts, the No Project/No Build Alternative would have less than significant transportation/traffic impacts, and this alternative would have less impacts than the proposed Project.

5.5.3 Comparison of Impacts

The No Project/No Build Alternative would avoid all of the environmental impacts associated with the proposed Project except that the development of the proposed Project would substantially reduce the existing 100-year peak flow.

5.5.4 Relationship to Project Objectives

Under the No Project/No Build Alternative, the project site would not be developed with the proposed senior housing and commercial/retail uses and would remain vacant and undeveloped. Therefore, it would not meet the underlying purpose of the proposed Project to provide a senior residential community and neighborhood-serving commercial/retail uses or satisfy any of the project objectives. Specifically, the No Project/No Build Alternative would not:

- Provide new senior housing and commercial/retail uses allowed under the Amended Specific Plan.
- Provide a substantial amount of high-quality senior housing for local and area residents to help meet the increasing market demand for age-restricted housing.
- Revitalize the vacant former golf course site with a well-designed, attractively landscaped, mixed-use project.
- Provide senior housing in close proximity to existing and future commercial/retail services and medical facilities.
- Develop a project that furthers the goals of the City's Housing Element to provide a wide range of housing stock to meet the existing and future needs of Cypress residents, provide housing opportunities for the growing number of senior households in the City, and help satisfy the City's obligation to provide its fair share of regional housing needs with regard to market-rate housing.
- Develop a senior housing community near a major transportation corridor to allow a range of transportation options for project residents.
- Develop a project that will invigorate the local economy by providing new employment and business opportunities.
- Develop a senior residential community with sufficient housing units to support the size, scale, and operation of amenities and common areas necessary to attract senior residents while maintaining reasonable monthly homeowner dues.

- Provide land uses that capitalize on the project site's frontage along Katella Avenue to attract commercial/retail tenants and customers to the project site.
- Provide land uses along Katella Avenue that are compatible with the existing commercial/ retail uses on Katella Avenue and provide a buffer between Katella Avenue and the new senior residential community.
- Provide commercial/retail improvements that generate new sources of revenue for the City through increased property values and retail sales.
- Provide a mix of uses on the project site that are linked by a convenient pedestrian circulation system to reduce vehicle trips.
- Provide a mix of uses on the project site that will reduce vehicle trips as compared to the higher-vehicle-trip uses permitted on the project site.
- Provide a walkable retail/commercial amenity for the new senior residential community.
- Provide for-sale senior housing to increase the opportunity for senior residents in the City and region to own their own homes in a community of their peers.

5.6 ALTERNATIVE 2: REDUCED DENSITY PROJECT ALTERNATIVE

5.6.1 Description

Under the Reduced Density Alternative, the density of the proposed senior residential community and commercial/retail improvements would be reduced by approximately 30 percent. This would result in the construction of approximately 170 senior homes on the project site, as compared to the 244 senior homes with the proposed Project, and 33,515 square feet of commercial/retail space, as compared to the 43,876 square feet with the proposed Project. This reduction in the overall density of the proposed uses would not reduce the total development footprint area. The lot sizes for the homes in the senior residential community would be increased to compensate for the reduction in the number of homes, but the size and height of the buildings would remain the same. The size and orientation of the commercial/retail buildings would be reconfigured to account for the reduction of floor area. Therefore, the grading footprint of the Reduced Density Alternative would be essentially the same as that of the proposed Project. Access to the senior residential community and commercial/retail center would be the same as for the proposed Project.

5.6.2 Comparative Environmental Analysis of the Reduced Density Alternative

Aesthetics. Like the proposed Project, the Reduced Density Alternative would change the visual character and quality of the project site, and its height, massing, and scale would be compatible with existing urban uses in the surrounding area and provide visual cohesiveness with surrounding urban development. However, this alternative would alter the visual character of the project site to a lesser extent than the proposed Project because it would include fewer senior homes and less commercial/retail footage and would therefore have lower density. Like the proposed Project, the Reduced Density Alternative would introduce new lighting sources that would be similar to other lighting sources in the vicinity of the project site and would not generate artificial light levels or glare that are out of character with the surrounding area.

However, this alternative would include fewer new lighting and glare sources because it includes fewer buildings. Therefore, like the proposed Project, which would have less than significant aesthetic impacts, the aesthetic impacts with respect to the Reduced Density Alternative would be less than significant and less than the impacts associated with the proposed Project.

Air Quality. The same grading footprint and similar construction would be required under the Reduced Density Alternative as for the proposed Project, but the total number of vehicle trips generated would be reduced based on the 30 percent reduction in the total number of senior homes and the amount of commercial/retail space. This would substantially reduce the air pollutant emissions associated with construction and operation as compared to the proposed Project, except that the construction emissions with respect to grading activities would be similar because the grading footprint for this alternative would be the same as that of the proposed Project. Therefore, like the proposed Project, which would have less than significant air quality impacts, the Reduced Density Alternative would have less than significant air quality impacts, and this alternative would have less impacts (except with respect to the grading phase, for which the impacts would be similar) than the proposed Project.

Biological Resources. The Reduced Density Alternative would involve grading and disturbance of the project site similar to the proposed Project and would have the same potential to impact migratory birds if the trees on the project site contain nests and are removed during the nesting season. Therefore, like the proposed Project, which would have a less than significant impact on biological resources with mitigation, the Reduced Density Alternative would have less than significant impacts on biological resources with mitigation, and this alternative would have an impact similar to the proposed Project.

Geology and Soils. The Reduced Density Alternative would be developed within the same grading footprint as the proposed Project. As such, potential impacts related to site-specific geologic hazards, including seismic hazards, potential liquefaction, and unstable soils, would be similar to those of the proposed Project because such impacts are a function of the project site's underlying geologic conditions. However, due to its reduced density, fewer people and structures would be exposed to geotechnical hazards under the Reduced Density Alternative than under the proposed Project. As with the proposed Project, the Reduced Density Alternative would be designed and constructed to conform to the current seismic design provisions of the Cypress Building Code. In addition, this alternative would implement the same mitigation measure as the proposed Project to provide for the preparation of a final design-level geotechnical report. Therefore, like the proposed Project, which would have less than significant geology and soils impacts with implementation of mitigation, the Reduced Density Alternative would have less than significant geology and soils impacts with implementation of mitigation and, given the reduced amount of development, would have less impacts than the proposed Project.

Greenhouse Gases. As with the proposed Project, the Reduced Density Alternative would produce direct and indirect GHG emissions because the project site would be developed with senior housing and commercial/retail improvements. However, under this alternative, the trip generation and energy and water consumption and associated GHG emissions would be reduced compared to the proposed Project due to the reduction in the number of senior homes and the square footage of the commercial/retail improvements. In addition, construction GHG emissions would be reduced because the construction period would be shortened due to the decreased density. Like the proposed Project, the Reduced Density Alternative would not conflict with any plans or policies adopted for the purpose of reducing GHG emissions. Therefore, like the proposed Project, which would have less than significant GHG impacts, the Reduced Density Alternative's impacts on GHG emissions would be less than significant and less than those associated with the proposed Project due to the reduction of daily vehicle trips, lower energy and water consumption, and less construction.

Hydrology and Water Quality. Although the Reduced Density Alternative would involve the construction of fewer dwelling units and less commercial/retail space, there would not be a comparable reduction in storm water runoff because the impervious surface area on the project site would be similar to the proposed Project. In addition, the same soil disturbance would occur with the proposed Project and this alternative, so there would be similar changes to the current drainage pattern. Also similar to the proposed Project, the implementation of Best Management Practices (BMPs) with respect to the construction and operation phases would ensure that this alternative would not generate significant water quality impacts. Therefore, like the proposed Project, which would have less than significant impacts on hydrology and water quality, the Reduced Density Alternative would have less than significant impacts on hydrology and water quality, and this alternative would have impacts similar to those associated with the proposed Project.

Noise. The Reduced Density Alternative would involve a grading footprint, construction activities, and use of haul trucks similar to the proposed Project. Therefore, similar noise impacts that are typically associated with grading, construction, and haul trucks would occur under this alternative, although the construction period would be shorter due to the decreased density, so that the construction would be of shorter duration. Under this alternative, and like the proposed Project, operational noise would include vehicular noise associated with traffic related to the occupancy and operation of the new senior housing and commercial/retail uses, as well as noise associated with the use of the commercial/retail loading docks, rooftop equipment, operation of outdoor equipment, and vehicle movement in parking lots. However, because fewer senior homes and less commercial/retail space would be constructed under the Reduced Density Alternative, these operational noise levels would be reduced. Therefore, like the proposed Project, which would have less than significant noise impacts, the Reduced Density Alternative would have less than significant noise impacts, and this alternative would have less impacts than the proposed Project.

Population and Housing. The Reduced Density Alternative would generate fewer residents and less population growth than the proposed Project given the reduced density of the senior residential community. Under the proposed Project, the proposed senior residential community would include 244 senior homes and would increase the overall population by approximately 440 residents. In comparison, the Reduced Density Alternative would include 170 senior homes with approximately 306 residents, which would result in a direct, though not substantial, increase in population at the project site. Therefore, like the proposed Project, which would have less than significant impacts on population growth, the Reduced Density Alternative would have less than significant impacts on population growth, and this alternative would have less impacts than the proposed Project.

Public Services, Utilities, and Energy Use.

Public Services. Under the Reduced Density Alternative, the demand for fire protection and emergency services and police protection services would decrease because fewer new senior homes and less commercial/retail space would be developed on the project site. In addition, the Reduced Density Alternative would decrease the demand for parks, libraries, and other public facilities because there would be fewer residents on the project site. Therefore, like the proposed Project, which would have less than significant public services impacts, the Reduced Density Alternative would have less than significant impacts on public services, and this alternative would have less impacts than the proposed Project.

Utilities. Under the Reduced Density Alternative, the need for enhanced or new onsite public facility infrastructure relating to water, wastewater, or solid waste would be reduced due to the 30 percent decrease in the number of senior homes and floor area of the commercial/retail improvements, so that the project site would contribute less wastewater to the sewer system, place less demand on the water system or supply, and generate less solid waste. The impervious surface area on the project site would be similar for the Reduced Density Alternative and the proposed Project, so the storm water runoff would be similar. As is the case with respect to the proposed Project, compliance with the required General Construction Permit and Storm Water Pollution Prevention Plan (SWPPP) and the inclusion of the proposed detention system would ensure that this alternative would not require or result in the expansion or new construction of off-site storm drainage facilities. Therefore, like the proposed Project, which would have less than significant impacts on utilities and services, the Reduced Density Alternative would have less than significant impacts on utilities. This alternative would have less impacts than the proposed Project with respect to water, wastewater, and solid waste facilities and a similar impact with respect to storm drainage facilities.

Energy Conservation. The Reduced Density Alternative would require less electricity, natural gas, and fuel consumption than the proposed Project because the density of the senior residential community and commercial/retail space would be reduced by 30 percent. The proposed Project would increase the existing demand for electricity service by approximately 4,995 kilowatt-hours per day (kWh/day) and for natural gas service by approximately 23,509 kilo British thermal units (kBTU) per day. In comparison, based on a 30 percent reduction in

energy use, the Reduced Density Alternative would increase the demand for electricity service by approximately 3,496 kWh/day and for natural gas service by approximately 16,456 kBTU per day. The Reduced Density Alternative would also decrease fuel consumption associated with vehicle trips by approximately 30 percent. The energy demand for both the proposed Project and the Reduced Density Alternative would be within the existing and planned utility capacities and comply with Title 24 of the California Administrative Code and the City's energy efficiency requirements. Therefore, like the proposed Project, which would have less than significant impacts on energy conservation, the Reduced Density Alternative would have less than significant impacts on energy conservation, and this alternative would have less impacts than the proposed Project.

Recreation. In comparison to the proposed Project, there would be less increase in the demand on parks and recreational facilities under the Reduced Density Alternative because there would be fewer residents in the proposed senior residential community. Similar to the proposed Project, the Reduced Density Alternative would increase the demand on parks and recreational facilities. However, it would not create or accelerate a substantial physical deterioration of them. Both the proposed Project and the Reduced Density Alternative include an on-site amenity center for recreational activities, including a community clubhouse, a fitness room, a pool, a spa, an outdoor fireplace, a barbeque, and gathering areas. In addition, the development of the proposed Project and the Reduced Density Alternative would require the payment of park fees. The amenity center and park fees would ensure that neither the proposed Project nor the Reduced Density Alternative would cause or accelerate substantial physical deterioration of existing recreational facilities. Therefore, like the proposed Project, which would have less than significant recreation impacts, the Reduced Density Alternative would have less than significant recreation impacts, and this alternative would have less impacts than the proposed Project.

Transportation/Traffic. The Reduced Density Alternative would generate 30 percent fewer vehicle trips with respect to each proposed use because it would include 30 percent fewer senior homes and 30 percent less commercial/retail space. As shown in Table 5.A, Reduced Density Alternative – Trip Generation, the Reduced Density Alternative would generate 2,278 daily trips with 145 trips during the AM peak hour and 127 trips during the PM peak hour. In comparison, the proposed Project would generate 3,256 daily trips, with 209 trips during the AM peak hour and 181 trips during the PM peak hour. The proposed Project would not result in any significant traffic impacts, and the Reduced Density Alternative would generate fewer vehicle trips given its smaller size. Therefore, like the proposed Project, which would have less than significant impacts on transportation/traffic, the Reduced Density Alternative would have less than significant transportation/traffic impacts, and this alternative would have less impacts than the proposed Project.

Table 5.A: Reduced Density Project – Trip Generation

Land Use	ITE Code	Unit	Trip Generation Rates [1]						
				AM Peak Hour			PM Peak Hour		
			Daily	In	Out	Total	In	Out	Total
Senior Adult Housing – Detached	251	DU	3.680	0.077	0.143	0.220	0.165	0.105	0.270
Senior Adult Housing – Attached	252	DU	3.440	0.067	0.124	0.190	0.138	0.092	0.230
Shopping Center	820	KSF	42.700	0.595	0.365	0.960	1.781	1.929	3.710
High-Turnover (Sit-Down) Restaurant	932	KSF	127.150	5.946	4.865	10.810	5.910	3.940	9.850
Land Use	**Quantity**	**Unit**	**Trip Generation Estimates**						
				AM Peak Hour			**PM Peak Hour**		
			Daily	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Senior Adult Housing – Detached	106	DU	390	8	15	23	17	11	28
Senior Adult Housing – Attached	64	DU	220	4	8	12	9	6	15
Subtotal Residential Trips			***610***	***12***	***23***	***35***	***26***	***17***	***43***
- Internal Capture [2]			***-85***	***0***	***0***	***0***	***-4***	***-3***	***-7***
Total Residential Trips			***525***	***12***	***23***	***35***	***22***	***14***	***36***
Shopping Center	25.550	KSF	1,091	15	9	24	46	49	95
High-Turnover (Sit-Down) Restaurant	7.965	KSF	1,013	47	39	86	47	31	78
Subtotal Retail/Restaurant Trips			***2,104***	***62***	***48***	***110***	***93***	***80***	***173***
- Internal Capture [2]			***-295***	***0***	***0***	***0***	***-14***	***-12***	***-26***
- Pass-by Trips [3]			***-56***	***0***	***0***	***0***	***-30***	***-26***	***-56***
Total Retail/Restaurant Trips			**1,753**	**62**	**48**	**110**	**49**	**42**	**91**
Total Project Trips			**2,278**	**74**	**71**	**145**	**71**	**56**	**127**

1 Source: ITE Trip Generation Manual, 9th Edition.

2 Source: ITE Trip Generation Manual – Volume 1: User's Guide and Handbook. The Handbook does not provide internal capture rates for the AM peak hour. The daily internal capture is 14%. The PM peak-hour internal capture is 15%.

3 Source: ITE Trip Generation Manual – Volume 1: User's Guide and Handbook. The Handbook only provides pass-by rates for the PM peak hour. The daily pass-by is the total of the PM peak hour inbound and outbound pass-by trips. The pass-by rate is 34% for retail and 43% for restaurants. The pass-by reduction is applied to the net retail and restaurant trips after the internal capture reduction is applied.

ITE = Institute of Transportation Engineers

5.6.3 Comparison of Impacts

Similar to the proposed Project, the Reduced Density Alternative would not result in any significant environmental impacts. As evaluated above, this alternative would reduce many of the proposed Project's impacts that are less than significant or less than significant with mitigation, including impacts associated with aesthetics, air quality, geology and soils, GHGs, noise, population and housing, public services, utilities (with respect to water, wastewater, and solid waste facilities), energy use, recreation, and transportation/traffic. Impacts under this alternative that would be similar to the proposed Project include biological resources, hydrology and water quality, and public services and utilities (with respect to storm drainage facilities). The Reduced Density Alternative would not have any impacts that are greater than those associated with the proposed Project.

5.6.4 Relationship to Project Objectives

The Reduced Density Alternative would not satisfy all of the project objectives because it would result in the development of substantially fewer senior homes in the senior residential community,

which would require a substantial increase in the average homeowner dues and thereby make it substantially more difficult to attract senior residents. Specifically, it would not meet the following project objective:

- Develop a senior residential community with sufficient housing units to support the size, scale, and operation of amenities and common areas necessary to attract senior residents while maintaining reasonable monthly homeowner dues.

The Reduced Density Alternative represents a reduced scope of development, including the development of 170 senior homes instead of the 244 senior homes included in the proposed Project, and 33,515 square feet of commercial/retail improvements instead of the 47,876 square feet of commercial/retail improvements included in the proposed Project. In addition, a 30 percent reduction in density would result in fewer residential units contributing to the same level of maintenance and amenity fees included in the monthly homeowner dues. As a result, this alternative would increase the costs associated with monthly homeowner dues, which would not be economically reasonable to attract senior residents who are more likely to be living on a fixed retirement income.

As a result, this alternative would not achieve many of the project objectives to the same extent as the proposed Project. Specifically, with fewer senior homes, reduced commercial/retail space, and associated reduction in business and employment opportunities, the Reduced Density Alternative would not achieve the following project objectives to the same extent as the proposed Project:

- Provide a substantial amount of high-quality senior housing for local and area residents to help meet the increasing local and regional market demand for age-restricted housing.
- Provide senior housing in close proximity to existing and future commercial/retail services and medical facilities.
- Develop a project that furthers the goals of the City's Housing Element to provide a wide range of housing stock to meet the existing and future needs of Cypress residents, provide housing opportunities for the growing number of senior households in the City, and help satisfy the City's obligation to provide its fair share of regional housing needs with regard to market-rate housing.
- Develop a project that will invigorate the local economy by providing new employment and business opportunities.
- Provide land uses along Katella Avenue that are compatible with the existing commercial/ retail uses on Katella Avenue and provide a buffer between Katella Avenue and the new senior residential community.
- Provide commercial/retail improvements that generate new sources of revenue for the City through increased property values and retail sales.
- Provide for-sale senior housing to increase the opportunity for senior residents in the City and region to own their own homes in a community of their peers.

This alternative would satisfy the following project objectives:

- Provide new senior housing and commercial/retail uses allowed under the Amended Specific Plan.
- Revitalize the vacant former golf course site with a well-designed, attractively landscaped, mixed-use project.
- Develop a senior housing community near a major transportation corridor to allow a range of transportation options for project residents.
- Provide land uses that capitalize on the project site's frontage along Katella Avenue to attract commercial/retail tenants and customers to the project site.
- Provide a mix of uses on the project site that are linked by a convenient pedestrian circulation system to reduce vehicle trips.
- Provide a mix of uses on the project site that will reduce vehicle trips as compared to the higher-vehicle-trip uses permitted on the project site.
- Provide a walkable retail/commercial amenity for the new senior residential community.

Overall, the Reduced Density Alternative would not satisfy, or fully satisfy, a number of the key project objectives relating to the necessary and appropriate size of the senior residential community and contributing to the economic health of the community. Therefore, this alternative would not satisfy the project objectives to the same extent as the proposed Project.

5.7 ALTERNATIVE 3: ALL RESIDENTIAL ALTERNATIVE

5.7.1 Description

The All Residential Alternative would be a senior residential community that occupies the entire project site and includes 288 senior homes. The commercial/retail component of the proposed Project would be eliminated and replaced with 44 additional senior homes. The density under this All Residential Alternative would be approximately 8.7 senior homes per acre, identical to the proposed Project. The grading footprint of the All Residential Alternative would be essentially the same as for the proposed Project. Access to the senior residential community would be the same as for the proposed Project, with no driveways on Katella Avenue.

5.7.2 Comparative Environmental Analysis of the All Residential Alternative

Aesthetics. Like the proposed Project, the All Residential Alternative would change the visual character and quality of the project site, and its height, massing, and scale would be compatible with existing urban uses in the surrounding area and would provide visual cohesiveness with surrounding urban development. The replacement of the proposed commercial/retail improvements with 44 additional senior homes would increase the number of structures on the approximately 5-acre parcel along Katella Avenue, but the height of those structures would be reduced from approximately 40 feet (the height of the proposed commercial/retail buildings) to a maximum height of approximately 30 feet. In addition, the commercial parking lot and all parking lot lighting would be eliminated. The development of senior homes on the Katella

Avenue frontage would somewhat alter the visual character of Katella Avenue, which is largely populated by commercial/retail, office, light industrial, and institutional buildings. Like the proposed Project, the All Residential Alternative would introduce new lighting sources that would be similar to other lighting sources in the project vicinity and would not generate artificial light and glare levels that are out of character with the surrounding area. Overall, the aesthetic impacts associated with the All Residential Alternative would be somewhat different from, but generally less than, those of the proposed Project. Therefore, like the proposed Project, which would have less than significant impacts on aesthetics, the aesthetic impacts with respect to the All Residential Alternative would be less than significant, and this alternative would have less impacts than the proposed Project.

Air Quality. The same grading footprint and similar construction would be required under the All Residential Alternative, but the total number of operational vehicle trips generated would be reduced due to the elimination of the 47,876 square feet of commercial/retail space. This would substantially reduce the air pollutant emissions associated with project operation as compared to the proposed Project (because a residential use on the Katella Avenue frontage would generate substantially fewer vehicle trips than the proposed commercial/retail uses). The construction emissions with respect to grading and construction activities would be similar because the grading footprint for this alternative would be the same as for the proposed Project. Therefore, like the proposed Project, which would have less than significant air quality impacts, the All Residential Alternative would have less than significant air quality impacts, and this alternative would have less impacts (except for the grading phase, for which the impacts would be similar) than the proposed Project.

Biological Resources. The All Residential Alternative would involve grading and disturbance of the project site similar to the proposed Project and would have the same potential to impact migratory birds if the trees on the project site contain nests and are removed during the nesting season. Therefore, like the proposed Project, which would have less than significant impacts on biological resources with mitigation, the All Residential Alternative would have less than significant impacts on biological resources with mitigation, and this alternative would have impacts similar to the proposed Project.

Geology and Soils. The All Residential Alternative would be developed within the same grading footprint as the proposed Project. As such, potential impacts related to site-specific geologic hazards, including seismic hazards, potential liquefaction, and unstable soils, would be similar to those of the proposed Project because such impacts are a function of the project site's underlying geologic conditions. It is anticipated that the number of additional residents and guests in the portion of the senior residential community located in the 5-acre parcel along Katella Avenue under the All Residential Alternative would be less than the number of employees and patrons that would occupy or visit the proposed commercial/retail center each day while the commercial/retail businesses are open. Therefore, fewer people would be exposed to potential geotechnical hazards under the All Residential Alternative compared to the proposed Project during the portion of the day that the commercial/retail stores and restaurants would be open for business, although the additional residents would also be exposed to those potential hazards when

commercial/retail businesses are closed. The All Residential Alternative would include more buildings within the Katella Avenue frontage (44 senior homes) than the proposed Project (approximately 5 commercial buildings). Accordingly, more structures would be exposed to potential geotechnical hazards.

As with the proposed Project, the All Residential Alternative would be designed and constructed to conform to the current seismic design provisions of the Cypress Building Code. In addition, this alternative would implement the same mitigation as the proposed Project. Therefore, like the proposed Project, which would have less than significant geology and soils impacts with mitigation, the All Residential Alternative would have less than significant geology and soils impacts with mitigation, and this alternative would have similar impacts compared to the proposed Project.

Greenhouse Gases. As with the proposed Project, the All Residential Alternative would produce direct and indirect GHG emissions because the project site would be developed with senior housing. However, under this alternative, the trip generation, energy and water consumption, and associated GHG emissions would be reduced as compared to the proposed Project due to the elimination of the 47,876 square feet of commercial/retail uses. Construction-related GHG emissions would be similar to the proposed Project because the construction period would be similar. Like the proposed Project, the All Residential Alternative would not conflict with any plans or policies adopted for the purpose of reducing GHG emissions. Therefore, like the proposed Project, which would have less than significant GHG impacts, the All Residential Alternative's impacts on GHG emissions would be less than significant, and this alternative would have less impacts than the proposed Project due to the reduction of daily vehicle trips and energy and water consumption.ta

Hydrology and Water Quality. Although the All Residential Alternative would involve the construction of more senior homes and less commercial/retail space, there would not be a comparable reduction in storm water runoff because the impervious surface area on the project site would be similar for the proposed Project and the All Residential Alternative. In addition, the same soil disturbance would occur with the proposed Project and this alternative, so there would be similar changes to the current drainage pattern. Also similar to the proposed Project, the implementation of BMPs with respect to the construction and operation phases would ensure that this alternative would not generate significant water quality impacts. Therefore, like the proposed Project, which would have less than significant impacts on hydrology and water quality, the All Residential Alternative would have less than significant impacts on hydrology and water quality, and this alternative would have impacts similar to those associated with the proposed Project.

Noise. The All Residential Alternative would involve a grading footprint, construction activities, and use of haul trucks that would be similar to the proposed Project. Therefore, similar noise impacts that are typically associated with grading, construction, and haul trucks would occur under this alternative. Under this alternative, and like the proposed Project, operational noise would include vehicular noise associated with traffic related to the occupancy and operation of the new senior housing. However, the vehicular noise associated with the All Residential

Alternative would be reduced because additional senior homes within the Katella Avenue frontage would generate substantially fewer traffic trips than the proposed commercial/retail improvements. This alternative does not include any commercial/retail improvements, so that all of the noise associated with the use of the commercial/retail loading dock, operation of rooftop air conditioning units, outdoor equipment, and vehicle movement in parking lots would be eliminated, and operational noise levels would therefore be reduced in comparison to the proposed Project. Therefore, like the proposed Project, which would have less than significant construction and operation noise impacts, the All Residential Alternative would have less than significant construction and operation noise impacts, and this alternative would have less impacts than the proposed Project.

Population and Housing. The All Residential Alternative would generate more residents and population growth than the proposed Project given the greater number of homes in the senior residential community. Under the proposed Project, the proposed senior residential community would include 244 homes and increase the overall population by approximately 440 residents. In comparison, the All Residential Alternative would include 288 senior homes with approximately 520 residents, which would result in a direct, though not substantial, increase in population at the project site. Therefore, like the proposed Project, which would have less than significant impact on population growth, the All Residential Alternative would have less than significant impact on population growth. However, this alternative would have a greater impact than the proposed Project.

Public Services, Utilities, and Energy Use.

Public Services. Under the All Residential Alternative, the demand for fire protection and emergency services and police protection services would be roughly similar to the demand for those services with regard to the proposed Project increase because the additional senior homes would generate approximately the same demand for those services as the eliminated commercial/retail space. In addition, the All Residential Alternative would slightly increase the demand for parks, libraries, and other public facilities because, based on the 44 additional senior homes, approximately 80 more residents would occupy the senior residential community. However, the increase in such demand would not require the construction of new or physically altered parks or other governmental facilities. Therefore, like the proposed Project, which would have less than significant public services impacts, the All Residential Alternative would have less than significant impacts on public services. This alternative would have similar impacts to the proposed Project with respect to the provision of fire and police protection services and greater impacts than the proposed Project with respect to parks, libraries, and other public facilities.

Utilities. Under the All Residential Alternative, the need for enhanced or new construction of public facility infrastructure relating to water would be reduced because the additional senior homes would use less water than the eliminated commercial/retail improvements. The proposed Project would use approximately 31.7 million gallons per year (Mgal/year) of water while the All Residential Alternative would use approximately 28.65 Mgal/year. Based on the

wastewater generation rates established by the Orange County Sanitation District, the All Residential Project would contribute more wastewater to the sewer system than the proposed Project. The proposed Project would generate approximately 108,000 gallons per day while the All Residential Alternative would generate approximately 114,000 gallons per day. The All Residential Alternative would produce less solid waste than the proposed Project with the elimination of the 47,876 square feet of commercial/retail footage. The proposed Project would generate approximately 315 tons/year compared to 192 tons/year for the All Residential Alternative. The impervious surface area and detention area on the project site would be similar for the All Residential Alternative and the proposed Project, so the storm water runoff would be similar. As is the case with respect to the proposed Project, compliance with the required General Construction Permit and SWPPP and inclusion of the proposed detention system would ensure that this alternative would not require construction of offsite storm drainage facilities. Therefore, like the proposed Project, which would have less than significant impacts on utilities and services, the All Residential Alternative would have less than significant impacts on utilities. This alternative would have less impacts than the proposed Project with respect to water and solid waste, similar impacts with respect to storm drainage facilities, and greater impacts with respect to wastewater.

Energy Conservation. The All Residential Alternative would require less electricity and natural gas consumption than the proposed Project because the commercial/retail improvements would require more electricity and natural gas than the additional senior homes. The proposed Project would increase the existing demand for electricity service by approximately 4,995 kWh/day and for natural gas service by approximately 23,509 kBTU per day. In comparison, the All Residential Alternative would increase the demand for electricity service by approximately 3,802 kWh/day and for natural gas service by approximately 18,292 kBTU per day. The All Residential Alternative would also decrease fuel consumption associated with vehicle trips significantly given that the additional senior homes would generate fewer vehicle trips than the proposed commercial/retail uses. The energy demand for both the proposed Project and the All Residential Alternative would be within the existing and planned utility capacities and would comply with Title 24 of the California Administrative Code and the City's energy efficiency requirements. Therefore, like the proposed Project, which would have less than significant impacts on energy conservation, the Reduced Density Alternative would have less than significant impacts on energy conservation, and this alternative would have less impacts than the proposed Project.

Recreation. There would be an increase in the demand on parks and recreational facilities under the All Residential Alternative because, based on the 44 additional senior homes, there would be approximately 80 additional residents in the proposed senior residential community. Similar to the proposed Project, the All Residential Alternative would increase the demand on parks and recreational facilities but would not create or accelerate a substantial physical deterioration of them. Both the proposed Project and the All Residential Alternative would include an onsite amenity center for recreational activities, including a community clubhouse, a fitness room, a pool, a spa, an outdoor fireplace, a barbeque, and gathering areas. In addition, the development of the proposed Project and the All Residential Alternative would require the payment of park fees. The amenity center and park fees would ensure that neither the proposed Project nor the All

Residential Alternative would cause or accelerate substantial physical deterioration of existing recreational facilities. Therefore, like the proposed Project, which would have a less than significant recreation impact, the All Residential Alternative would have less a than significant recreation impact, and this alternative would have greater impact than the proposed Project.

Transportation/Traffic. The All Residential Alternative would generate substantially fewer vehicle trips than the proposed Project because it would eliminate the 47,876 square feet of commercial/retail uses on the project site and replace those uses with 44 additional senior homes. As shown in Table 5.B, All Residential – Trip Generation, the All Residential Alternative would generate approximately 1,029 daily trips, with 59 trips during the AM peak hour and 73 trips during the PM peak hour. In comparison, the proposed Project would generate approximately 3,256 daily trips, with 209 trips during the AM peak hour and 181 trips during the PM peak hour. The proposed Project would not result in any significant traffic impacts, and the All Residential Alternative would generate fewer vehicle trips. Therefore, like the proposed Project, which would have less than significant transportation/traffic impacts, the All Residential Alternative would have less than significant transportation/traffic impacts, and this alternative would have less impacts than the proposed Project.

Table 5.B: All Residential Alternative – Trip Generation

Land Use	ITE Code	Unit	Trip Generation Rates [1]						
				AM Peak Hour			PM Peak Hour		
			Daily	In	Out	Total	In	Out	Total
Senior Adult Housing – Detached	251	DU	3.680	0.077	0.143	0.220	0.165	0.105	0.270
Senior Adult Housing – Attached	252	DU	3.440	0.067	0.124	0.190	0.138	0.092	0.230
			Trip Generation Estimates						
				AM Peak Hour			**PM Peak Hour**		
Land Use	**Quantity**	**Unit**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Senior Adult Housing – Detached	162	DU	596	12	23	35	27	17	44
Senior Adult Housing – Attached	126	DU	433	8	16	24	17	12	29
Total Project Trips			**1,029**	**20**	**39**	**59**	**44**	**29**	**73**

1 Source: ITE Trip Generation Manual, 9th Edition.
2 Source: ITE Trip Generation Manual – Volume 1: User's Guide and Handbook. The Handbook does not provide internal capture rates for the AM peak hour. The daily internal capture is 14%. The PM peak-hour internal capture is 15%.
3 Source: ITE Trip Generation Manual – Volume 1: User's Guide and Handbook. The Handbook only provides pass-by rates for the PM peak hour. The daily pass-by is the total of the PM peak hour inbound and outbound pass-by trips. The pass-by rate is 34% for retail and 43% for restaurants. The pass-by reduction is applied to the net retail and restaurant trips after the internal capture reduction is applied.
ITE = Institute of Transportation Engineers

5.7.3 Comparison of Impacts

Similar to the proposed Project, the All Residential Alternative would not result in any significant environmental impacts. As evaluated above, this alternative would reduce many of the proposed Project's impacts that are less than significant or less than significant with mitigation, including impacts associated with air quality (except those during the grading phase), GHGs, noise, utilities (with respect to water and solid waste), energy use, and transportation/traffic. Impacts under this alternative that would be similar to the proposed Project include aesthetics, air quality (during the grading phase), biological resources, geology and soils, hydrology and water quality, public

services (with respect to fire and police protection), and utilities (with respect to storm drainage facilities). Impacts under this alternative that would be greater than those of the proposed Project include population and housing, public services (with respect to parks and libraries), utilities (with respect to wastewater), and recreation.

5.7.4 Relationship to Project Objectives

The project objectives encourage a complementary mix of senior residential and commercial/ retail uses on the project site. The All Residential Alternative would not satisfy many of the project objectives because it would not include the proposed commercial/retail improvements. Specifically, it would not meet the following project objectives:

- Provide new senior housing and commercial/retail uses allowed under the Amended Specific Plan.
- Revitalize the vacant former golf course site with a well-designed, attractively landscaped, mixed-use project.
- Develop a project that will invigorate the local economy by providing new employment and business opportunities.
- Provide land uses that capitalize on the project site's frontage along Katella Avenue to attract commercial/retail tenants and customers to the project site.
- Provide land uses along Katella Avenue that are compatible with the existing commercial/ retail uses on Katella Avenue and provide a buffer between Katella Avenue and the new senior residential community.
- Provide commercial/retail improvements that generate new sources of revenue for the City through increased property values and retail sales.
- Provide a mix of uses on the project site that are linked by a convenient pedestrian circulation system to reduce vehicle trips.
- Provide a walkable retail/commercial amenity for the new senior residential community.

The All Residential Alternative would not achieve the following project objectives to the same extent as the proposed Project:

- Provide senior housing in close proximity to existing and future commercial/retail services and medical facilities.
- Provide a mix of uses that will reduce vehicle trips as compared to the higher-vehicle-trip uses permitted on the project site.

The All Residential Alternative would satisfy the following project objectives:

- Provide a substantial amount of high-quality senior housing for local and area residents to help meet the increasing local and regional market demand for age-restricted housing.

- Develop a project that furthers the goals of the City's Housing Element to provide a wide range of housing stock to meet the existing and future needs of Cypress residents, provide housing opportunities for the growing number of senior households in the City, and help satisfy the City's obligation to provide its fair share of regional housing needs with regard to market-rate housing.
- Develop a senior housing community near a major transportation corridor to allow a range of transportation options for project residents.
- Develop a senior residential community with sufficient housing units to support the size, scale, and operation of amenities and common areas necessary to attract senior residents with reasonable monthly homeowner dues.
- Provide for-sale senior housing to increase the opportunity for senior residents in the City and region to own their own homes in a community of their peers.

Overall, the All Residential Alternative would not satisfy, or fully satisfy, many project objectives relating to the inclusion of commercial/retail uses as part of the Project, creating a synergistic mix of residential and commercial/retail uses, and contributing to the economic health of the community. Therefore, this alternative would not satisfy the Project objectives to the same extent as the proposed Project.

5.8 IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an Environmentally Superior Alternative among the alternatives evaluated in an EIR. *CEQA Guidelines* Section 15126.6(e)(2) provides that, if the No Project/No Build Alternative is the Environmentally Superior Alternative, then the EIR shall also identify an Environmentally Superior Alternative among the other alternatives. Table 5.C provides, in summary format, a comparison of the level of impacts for each alternative to the proposed Project.

The No Project/No Build Alternative has the least impact on the environment because the project site would remain vacant and undeveloped and would thereby avoid all of the proposed Project's environmental impacts. However, the No Project/No Build Alternative cannot be the only Environmentally Superior Alternative. Therefore, according to Section 15126.6(e)(2) of the *CEQA Guidelines*, because the No Project/No Build Alternative has been identified as the environmentally superior alternative, the EIR shall also identify one of the other two alternatives as the Environmentally Superior Alternative.

Table 5.C: Comparison Summary of the Environmental Impacts of the Proposed Project to the Project Alternatives

Impact Area	Proposed Project Impact with Mitigation (if any)	Alternative 1: No Project/No Build Alternative	Alternative 2: 30% Density Reduction	Alternative 3: All Residential Development
Aesthetics				
Visual Character	Less Than Significant	Less	Less	Less
Light and Glare	Less Than Significant	Less	Less	Less
Air Quality	Less Than Significant	Less	Less (except similar grading impact)	Less (except similar grading impact)
Biological Resources	Less Than Significant*	Less	Similar	Similar
Geology and Soils				
Seismic Ground Shaking	Less Than Significant*	Less	Less	Similar
Liquefaction	Less Than Significant*	Less	Less	Similar
Unstable Soils	Less Than Significant*	Less	Less	Similar
Greenhouse Gases	Less Than Significant	Less	Less	Less
Hydrology and Water Quality	Less Than Significant	Less	Similar	Similar
Noise	Less Than Significant	Less	Less	Less
Population and Housing	Less Than Significant	Less	Less	Greater
Public Services				
Fire Protection	Less Than Significant	Less	Less	Similar
Police Protection	Less Than Significant	Less	Less	Similar
Parks	Less Than Significant	Less	Less	Greater
Libraries	Less Than Significant	Less	Less	Greater
Utilities and Service Systems				
Wastewater	Less Than Significant	Less	Less	Greater
Storm Drain Facilities	Less Than Significant	Less	Similar	Similar
Water	Less Than Significant	Less	Less	Less
Solid Waste and Disposal	Less Than Significant	Less	Less	Less
Energy Use/Conservation	Less Than Significant	Less	Less	Less
Recreation	Less Than Significant	Less	Less	Greater
Transportation	Less Than Significant	Less	Less	Less

* Mitigation identified.

With the exception of the No Project/No Build Alternative, the Environmentally Superior Alternative is the All Residential Alternative. As shown in Table 5.C, when the All Residential Alternative is compared to the Reduced Density Alternative, the Reduced Density Alternative has more impacts that are "less" than the proposed Project's corresponding impacts. Conversely, the All Residential Alternative has more impacts that are "similar" to or "greater" than the Project's corresponding impacts. However, in several important respects, the All Residential Alternative would have substantially less impacts than the Reduced Density Alternative. In particular, the transportation/traffic impacts with respect to the All Residential Alternative would be substantially less than the traffic impacts associated with the Reduced Density Alternative. As shown by a comparison between Tables 5.A and 5.B, the All Residential Alternative would generate 1,029 daily trips, with 59 trips during the AM peak hour and 73 trips during the PM peak hour, while the Reduced Density Alternative would generate 2,278 daily trips, with 145 trips during the AM peak hour and 127 trips during the PM peak hour. This is a difference of 1,249 daily trips between the two alternatives and equates to an All Residential Alternative daily trip reduction of 55 percent compared to the Reduced Density Alternative. Therefore, the All Residential Alternative would produce substantially fewer daily and peak-hour trips than the Reduced

Density Alternative. As a result, the All Residential Alternative would also have substantially lower impacts than the Reduced Density Alternative with respect to air quality emissions, GHG emissions, vehicular noise, and fuel consumption. While the Reduced Density Alternative would also have less impacts than the proposed Project with respect to traffic, air quality emissions, GHG emissions, vehicular noise, and fuel consumption, the All Residential Alternative would have a substantially greater reduction in those impacts. Accordingly, it is determined that the All Residential Alternative is the Environmentally Superior Alternative.

6.0 OTHER CEQA CONSIDERATIONS

6.1 GROWTH-INDUCING IMPACTS

Sections 15126(d) and 15126.2(d) of the *CEQA Guidelines* require that an EIR analyze growth-inducing impacts and discuss the ways in which a proposed project could foster economic or population growth or construction of additional housing, either directly or indirectly, in the surrounding environment. This section examines ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Section 15126.2(d) also requires a discussion of the characteristics of projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. To address these issues, potential growth-inducing impacts were examined through analysis of the following questions:

- Would the project remove obstacles to, or otherwise foster, population growth (e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development)?
- Would the project foster economic growth?
- Would approval of the project involve some characteristic that may encourage and facilitate other activities that could significantly affect the environment?

Growth-inducing effects are not to be construed as necessarily beneficial, detrimental, or of little significance to the environment (*CEQA Guidelines*, Section 15126.2(d)). This issue is presented to provide additional information on ways in which the proposed Project could contribute to significant changes in the environment beyond the direct consequences of developing the proposed land uses as described in earlier sections of this Draft EIR.

6.1.1 Removal of Obstacles to, or Otherwise Foster, Population Growth

The area surrounding the project site is already highly urbanized and developed with a mix of commercial/retail, hotel, business park, religious, and residential uses, so limited population growth is feasible within the project area. In any event, the proposed Project would not remove impediments to population growth in the project area. While the proposed Project may require water, sewer, electricity, and natural gas lines onsite and in the immediate vicinity of the project site, such improvements would be intended primarily to meet project-related demand and would not necessitate substantial utility infrastructure improvements. In addition, all roadway improvements planned with respect to the proposed Project are intended to provide for better circulation flows within the project site and the immediate project vicinity, and would not foster offsite population growth.

The construction of the proposed Project would generate a substantial number of construction-related jobs. However, the proposed Project would not promote construction workers relocating their places of residence as a direct consequence of working on the proposed Project as the work requirements of

most construction projects are highly specialized, so that construction workers remain at a job site only for the limited time in which their specific skills are needed to complete a particular phase of the construction process. Therefore, given the availability of construction workers, the proposed Project would not induce material population growth from a short-term employment perspective.

With regard to project operation, the proposed commercial/retail store uses would be expected to employ approximately 106 full-time-equivalent (FTE) employees.[1] These types of positions are typically filled by persons who already reside in the vicinity of the workplace and who generally do not relocate their households due to such commercial/retail employment opportunities. As such, the commercial/retail component of the proposed Project would be unlikely to create an indirect demand for additional housing or households in the area.

Therefore, given that the employment opportunities generated by the construction and operation of the proposed Project would be filled by people who would commute to the project site, the potential population growth associated with project employees would be minimal.

6.1.2 Foster Economic Growth

The proposed Project would introduce commercial/retail improvements that would generate new sources of revenue and invigorate the local economy by providing new employment and business opportunities. As previously discussed, the construction of the proposed Project would generate a substantial number of construction-related jobs and new employment opportunities during the construction period in the project area. As also discussed, the new commercial/retail businesses would be expected to employ approximately 106 FTE employees, and these positions would likely be filled by persons residing in the project area. Therefore, the proposed Project would foster economic growth.

6.1.3 Other Characteristics

The proposed Project involves the development of 244 senior residential units and approximately 43,876 square feet of neighborhood-serving commercial/retail improvements on a site where senior housing and a variety of commercial/retail uses are permitted under the Amended Specific Plan, and it is otherwise consistent with the applicable requirements in the Amended Specific Plan. The development and operation of the proposed Project does not require a general plan amendment, an amendment to the Amended Specific Plan, or a zone change. Therefore, the approval of the proposed Project does not involve any characteristics that would encourage or facilitate other development projects and the resultant growth that would occur.

[1] Based on using a 450-square-foot per employee ratio for the Other Retail/Service category for land uses in Orange County per the Southern California Association of Governments' Employment Density Study Summary Report (2001). Table II-A. Derivation of Square Feet per Employee Based on Median Employees Per Acre – Median FAR for Orange County.

6.2 SIGNIFICANT EFFECTS THAT CANNOT BE AVOIDED

Section 15126.2(b) of the *CEQA Guidelines* requires that an EIR describe any significant impacts of a project that cannot be avoided. As determined in Chapter 4.0, Environmental Impact Analysis, of this Draft EIR, the implementation of the proposed Project would not result in any significant and unavoidable adverse impacts. All potentially significant impacts have been mitigated to a less than significant level.

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7.0 MITIGATION MONITORING AND REPORTING PROGRAM

7.1 MITIGATION MONITORING REQUIREMENTS

California Public Resources Code Section 21081.6, which is part of the CEQA statute, mandates that the following requirements shall apply to all reporting or mitigation monitoring programs:

- The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes that have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead agency or a responsible agency, prepare and submit a proposed reporting or monitoring program.
- The lead agency shall specify the location and custodian of the documents or other materials that constitute the record of proceedings upon which its decision is based.
- The lead agency shall provide measures to mitigate or avoid potentially significant effects on the environment that are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents that address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.
- Prior to the close of the public review period for a draft environmental impact report, a responsible agency, or a public agency having jurisdiction over natural resources affected by the project, shall either (1) submit to the lead agency complete and detailed performance objectives for mitigation measures that would address the significant effects on the environment identified by the responsible agency or agency having jurisdiction over natural resources affected by the project, or (2) refer the lead agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a lead agency by a responsible agency or an agency having jurisdiction over natural resources affected by the project shall be limited to measures that mitigate impacts to resources that are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance with that requirement by a responsible agency or agency having jurisdiction over natural resources affected by a project shall not limit the authority of the responsible agency or agency having jurisdiction over natural resources affected by a project, or the authority of the lead agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

7.2 MITIGATION MONITORING PROCEDURES

The mitigation monitoring and reporting program for the proposed Barton Place Project (Project) has been prepared in compliance with Section 21081.6. It describes the requirements and procedures to be followed by the City of Cypress, as the Lead Agency, to ensure that all mitigation measures adopted as part of the proposed Project will be carried out as described in this Draft EIR.

Table 7.A sets forth the proposed mitigation monitoring and reporting program. It lists each of the mitigation measures specified in this Draft EIR and identifies the party or parties responsible for implementation and monitoring of each measure.

Table 7.A: Mitigation Monitoring and Reporting Program

Barton Place Project MITIGATION MONITORING AND REPORTING PROGRAM					
		Responsible Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE		
Mitigation Measure/Conditions of Approval	Monitoring Milestone		Initials	Date	Remarks
4.3: Biological Resources					
Mitigation Measure 4.3.1: Nesting Migratory Birds. If and to the extent practicable, vegetation removal should be conducted outside the avian nesting season (February 1 through August 31). If and to the extent avoidance of the avian nesting season is not practicable, then a qualified biologist shall conduct a nesting bird survey within 3 days prior to the commencement of grading activity. If active nests are identified, the biologist shall establish suitable buffers around the nests, and the buffer areas shall be avoided until the nests are no longer occupied and the juvenile birds can survive independently from the nests.	Three days prior to commencement of grading activities.	Project Applicant/City of Cypress Community Development Director, or designee			
Mitigation Measure 4.3.2: Nesting Raptors. If and to the extent practicable, vegetation removal should be conducted outside of the raptor nesting season (February 1 through June 30). If and to the extent avoidance of the raptor nesting season is not practicable, then a qualified biologist will conduct a survey within 3 days prior to the commencement of grading activity to determine whether nesting raptors are present. If no breeding raptors are present, no additional survey is required. If active nests are identified, the biologist shall (1) establish appropriate buffers that consider the ecology of the species present and the location of grading activities to ensure that disruption of nesting does not occur, and (2) visit the project site bi-weekly to ensure that no impacts to the nesting raptors occur. The biologist will have the discretion to adjust the buffers (i.e., increase or decrease them) based on the monitoring results.	Three days prior to commencement of grading activities.	Project Applicant/City of Cypress Community Development Director, or designee			
4.4: Geology and Soils					
Mitigation Measure 4.4.1: Compliance with the Recommendations in the Project Geotechnical Assessment. Prior to the issuance of a grading permit, the project applicant shall submit a final geotechnical assessment,	Prior to issuance of grading permits.	City of Cypress City Engineer			

Table 7.A: Mitigation Monitoring and Reporting Program

Barton Place Project MITIGATION MONITORING AND REPORTING PROGRAM					
		Responsible Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE		
Mitigation Measure/Conditions of Approval	Monitoring Milestone		Initials	Date	Remarks
subject to review and approval by the City Engineer, or designee, indicating that design, grading, and construction shall be performed in accordance with the then-applicable requirements of the City's Municipal Code, the requirements of the project geotechnical consultant set forth in the final geotechnical assessment, and the following requirements: 1. For the area represented by CPT-1 where the maximum estimated liquefaction-induced total settlement is 4.5 inches, employ a polymer geogrid-reinforced soil zone beneath the residential structures in conjunction with a post-tensioned slab or strengthened concrete mat foundation to address potential liquefaction-induced total settlement. Conduct appropriate remedial grading, including excavation and recompaction of near-surface soils, together with a post-tensioned or strengthened mat foundation, to address potential surface manifestation of liquefaction. 2. To address potential unstable soil in the area of CPT-8, reduce building foundation loadings, pre-compress the soils using a temporary soil surcharge prior to construction, implement a localized ground improvement program such as compaction grouting, stone columns, or construction of a polymer geogrid-reinforced soil zone, or bypass the potentially compressible soils by means of a deep foundation system (such as caissons or driven piles), as determined in the final geotechnical assessment.					

8.0 LIST OF PREPARERS AND PERSONS CONSULTED

8.1 CITY OF CYPRESS

The following individuals from the City of Cypress (City) were involved in the preparation of this Draft Environmental Impact Report (EIR):

Douglas Dancs, P.E., Director of Community Development, Community Development Department

Anthony Taylor, City Attorney

Douglas Hawkins, AICP, City Planner, Community Development Department

8.2 EIR PREPARERS

The following individuals were involved in the preparation of this Draft EIR. The nature of their involvement is summarized below.

8.2.1 LSA Associates, Inc.

The following individuals were involved in the preparation of this Draft EIR:

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Ryan Bensley, AICP, Project Manager, Senior Environmental Planner

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Janet Danker, Environmental Planner

Mario Scalzo, Assistant Environmental Planner

Maryanne Cronin, Assistant Environmental Planner

Gary Dow, Associate, Graphics

8.3 TECHNICAL REPORT PREPARERS

The following individuals were involved in the preparation of the technical reports in support of this Draft EIR. The nature of their involvement is summarized below.

8.3.1 Environ

The following individual was involved in preparation of the *Air Quality Technical Report* (April 2015) and the *Greenhouse Gas Technical Report* (April 2015):

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8.3.2 Fuscoe Engineering, Inc.

The following individual was involved in the preparation of the *Preliminary Hydrology Study* (February 2015) and the *Preliminary Water Quality Management Plan* (December 2014):

Debra Schales, P.E., Project Manager

8.3.3 Glen Lukos Associates, Inc.

The following individual was involved in the preparation of the *Biological Technical Report for Barton Place Project Located in the City of Cypress, County of Orange, California* (January 2015):

Tony Bomkamp, Project Manager

8.3.4 Kimley-Horn Associates

The following individual was involved in the preparation of the *Traffic Impact Study for the Barton Place Mixed-Use Project in the City of Cypress* (April 2015):

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8.3.5 Petra Geosciences, Inc.

The following individual was involved in the preparation of the *Geotechnical Feasibility and CEQA-Level Assessment 33-Acre Parcel Located Northeast of the Intersection of Katella Avenue and Enterprise Drive* (February 2015):

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The following individual was involved in the preparation of the *Phase I Environmental Assessment* (May 2014):

Kevin W. Green, P.G., Project Director

8.3.7 Urban Crossroads

The following individuals were involved in the preparation of the *Barton Place Noise Impact Analysis* (April 2015):

Bill Lawson, P.E., Project Director

Alex Wolfe, Project Manager

8.4 PROJECT APPLICANT

8.4.1 C33, LLC

Mark Kerslake, Principal

Tim Ramm, Vice President

8.5 PERSONS CONSULTED

The following individuals were consulted during the preparation of this Draft EIR.

8.5.1 City of Cypress Police Department

Tom Bruce, Commander

8.5.2 Golden State Water Company

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8.5.3 Orange County Fire Authority

Michele Hernandez, Management Analyst

8.5.4 Orange County Sanitation District

Daisy Covarrubias, MPA, Senior Staff Analyst

8.5.5 Orange County Transportation Authority

Gary Hewitt, Section Manager – Transit & Non-Motorized Planning

8.5.6 Southern California Edison

SCE Design Representative

8.5.7 Southern California Gas Company

Armando Torrez, Planning Supervisor, Southeast Region – Anaheim Planning & Engineering

8.5.8 Valley Vista Services

David Perez, Vice President of Operations

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