Greenhouse Gas Emissions Methodology and Documentation

Crossroads Hollywood Project

Project Applicant:

CRE-HAR Crossroads SPV, LLC
6363 Wilshire Boulevard, #600
Los Angeles, CA 90048

August 2016
(Revised October 2016)

Prepared By:

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eyestone ENVIRONMENTAL

August 15, 2016

CALIFORNIA AIR RESOURCES BOARD
1001 I Street
Sacramento, CA 95814-2828

RE: Greenhouse Gas Emissions Methodology and Documentation Pursuant to the "Jobs and Economic Improvement through Environmental Leadership Act" (Public Resources Code Section 21178 et seq.) for the Crossroads Hollywood Project

To California Air Resources Board:

On behalf of CRE-HAR Crossroads SPV, LLC, the Project Applicant, Eyestone Environmental prepared an Application for CEQA Streamlining for the Crossroads Hollywood Project (Project), to demonstrate that the Project meets the requirements of the Jobs and Economic Improvement through Environmental Leadership Act (Public Resources Code Section 21178 et seq.), also referred to as Assembly Bill (AB) 900. As detailed in the application, the Project would incorporate a number of Project characteristics and project design features to avoid, minimum, and reduce greenhouse gas emissions. Our findings conclude that the Project would meet the GHG emissions requirements for streamlined environmental review under CEQA.

Should you have any questions or require additional information please feel free to contact me at (424) 207-5333.

Sincerely,

Mark Hagmann, P.E.
EYESTONE ENVIRONMENTAL
Air Quality Director

6701 Center Drive West, Suite 900, Los Angeles, California 90045
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1. Introduction

Eyestone Environmental has been retained to conduct a comprehensive greenhouse gas (GHG) emissions assessment for the Crossroads Hollywood Project (the "Project") and to demonstrate that the Project meets the requirements of the *Jobs and Economic Improvement Through Environmental Leadership Act* ("the Act") (Public Resources Code Section 21178 et seq.), also referred to as Assembly Bill (AB) 900. This assessment describes the methodology used to estimate the GHG emissions from baseline and Project conditions, provides an estimate of the net change in GHG emissions for the Project as compared to baseline conditions, and describes the methodology uses to quantify GHG emission reductions from project design features and mitigation measures. The following baseline and Project-related emission sources have been evaluated:

- Construction Activities—Fossil fueled on- and off-road vehicles and equipment needed for demolition, mass and fine grading, building construction, paving, and architectural coating;
- Direct Emission Sources—Consumption of natural gas on-site for cooking, space heating and water heating, combustion of fossil fuels for lawn care and maintenance activities, and motor vehicles including employee transportation; and
- Indirect Emission Sources—Off-site electricity generation, water conveyance and wastewater treatment, and solid waste disposal.

a. Assembly Bill 900

In September 2011, Governor Brown signed the Act, which required the Governor to establish procedures for applying for streamlined environmental review under the California Environmental Quality Act (CEQA) for projects that meet certain requirements. The Office of Planning and Research (OPR) has provided approved guidelines for submitting applications for streamlined environmental review pursuant to the Act. With respect to GHG emissions, a project must demonstrate that it would not result in any net additional

GHGs including GHG emissions from employee transportation in accordance with Public Resources Code Section 21183(c). For purposes of California Public Resources Code Section 21183(c) the following process applies:

1. The applicant shall submit electronically to AB900ARBsubmittals@arb.ca.gov a proposed methodology for quantifying the project's net additional GHG emissions. The CARB will review and comment on the methodology, at its discretion, within 30 days of submission.

2. At the same time, the applicant shall submit to AB900ARBsubmittals@arb.ca.gov documentation that the project does not result in any net additional GHG emissions. The documentation must at least quantify:

   a. Both direct and indirect GHG emissions associated with the project's construction and operation, including emissions from the project's projected energy use and transportation related emissions; and

   b. The net emissions of the project after accounting for any mitigation measures that will be monitored and enforced consistent with Public Resources Code section 21183(d).

3. Within 60 days of receiving the documentation (in Step 2 of the process above), the CARB will determine whether the condition specified in Public Resources section 21183(c) has been met or, if more time is needed, notify the applicant of the expected completion date.

4. The CARB will determine and report to the Governor in writing that a project does not result in any net additional emissions of greenhouse gases if the project demonstrates through a combination of project design features, compliance with (or exceeding minimum requirements of) existing regulations, and mitigation that it would result in zero additional greenhouse gas emissions.

b. Global Climate Change and GHG Emissions

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in average temperature of the Earth's surface and atmosphere. One identified cause of global warming is an increase of GHGs in the atmosphere. GHGs are those compounds in the Earth's atmosphere that play a critical role in determining the Earth's surface temperature.

By definition, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).[1] Carbon dioxide is the most abundant GHG. Other GHGs are less abundant, but have higher global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. A general description of the GHGs discussed is provided in Table 1 on page 4.

Global Warming Potentials (GWPs) are one type of simplified index based upon radiative properties that can be used to estimate the potential future impacts of emissions of different gases upon the climate system in a relative sense. GWP is based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. A summary of the atmospheric lifetime and GWP of selected gases is presented in Table 2 on page 5. As indicated below, GWP range from 1 to 22,800.

c. Project Description

CRE-HAR Crossroads SPV, LLC, the Project Applicant, proposes to construct a mixed-use development across four City blocks in the Hollywood Community of the City of Los Angeles (the Project Site). The 8.0-acre (348,419-square-foot) Project Site is generally bounded by Selma Avenue to the north; the Blessed Sacrament Catholic Church and School to the east; Sunset Boulevard to the south; and Highland Avenue to the west. The Project Site includes the Crossroads of the World complex (Crossroads of the World), which is a designated City Cultural-Historic Monument (Monument #134) and also appears on the National Register of Historic Places and the California Register of Historical Resources. The Project would retain and rehabilitate Crossroads of the World and remove all other existing uses on the Project Site, including surface parking lots and approximately 172,573 square feet of existing floor area consisting of 84 residential units (including 80 multi-family dwelling units and two duplexes) and commercial/retail and office uses. The Project would integrate Crossroads of the World into a new, mixed-use development that would include eight new mixed-use buildings with residential, hotel, commercial/retail, office, entertainment, and restaurant uses and one additional commercial/retail building. Upon buildout, the Project (including existing uses to be retained within the Crossroads of the World complex) would include approximately 1,432,000 square feet of floor area

[1] *As defined by California AB32 and SB104.*

Table 1
Description of Identified Greenhouse Gases[a]

Greenhouse Gas	General Description
Carbon Dioxide (CO_2)	An odorless, colorless GHG, which has both natural and anthropocentric sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of carbon dioxide are burning coal, oil, natural gas, and wood.
Methane (CH_4)	A flammable gas and is the main component of natural gas. When one molecule of methane is burned in the presence of oxygen, one molecule of carbon dioxide and two molecules of water are released. A natural source of methane is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
Nitrous Oxide (N_2O)	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, race cars, and as an aerosol spray propellant.
Hydrofluorocarbons (HFCs)	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987. HFCs are synthetic man-made chemicals that are used as a substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone, but to a much lesser extent than CFCs.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above the earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
Sulfur Hexafluoride (SF_6)	An inorganic, odorless, colorless, non-toxic, and nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
Nitrogen Trifluoride (NF_3)	An inorganic, non-toxic, odorless, non-flammable gas. NF_3 is used in the manufacture of semi-conductors, as an oxidizer of high energy fuels, for the preparation of tetrofluorohydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.

[a] *Greenhouse gases identified in this table are ones identified in the Kyoto protocol and other synthetic gases recently added to the IPCC's Fifth Assessment Report.*

Source: Association of Environmental Professionals, Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, Final, June 29, 2007; Environmental Protection Agency, Acute Exposure Guideline Levels (AEGLs) for Nitrogen Trifluoride, January 2009.

Table 2
Atmospheric Lifetimes and Global Warming Potentials

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide	50–200	1
Methane	12 (+/-3)	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC-14: Tetrafluoromethane (CF_4)	50,000	6,500
PFC-116: Hexafluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900
Nitrogen Trifluoride (NF_3)	740	17,200

Source: IPCC, 2007, www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html, accessed August 10, 2016.

consisting of 950 residential units, 308 hotel rooms, approximately 95,000 square feet of office uses, and approximately 185,000 square feet of commercial/retail uses.

(1) Project Location and Surrounding Uses

The Project Site is located in the Hollywood Community of the City of Los Angeles, approximately 7 miles northwest of downtown Los Angeles and approximately 12 miles east of the Pacific Ocean. A regional map of the Project area is provided in Figure 1 on page 6. The Project Site is irregularly-shaped and consists of 29 individual parcels across four City blocks, as well as Las Palmas Avenue – between Selma Avenue and Sunset Boulevard – that would be re-aligned. As shown in the aerial map in Figure 2 on page 7, the individual parcels are grouped into four Project areas referred to as Development Parcels A, B, C, and D. Generally, the Project Site is bounded by Selma Avenue to the north; the Blessed Sacrament Church and School and associated surface parking to the east; Sunset Boulevard to the south; and Highland Avenue to the west. Development Parcels A, B, and C are located south of Selma Avenue. Development Parcel D is located on the northeastern corner of Selma Avenue and Las Palmas Avenue.

(2) Existing Project Site Conditions

As detailed below, the Project Site is currently developed with various uses, including low-density commercial and office uses in the historic Crossroads of the World

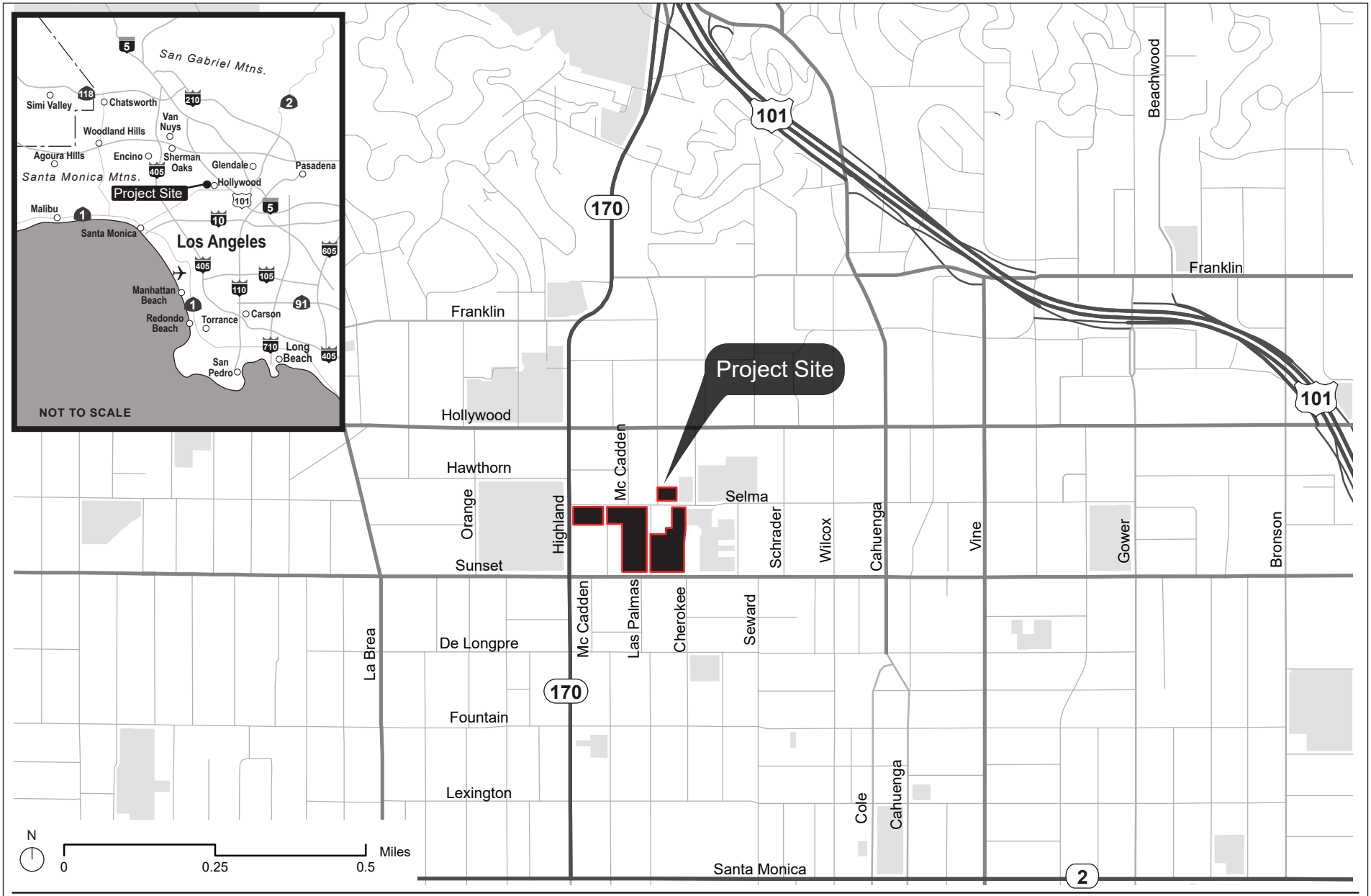

Figure 1
Project Location Map

Source: LA County GIS; Eyestone Environmental, 2015.

Figure 2
Aerial Photograph of the Project Vicinity

Source: Google Earth, 2015; Skidmore Owings & Merril LLP and Rios Clementi Hale Studios, 2015.

property; two residential duplexes; three two-story, multi-family apartment buildings housing a total of 84 dwelling units; one- and two-story structures used for commercial office and retail uses; and surface parking lots. Existing on-site uses include a total of approximately 154,947 square feet of floor area. Intermittent landscaping is dispersed throughout the Project Site and generally consists of ornamental trees and shrubs. The existing site plan is provided in Figure 3 on page 9.

Development Parcel A of the Project Site includes one- and two-story commercial/retail uses, including a small acting school and music rehearsal store and surface parking areas. Development Parcel B includes a single-story commercial use fronting McCadden Place, two residential duplexes on the south side of Selma Avenue, three two-story multi-family residential buildings along Selma Avenue and Las Palmas Avenue, a small single-story chiropractic office along Las Palmas Avenue, a one- to two-story building consisting of community-serving small retail shops along Sunset Boulevard, and a one- to three-story office building also along Sunset Boulevard.

Existing development on Development Parcel C of the Project Site includes the Crossroads of the World, which is a designated City Cultural-Historic Monument (Monument #134) and also listed on the National Register of Historic Places and the California Register of Historic Resources. The approximate 50,000-square-foot Crossroads of the World complex consists of one- and two-story office, retail and restaurant shops in a variety of architectural styles such as Streamline Moderne, and French-,English-, Moorish- and Spanish-influenced styles. The shops are connected by a series of landscaped walkways with pedestrian entrances on Sunset Boulevard and Las Palmas Avenue; pedestrian access from Selma Avenue has been removed and currently blocked off with a locked wrought iron gate. The complex was designed in 1936 to create an “Old World” Atmosphere and was the City’s first outdoor pedestrian village that included a mix of shopping, dining, and entertainment uses.

Development Parcel C of the Project Site includes a two-story office/retail building west of Crossroads of the World and along Sunset Boulevard, one- and two-story office buildings along Las Palmas Avenue, and a surface parking lot. Existing development on Development Parcel D of the Project Site includes a two-story commercial/retail building and a surface parking lot.

Consistent with Section 15125(a) of the 2016 California Environmental Quality Act (CEQA) Statute and Guidelines, CEQA establishes existing conditions or baseline conditions as the physical environmental conditions at time the Notice of Preparation (NOP) is published. As the Notice of Preparation of an Environmental Impact Report for Crossroads Hollywood was filed on October 22, 2015, the existing conditions or baseline year is considered 2015.

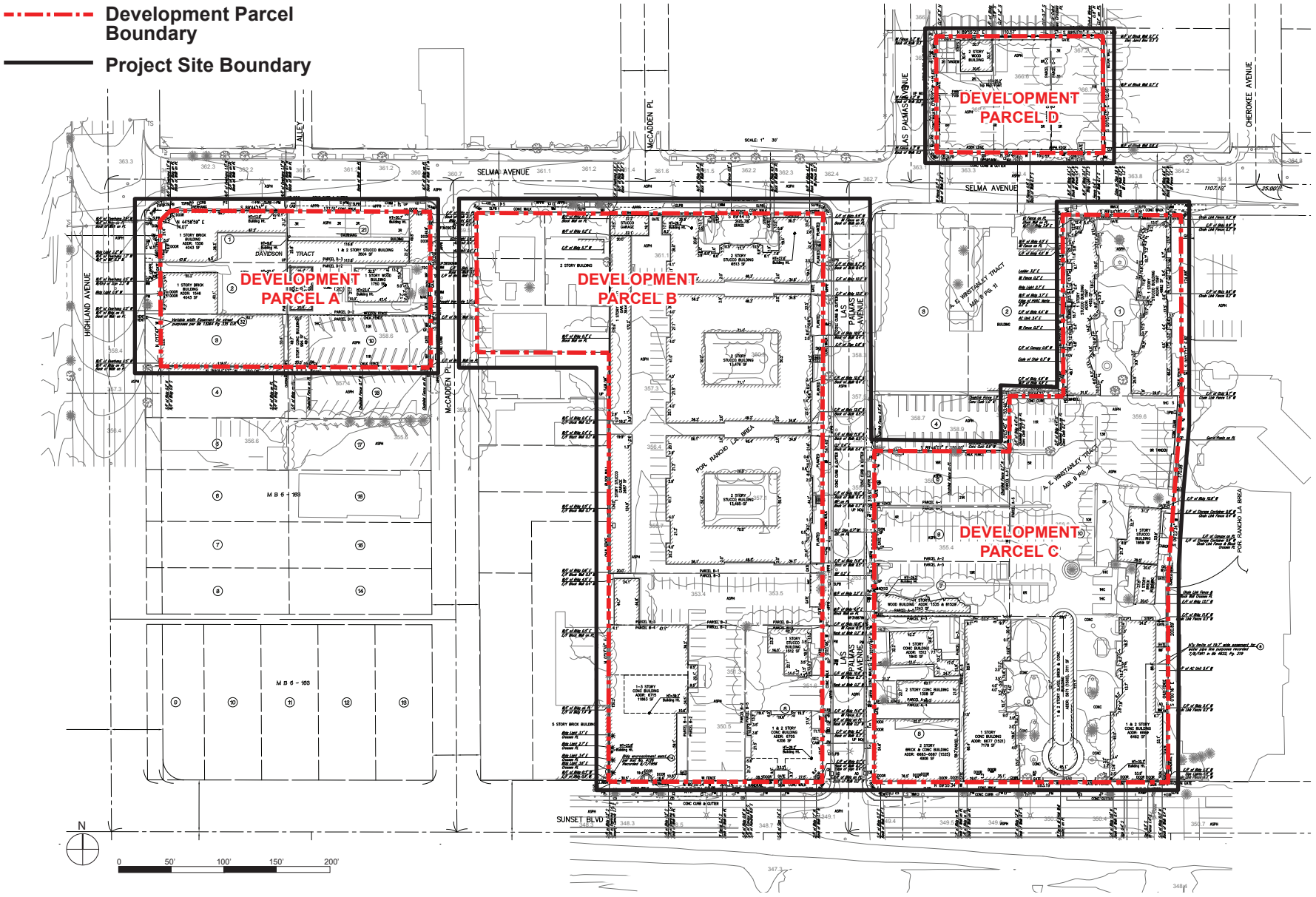

Figure 3
Existing Site Plan

Source: Skidmore Owings & Merril LLP and Rios Clementi Hale Studios, 2015.

(3) Project Characteristics

The Project proposes to redevelop the Project Site with a cohesive, mixed-use development that blends the character of Crossroads of the World with a collection of new buildings of modern design and creates an open-air pedestrian district with a mix of shopping, dining, and entertainment uses. Crossroads of the World, which is a designated City Cultural-Historic Monument (Monument #134) and is also listed on the National Register of Historic Places and the California Register of Historical Resources, would be retained, preserved, and rehabilitated as part of the Project. Eighty-four existing residential units (including 80 multi-family dwelling units and two duplexes) and low-density commercial/retail and office uses, as well as surface parking lots, would be demolished and replaced with eight new mixed-use buildings that would include residential, hotel, commercial/retail, office, entertainment, and restaurant uses and one additional small commercial/retail building.

Upon build-out, the Project would include approximately 950 residential units, 308 hotel rooms, approximately 95,000 square feet of office uses, and approximately 185,000 square feet of commercial/retail uses, totaling approximately 1,432,000 square feet of floor area (including existing uses to be retained within the Crossroads of the World complex). The Project would demolish a total of approximately 131,656 square feet of existing development. In total, the Project would result in an increase of approximately 1,259,927 square feet of net new floor area on the Project Site.

The Project Site includes four areas referred to as Development Parcels A, B, C, and D. The Development Parcels include 10 sub-areas: Parcel A includes Building A1; Parcel B includes Buildings B1, B2, B3, and B4; Parcel C includes Buildings C1, C2, and C3 and Crossroads of the World; and Parcel D includes Building D1. These sub-areas are discussed in further detail below. Table 3 on page 11 provides a summary of the types and sizes of land uses included in the Project. The proposed conceptual site plan is included in Figure 4 on page 12. A conceptual rendering of the Project from Sunset Boulevard is illustrated in Figure 5 on page 13.

(a) Development Parcel A—Hotel Area (Building A1)

The Project would remove all existing land uses on Development Parcel A and construct Building A1, which would be located on the south side of Selma Avenue between Highland Avenue and McCadden Place. Building A1 would consist of an approximately 377,000-square-foot high-rise structure with a 308-room hotel, ancillary meeting rooms, a lobby lounge and bar, a rooftop bar and lounge, and ground floor restaurant and retail uses. Building A1 would be approximately 26 stories tall and would reach a maximum height of approximately 365 feet.

Table 3
Summary of the Proposed Development Areas

Development Area	Land Use	Proposed Development[a]
Development Parcel A	Hotel	348,500 sf[b] (308 rm)
	Commercial/Retail	28,500 sf
Development Parcel B	Residential	743,500 sf (190 du condominiums) (682 du rental units)
	Commercial/Retail	58,500 sf
Development Parcel C	Commercial/Retail	93,500 sf
	Office	95,000 sf
Development Parcel D	Residential (Rental)	60,500 sf (78 du rental units)
	Commercial/Retail	4,500 sf
Total Residential (Condominiums + Rental)		**804,000 sf 950 du (190 du condominiums) (760 du rental units)**
Total Retail		**185,000 sf**[d]
Total Office		**95,000 sf**
Total Hotel		**348,500 sf (308 rm)**
Total Proposed Floor Area[c]		**1,432,500 sf**[e]
Total Subterranean Parking Area		**1,223,700 sf (2,494 parking spaces)**

sf = square feet

du = dwelling unit

rm = hotel rooms

[a] *Square footages are rounded up to the nearest 500 square feet.*

[b] *Hotel square footage includes approximately 39,000 square feet of hotel amenities.*

[c] *Except where otherwise noted, square footage is calculated pursuant to the LAMC definition of floor area for the purpose of calculating FAR. In accordance with LAMC Section 12.03, floor area is defined as: "[t]he area in square feet confined within the exterior walls of a building, but not including the area of the following: exterior walls, stairways, shafts, rooms housing building-operating equipment or machinery, parking areas with associated driveways and ramps, space for the landing and storage of helicopters, and basement storage areas."*

[d] *Approximately 83,200 square feet and 40,000 square feet of the proposed retail area would consist of restaurant uses (with a maximum total of 3,376 seats) and a supermarket, respectively.*

[e] *Includes the existing Crossroads of the World complex, which would be retained.*

Source: Skidmore Ownings & Merrill, LLP/Rios Clementi Hale Studios, 2016.

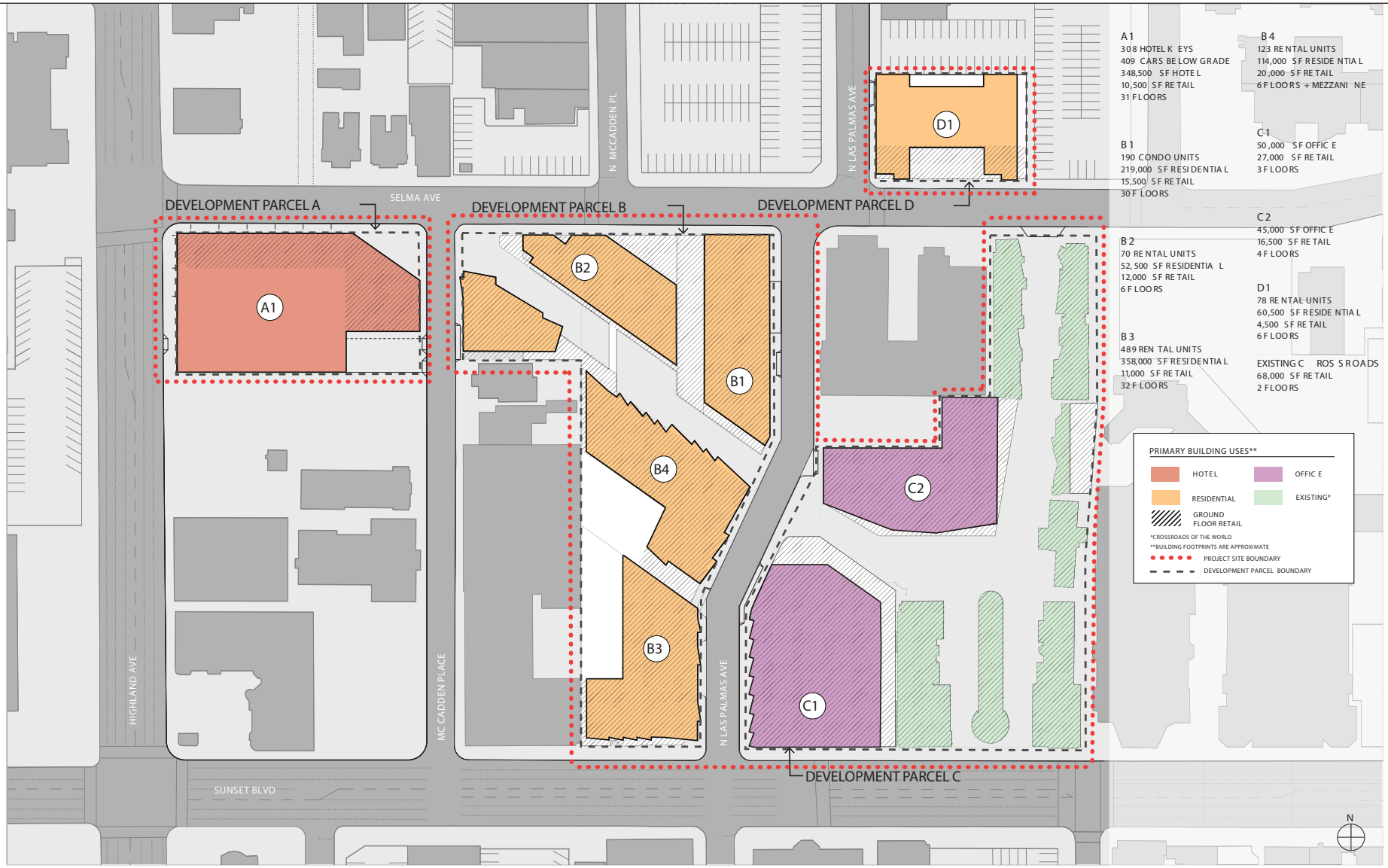

Figure 4
Conceptual Site Plan

Source: Skidmore Owings & Merril LLP and Rios Clementi Hale Studios, 2015.

Figure 5
Conceptual Rendering of the Project from Sunset Boulevard

Source: Skidmore Owings & Merril LLP and Rios Clementi Hale Studios, 2015.

(b) Development Parcels B and D—Mixed-Use Residential and Retail Area (Buildings B1, B2, B3, B4, and D1)

The Project would remove all existing land uses on Development Parcels B and D and construct a total of five mixed-use residential buildings with ground-floor commercial/ retail uses: Buildings B1, B2, B3, B4, and D1. Development Parcel B, consisting of Buildings B1, B2, B3, and B4, would include a total of approximately 872 residential units (190 condominium units and 682 rental units) and approximately 58,500 square feet of commercial/retail uses. Building B1 would consist of 30 floors and would reach a maximum height of approximately 402 feet above grade. Building B2 would consist of 6 floors and would reach a maximum height of approximately 87 feet above grade. Building B3 would consist of 32 floors and would reach a maximum height of approximately 386 feet above grade. Building B4 would consist of six floors in addition to a mezzanine floor and would reach a maximum height of approximately 95 feet above grade. All buildings in Development Parcel B would include ground floor commercial/retail uses with residential units above.

Development Parcel D consists of Building D1, which would include approximately 78 residential units and approximately 4,500 square feet of ground-floor commercial/retail uses. Building D1 would consist of 6 floors and would reach a maximum height of approximately 85 feet above grade.

In total, Development Parcels B and D would have 950 residential units (including 190 condominiums and 760 apartments) and approximately 63,000 square feet of ground-floor commercial/retail uses. Of the 760 apartment units proposed, 84 units would be affordable housing rental units. These affordable housing rental units would replace the existing 84 rent-stabilized units located in Development Parcel B that would be removed.

(c) Development Parcel C—Commercial Area (Buildings C1 & C2, and C3, and Crossroads of the World)

The commercial portion of the Project, consisting of creative office and retail/ restaurant uses, would be located in Development Parcel C located east of Las Palmas Avenue and directly adjacent to the historic Crossroads of the World complex. As previously discussed, Crossroads of the World, would be retained and rehabilitated as part of the Project. New development on Development Parcel C would include Buildings C1, C2, and C3, together adding up to approximately 95,000 square feet of office uses and approximately 43,500 square feet of ground-floor retail uses. Building C1 would be three stories tall and would reach a maximum height of approximately 65 feet above grade. Building C2 would consist of two floors and would reach a maximum height of approximately 81 feet above grade. Building C3 would consist of one floor with a maximum height of 19 feet. In total, Development Parcel C would consist of approximately

95,000 square feet of office uses and approximately 93,500 square feet of retail and other commercial uses (including existing uses to be retained within the Crossroads of the World complex).

(d) Parking

All proposed parking for the Project would consist of new subterranean parking garages. Development Parcels A would have six levels of subterranean parking with 307 parking spaces to serve the hotel building on this development parcel. Development Parcels B and C would have five connected/shared levels of subterranean parking with 2,083 parking spaces to accommodate all the uses in Buildings B1, B2, B3, B4, C1, C2, C3, and the Crossroads of the World complex. Development Parcel D would have three levels of subterranean parking with 104 parking spaces to serve the primarily residential building on this development parcel. Vehicle and bicycle parking would be provided in accordance with applicable LAMC requirements. A total of 2,494 vehicle parking spaces would be provided in the three subterranean parking garages, and a total of 1,307 bicycle parking spaces would also be provided.

The Project also proposes to establish a new pedestrian passageway/paseo that would extend diagonally from Sunset Boulevard/Crossroads of the World to the corner of Selma Avenue and Highland Avenue. Additional landscaped public walkways would connect the entire Project Site, while promoting access from Sunset Boulevard, Las Palmas Avenue, Selma Avenue, and McCadden Place.

(e) Landscaping and Open Space

The Project would provide a variety of open space and recreational amenities. The Project would include open space and green space, consisting of a series of integrated walkways that connect the dynamic mixed-use district created by the Project with the Hollywood neighborhood. Proposed additional landscaped public walkways, including 34,786 square feet of the pedestrian paseo, would also promote access and connectivity to and through the Project Site from Sunset Boulevard, Las Palmas Avenue, Selma Avenue, and McCadden Place.

In addition, the Project would also include active and passive recreational spaces, including roof decks and pools, community rooms and recreational facilities, courtyards, landscaped gardens, terraces, and common open space with gathering and seating areas. In total, approximately 108,611 square feet of open space, consisting of approximately 73,411 square feet of common open space and approximately 35,200 square feet of private open space (i.e., balconies), would be provided in accordance with the open space provisions for new residential projects set forth in LAMC Section 12.21.G. Furthermore, the

existing Crossroads of the World courtyards would provide an additional 44,177 square feet of open space.

(f) Project Construction and Scheduling

Project construction would commence with demolition of the existing buildings (excluding Crossroads of the World) and surface parking lots, followed by grading and excavation for the subterranean parking garages. Building foundations would then be placed, followed by building construction, paving/concrete installation, and landscape installation. Project construction is anticipated to occur over approximately 48 months and be completed before 2022. It is estimated that approximately 643,753 cubic yards (cy) of soil would be hauled from the Project Site during the grading and excavation phase, as well as an additional 1,490 cy during off-site improvements to the existing sanitary sewer system related to the re-alignment of Las Palmas Avenue. Haul trucks arriving and leaving the Project Site would travel via one of the following routes: Sunset Boulevard to the Hollywood Freeway; Sunset Boulevard and Highland Avenue to the Hollywood Freeway; or Sunset Boulevard, Highland Avenue, and Santa Monica Boulevard to the Hollywood Freeway.

A Construction Traffic Management Plan and Truck Haul Route Program would be implemented during construction to minimize potential conflicts between construction activity and through traffic. The Construction Traffic Management Plan and Truck Haul Route Program would be subject to LADOT review and approval.

(g) Sustainability Design

The Project would incorporate features to support and promote environmental sustainability. "Green" principles are incorporated throughout the Project to comply with the City of Los Angeles Green Building Code (as amended pursuant to Ordinance No. 181,480 and Ordinance No. 182,849). These include, but are not limited to, energy-efficient buildings, a pedestrian- and bicycle-friendly site design, and water conservation and waste reduction features that would assist the Project to achieve, at a minimum, Silver certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED)-CS® or LEED-NC® Rating System. The Project would also utilize sustainable planning and building strategies and incorporate the use of environmentally-friendly materials, such as non-toxic paints and recycled finish materials, whenever feasible. Specific sustainability features that are integrated into the Project design to enable the Project to achieve LEED® Silver certification are included in Appendix A.

2. Greenhouse Gas Emissions Methodology

The California Climate Action Registry (Climate Registry) General Reporting Protocol provides basic procedures and guidelines for calculating and reporting GHG emissions from a number of general and industry-specific activities.[2] The General Reporting Protocol is based on the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" developed by the World Business Council for Sustainable Development and the World Resources Institute through "a multi-stakeholder effort to develop a standardized approach to the voluntary reporting of GHG emissions."[3] Although no numerical thresholds of significance have been developed, and no specific protocols are available for land use projects, the General Reporting Protocol provides a basic framework for calculating and reporting GHG emissions from the project. The information provided in this section is consistent with the General Reporting Protocol's reporting requirements.

The General Reporting Protocol recommends the separation of GHG emissions into three categories that reflect different aspects of ownership or control over emissions. They include the following:

- Scope 1: Direct GHG emissions from human activity (e.g., stationary combustion of fuels, mobile combustion of fuels in transportation).
- Scope 2: Indirect GHG emissions associated with activities of the reporting entity but occur at sources controlled by another entity (e.g., purchased electricity or purchased steam).
- Scope 3: Indirect emissions associated with other emissions sources, such as third-party vehicles and embodied energy (e.g., energy used to convey, treat, and distribute water and wastewater).[4]

According to the California Air Resources Board (CARB), the consideration of so-called indirect emissions provides a more complete picture of the GHG footprint of a facility: "As facilities consider changes that would affect their emissions—addition of a cogeneration unit to boost overall efficiency even as it increases direct emissions, for example—the relative impact on total (direct plus indirect) emissions by the facility should be monitored. Annually reported indirect energy usage also aids the conservation awareness of the facility and provides information" to CARB to be considered for future

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[2] *California Climate Action Registry, General Reporting Protocol Version 3.1, January 2009.*

[3] *Ibid.*

[4] *Embodied energy is a scientific term that refers to the quantity of energy required to manufacture and supply to the point of use a product, material, or service.*

strategies by the industrial sector.[5] Additionally, the Office of Planning and Research directs lead agencies to "make a good-faith effort, based on available information, to calculate, model, or estimate… GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."[6] Therefore, direct and indirect emissions are considered in this assessment.

The California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered by the SCAQMD to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.[7]

As discussed above, sustainability features that are integrated into the Project design to enable the Project to achieve LEED® Silver certification are included in Appendix A. Although many of the sustainability features provided in Appendix A would serve to reduce GHG emissions, this analysis conservatively only includes measures that are quantifiable.

a. Construction

The Project's construction emissions were calculated using CalEEMod Version 2013.2.2. CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. Please refer to Appendix B for detailed construction information (i.e., Construction Equipment and Haul Plan). GHG emissions during construction were forecasted by assuming a conservative start date (i.e., assuming all construction would occur at the earliest feasible date) and applying the mobile-source emissions factors derived from the SCAQMD recommended CalEEMod. The emissions were estimated using the CalEEMod tool, which incorporates the CARB OFFROAD2011 and EMFAC2011 models. These values were applied to the

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[5] *California Air Resources Board, Initial Statement of Reasons for Rulemaking, Proposed Regulation for Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (AB 32), (2007).*

[6] *Office of Planning and Research, Technical Advisory, p. 5.*

[7] *See www.caleemod.com.*

construction phasing assumptions to generate GHG emissions values for each year of construction activity. The calculations of the emissions generated during Project construction activities reflect the types and quantities of construction equipment that would be used to remove existing uses; grade and excavate the Project Site; construct the proposed building and related improvements; and plant new landscaping within the Project Site.

b. Operation

Similar to construction, the SCAQMD-recommended CalEEMod was used to calculate potential GHG emissions generated by new land uses on the Project Site, including area source, energy sources (electricity and natural gas), mobile source, solid waste generation and disposal, and water usage/wastewater generation.

(1) Area Source Emissions

Area source emissions were calculated using the CalEEMod emissions inventory model, which includes fireplaces and landscape maintenance equipment

CalEEMod calculates GHG emissions associated with natural gas fired fireplaces based on emission factors from the California Climate Action Registry (CCAR) assuming an average heating rate in British Thermal Units (BTU) per hour for fireplaces in homes is 60,000 BTU/hr.[8] Default values for annual fireplace usage were selected for Los Angeles County.

The combustion of fossil fuels to operate landscape equipment such as lawnmowers and trimmers, results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. The emissions occur on-site and are a direct result of activity from the existing land uses; therefore, the GHG emissions are considered to be direct. The emissions for landscaping equipment are based on the size of the land uses, the GHG emission factors for fuel combustion, and the GWP values for the GHGs emitted. Annual GHG emissions from landscaping equipment in units of $MTCO_2e$ are generally calculated in CalEEMod as follows:

[8] *SCAQMD Rule 445 Staff Report, www.aqmd.gov/hb/2008/March/080337a.html, and SCAQMD Final EA, www.aqmd.gov/ceqa/documents/2008/aqmd/finalEA/FEA445.pdf.*

Landscaping Equipment:

Annual Emissions [$MTCO_2e$] = (Σ_i (Units × EF_{LE} × A_{LE} × GWP)$_i$) ÷ 10^6

Where: Units = Number of land use units (same land use type) [1,000 sf]

EF_{LE} = GHG emission factor [grams (g)/1,000 sf/day]

A_{LE} = Landscaping equipment operating days per year [day/yr]

GWP = Global warming potential [CO_2 = 1, CH_4 = 21, N_2O = 310]

10^6 = Conversion factor [g/MT]

i = Summation index

Note: For residential land uses, emission factors are specified in units of dwelling units (DU) instead of 1,000 sf.

CalEEMod uses landscaping equipment GHG emission factors from the CARB OFFROAD2011 model and the CARB *Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment (6/13/2003)*.[9] CalEEMod estimates that landscaping equipment operate for 250 days per year in the South Coast Air Basin.

(2) Energy Emissions (Electricity and Natural Gas)

GHGs are emitted as a result of activities in buildings when electricity and natural gas are used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; when this occurs in a building, it is a direct emission source associated with that building. GHGs are also emitted during the generation of electricity from fossil fuels. When electricity is used in a building, the electricity generation typically takes place off-site at the power plant; electricity use in a building generally causes emissions in an indirect manner.

Energy demand emissions were calculated using the CalEEMod emissions inventory model. Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. CalEEMod calculates energy use from systems covered by Title 24 Building Energy Efficiency Standards (e.g., heating, ventilation, and air

[9] *California Air Resources Board, OFFROAD Modeling Change Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment, (6/13/2003), www.arb.ca.gov/msei/2001_residential_lawn_and_garden_changes_in_eqpt_pop_and_act.pdf, accessed March 2, 2016.*

conditioning [HVAC] system, water heating system, and lighting system); energy use from lighting; and energy use from office equipment, appliances, plug-ins, and other sources not covered by Title 24 or lighting.

CalEEMod energy demand is based on the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies.[10] The data is specific for climate zones and, therefore, Zone 11 was selected for the Project Site based on the zip code tool. Since the data from the CEUS is from 2002, CalEEMod incorporates correction factors to account for compliance with the 2008/2010 Title 24 Building Standards Code. However, the model dose not account for the 2013 Title 24 Building Standards Code (2013 CalGreen). Thus, an adjustment was made for the Project scenario to account for compliance with 2013 CalGreen. The 2013 CalGreen is anticipated to be 25 percent more efficient than the 2008 Title 24 for residential construction and 30 percent more efficient for nonresidential construction.[11] Furthermore, an adjustment was made to account for the 2016 Title 24 standards. The 2016 Title 24 standards would be applicable to the Project as the Project would be built after January 1, 2017, when the 2016 Title 24 standards come into effect. The 2016 Title 24 standards are anticipated to be 28 percent more efficient than the 2013 Title 24 standards for residential construction and five percent more efficient for nonresidential construction.[12] CalEEMod also provides the ability to select electricity and natural gas usage rates that would reflect previous versions of Title 24 Building Standards Code. This assessment conservatively assumes that energy demand for the older buildings on the Project site, most of which were constructed in the early 20th Century, under the Baseline scenario would be consistent with 2005 Title 24 Building Standards Code.

(a) Electricity

Emissions of GHGs associated with electricity demand are based on the size of the residential, commercial and retail land uses, the electrical demand factors for the land uses, the GHG emission factors for the electricity utility provider, and the GWP values for the GHGs emitted. Annual electricity GHG emissions in units of $MTCO_2e$ are calculated as follows:

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[10] *CEC, October 2010, Commercial End-Use Survey, www.energy.ca.gov/ceus/.*

[11] *Website www.energy.ca.gov/releases/2012_releases/2012-05-31_energy_commission_approves_more_efficient_buildings_nr.html.*

[12] *State of California Energy Commission, Adoption Hearing, 2016 Building Energy Efficiency Standards, www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf, accessed April 7, 2016.*

Electricity:

Annual Emissions [$MTCO_2e$] = (Σ_i (Units × D_E × EF_E × GWP)$_i$) ÷ 2,204.62

Where: Units = Number of land use units (same land use type) [1,000 sf]

D_E = Electrical demand factor [megawatt-hour (MWh)/1,000 sf/yr]

EF_E = GHG emission factor [pounds per megawatt-hour (MWh)]

GWP = Global warming potential [CO_2 = 1, CH_4 = 21, N_2O = 310]

2,204.62 = Conversion factor [pounds/MT]

i = Summation index

Note: For residential land uses, emission factors are specified in units of dwelling units (DU) instead of 1,000 sf.

GHG emissions from electricity use are directly dependent on the electricity utility provider. The Los Angeles Department of Water and Power (LADWP) provides electric service to the Project Site. Thus, GHG intensity factors for LADWP were selected in CalEEMod. Intensity factors for GHGs due to electrical generation to serve the electrical demands of the Baseline Condition were obtained from the LAWDP 2013 Power Integrated Resource Plan, which provides a CO_2 intensity of 1,094 pounds of CO_2 per MWh.[13] Currently, LADWP provides 20 percent of electricity via renewable sources.[14] By 2020, LADWP is expecting to meet the State's Renewables Portfolio Standard of at least 33 percent of electricity via renewable sources. Based on data obtained from CARB staff, "[i]f an applicant would like to use an EF [emission factor] that represents the state's Renewable Portfolio Standard (RPS) law and growth in electricity demand, the EF of 595 lbs CO_2/MWh may be used."[15] According to CARB staff, the "EF represents a 'marginal' supply profile for new generation that will be added to the grid in the years 2020 and beyond, and is consistent with the methodology used in state emission rule impact assessments."[16] Therefore, consistent with the CARB staff recommendation, a CO_2

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[13] *Los Angeles Department of Water and Power, 2012 Power Integrated Resource Plan, (2012) C-11.*

[14] *Los Angeles Department of Water and Power, 2013 Power Integrated Resource Plan, (2013) ES-31.*

[15] *California Air Resources Board, Statewide Emission Factors (EF) For Use With AB 900 Projects, March 2014. The emission factor of 595 lbs CO_2/MWh is from the California LEV III Initial Statement of Reasons (ISOR, Dec. 7, 2011), www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm, based on analysis with CA-GREET model. This document is provided in Appendix A.*

[16] *California Air Resources Board, Statewide Emission Factors (EF) for Use with AB 900 Projects, March 2, 2016.*

intensity factor of 595 pounds of CO_2 per MWh was used for electricity emissions for years 2020 through 2029. Senate Bill 350 requires electricity from renewables to increase from 33 percent to 50 percent by 2030. The increase in renewables would reduce the emission factor from 595 lbs CO_2/MWh to 393 lbs CO_2/MWh for 2030 and beyond. Emission factors for CH_4 and N_2O were obtained from the California Emissions Estimator Model (CalEEMod).[17]

(b) Natural Gas

As with electricity, the emissions of GHGs associated with natural gas combustion are based on the size of the land uses, the natural gas combustion factors for the land uses in units of million British thermal units (MMBtu), the GHG emission factors for natural gas combustion, and the GWP values for the GHGs emitted. Annual natural gas GHG emissions in units of $MTCO_2e$ were calculated as follows:

Natural Gas:

$$\text{Annual Emissions } [MTCO_2e] = \left(\Sigma_i \left(\text{Units} \times D_{NG} \times EF_{NG} \times GWP \right)_i \right) \div 2{,}204.62$$

Where:
- Units = Number of land use units (same land use type) [1,000 sf]
- D_{NG} = Natural Gas combustion factor [MMBtu/1,000 sf/yr]
- EF_{NG} = Natural Gas combustion factor [pounds/MMBtu]
- GWP = Global warming potential [CO_2 = 1, CH_4 = 21, N_2O = 310]
- 2,204.62 = Conversion factor [pounds/MT]
- i = Summation index

Note: For residential land uses, emission factors are specified in units of dwelling units (DU) instead of 1,000 sf.

The combustion of natural gas results in relatively equal amounts of GHG emissions per unit of gas combusted in the state. Emission factors for GHGs due to natural gas combustion to serve the heating and cooking demands were obtained from the CalEEMod tool, which provides statewide emission factors.[18]

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[17] *California Air Pollution Control Officers Association, California Emissions Estimator Model, www.caleemod.com/, accessed March 2, 2016.*

[18] *California Air Pollution Control Officers Association, California Emissions Estimator Model, www.caleemod.com/, accessed March 2014.*

(3) Mobile Source Emissions

Mobile-source emissions were calculated using the CalEEMod emissions inventory model. CalEEMod calculates the emissions associated with on-road mobile sources associated with residents, employees, visitors, and delivery vehicles visiting the Project Site based on the number of daily trips generated and vehicle miles traveled (VMT). CalEEMod calculates VMT based on the type of land use, trip purpose, trip type percentages for each land use subtype in the project (primary, diverted, and pass-by). The model assumes that diverted trips are assumed to be 25 percent of the primary trip lengths and pass-by trips are assumed to be 0.1 mile in length and are a result of no diversion from the primary route. The Los Angeles County urban primary trip distance was selected for this analysis. Modeling was also conducted using the Los Angeles County vehicle fleet mix for all vehicle types as provided in EMFAC2011.

Annual mobile source GHG emissions in units of $MTCO_2e$ were generally calculated in CalEEMod as follows:

Mobile:

Annual Emissions [$MTCO_2e$] = (Σ_i (Units × ADT x D_{TRIP} × EF × GWP)$_i$) ÷ 2,204.62

Where:
- Units = Number of vehicles (same vehicle model year and class)
- ADT = Average daily trip rate [trips/day]
- D_{TRIP} = Trip distance [miles/trip]
- Days = Number of days per year [days/yr]
- EF = GHG emission factor [pounds per mile]
- GWP = Global warming potential [CO_2 = 1, CH_4 = 21, N_2O = 310]
- 2,204.62 = Conversion factor [pounds/MT]
- *i* = Summation index

Note: For residential land uses, emission factors are specified in units of dwelling units (DU) instead of 1,000 sf.

Mobile source operational emissions were calculated based on the project trip-generation estimates provided for the Project by Gibson Transportation Consulting, Inc. (Included as Appendix C) and were based on the Institute of Transportation Engineers (ITE)'s *Trip Generation, 9th Edition*. Trip length values were based on the residential and commercial trip distances provided in CalEEMod. The trip distances were applied to the

maximum daily trip estimates for each land use to estimate the total vehicle miles traveled (VMT). The trips take into account VMT reductions from characteristics including the site's proximity to existing public transit and its urban infill location. The estimated VMT reductions were calculated using the equations and methodologies prescribed in the California Air Pollution Control Officer's Association (CAPCOA) guidance document, *Quantifying Greenhouse Gas Mitigation Measures*, which provides VMT reduction values for transportation characteristics and measures.[19] Specific VMT reduction measures for both the Baseline and Project scenarios are discussed in detail in Section 3.b.3, below.

CalEEMod may not adequately reflect future year GHG emissions because it does not incorporate the emission factors for the 2017–2025 vehicle emissions standards. The national policy for fuel efficiency and emissions standards for the United States auto industry requires that new passenger cars and light-duty trucks achieve an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016 (Phase I standards), based on USEPA calculation methods. In August 2012, more stringent phased-in standards were adopted for new model year 2017 through 2025 passenger cars and light-duty trucks. By 2020, new vehicles are projected to achieve 41.7 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 213 grams of CO_2 per mile (Phase II standards). By 2023, new vehicles are projected to achieve 49.4 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 180 grams of CO_2 per mile (Phase II standards). By 2025, new vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile (Phase II standards). CARB staff has provided future year CO_2 emission factors for statewide on-road mobile sources that may be used for AB 900 projects if the project's mobile sources include "all vehicle classifications."[20] As discussed above, it was assumed that all vehicle types would visit the site. Therefore, this assessment uses the CO_2 emission factors provided by CARB staff to estimate future year GHG emissions from mobile sources.

(4) Solid Waste Emissions

The generation of municipal solid waste (MSW) from day-to-day operational activities generally consists of product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, plastic, and other items routinely disposed of in trash

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[19] *California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, (2010).*

[20] *California Air Resources Board, Statewide Emission Factors (EF) for Use with AB 900 Projects, March 2014.*

bins. A portion of the MSW is diverted to waste recycling and reclamation facilities. Waste that is not diverted is usually sent to local landfills for disposal. MSW that is disposed in landfills results in GHG emissions of CO_2 and CH_4 from the decomposition of the waste that occurs over the span of many years.

Emissions of GHGs associated with solid waste disposal were calculated using the CalEEMod emissions inventory model. The emissions are based on the size of the commercial and retail land uses, the waste disposal rate for the land uses, the waste diversion rate, the GHG emission factors for solid waste decomposition, and the GWP values for the GHGs emitted. Annual waste disposal GHG emissions in units of $MTCO_2e$ were calculated in CalEEMod as follows:

Solid Waste:

$$\text{Annual Emissions } [MTCO_2e] = \left(\Sigma_i \left(\text{Units} \times D_{MSW} \times EF_{MSW} \times GWP \right)_i \right) \div 1.1023$$

Where: Units = Number of land use units (same land use type) [1,000 sf]

D_{MSW} = Waste disposal rate [tons/1,000 sf/yr]

EF_{MSW} = GHG emission factor [tons/ton waste]

GWP = Global warming potential [CO_2 = 1, CH_4 = 21, N_2O = 310]

1.1023 = Conversion factor [tons/MT]

i = Summation index

Note: For residential land uses, emission factors are specified in units of dwelling units (DU) instead of 1,000 sf.

CalEEMod allows the input of several variables to quantify solid waste emissions. The model requires the amount of waste disposed, which is the product of the waste disposal rate times the land use units. Annual solid waste disposal rates used in CalEEMod are based on data from the California Department of Resources Recycling and Recovery (CalRecycle). The rates were based on statewide averages and the total amount of waste disposed was reduced by the diversion of 50 percent, pursuant to the City of Los Angeles Solid Waste Management Policy Plan, which was adopted by the City to comply with Assembly Bill 939. The GHG emission factors, particularly for CH_4, depend on characteristics of the landfill, such as the presence of a landfill gas capture system and subsequent flaring or energy recovery. The default values, as provided in CalEEMod, for landfill gas capture (e.g., no capture, flaring, energy recovery), which are statewide averages, were used in this assessment.

(5) Water Usage and Wastewater Generation Emissions

GHG emissions are related to the energy used to convey, treat, and distribute water and wastewater. Thus, these emissions are generally indirect emissions from the production of electricity to power these systems. Three processes are necessary to supply potable water and include: (1) supply and conveyance of the water from the source; (2) treatment of the water to potable standards; and (3) distribution of the water to individual users. After use, energy is used as the wastewater is treated and reused as reclaimed water.

Emissions related to water usage and wastewater generation were calculated using the CalEEMod emissions inventory model. The emissions are based on the size of the land uses, the water demand factors, the electrical intensity factors for water supply, treatment, and distribution and for wastewater treatment, the GHG emission factors for the electricity utility provider, and the GWP values for the GHGs emitted. Annual water demand and wastewater GHG emissions due to electricity are calculated in CalEEMod as follows for indoor and outdoor water demand:

Water Supply, Treatment, and Distribution; Wastewater Treatment (electricity):

$$\text{Annual Emissions } [MTCO_2e] = (\Sigma_i \ (\text{Units} \times D_W \times (EI_W \div 1{,}000) \times EF_W \times GWP)_i \ ) \div 2{,}204.62$$

Where:
- Units = Number of land use units (same land use type) [1,000 sf]
- D_W = Water demand factor [million gallons (Mgal)/1,000 sf/yr]
- EI_W = Electricity intensity factor [kilowatt-hours (kWh)/Mgal]
- 1,000 = Conversion factor [kWh/MWh]
- EF_W = GHG emission factor [pounds/MWh]
- GWP = Global warming potential [CO_2 = 1, CH_4 = 21, N_2O = 310]
- 2,204.62 = Conversion factor [pounds/MT]
- *i* = Summation index

Note: For residential land uses, emission factors are specified in units of dwelling units (DU) instead of 1,000 sf.

CalEEMod calculates water demand based on annual rates in the Pacific Institute Waste Not Want Not report.[21] CalEEMod provides options to account for the use of water saving features such as the use of low-flow water fixtures (e.g., low-flow faucets, low-flow toilets). The same electricity GHG emissions factors discussed above were used for water and wastewater energy usage.

The emissions of GHGs associated with wastewater treatment process emissions were also calculated using CalEEMod. The emissions were calculated using the default settings in CalEEMod for the type of wastewater treatment.

(6) Emergency Generator Emissions

Emissions of GHGs associated with use of emergency generators were calculated using Table 3.4-1 (Gaseous Emission Factors for Large Stationary Diesel Engines) from EPA's AP-42: Compilation of Air Pollutant Emission Factors. The emissions are based on the horsepower of the diesel generator and the number of hours operated per year for testing purposes. Annual emergency generator GHG emissions in units of $MTCO_2e$ were calculated as follows:

Emergency Generator:

Annual Emissions [$MTCO_2e$] = (Total HP x LF x HR × EF) ÷ 2,204.62

Where: Total HP = Total horsepower of emergency generators (Hp)
LF = Load Factor (CalEEMod default of 0.73)
HR = Hours Operated per Year
EF = AP-42 Emission Factor of 1.16 lb/hp-hr)
2,204.62 = Conversion factor [pounds/MT]

3. Greenhouse Gas Emissions Calculations

The Project would result in direct and indirect GHG emissions generated by different types of emissions sources, including:

[21] *Gleick, P.H.; Haasz, D.; Henges-Jeck, C.; Srinivasan, V.; Cushing, K.K.; Mann, A. 2003. Waste Not, Want Not: The Potential for Urban Water Conservation in California. Pacific Institute for Studies in Development, Environment, and Security. Full report www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf. Appendices www.pacinst.org/reports/urban_usage/appendices.htm.*

- Construction: emissions associated with demolition of the existing parking lot, site preparation, excavation, grading, and construction-related equipment and vehicular activity;

- Area Source: emissions associated with hearths and landscape equipment; [22]

- Building operations: emissions associated with space heating and cooling, water heating, energy consumption, and lighting;

- Solid waste: emissions associated with the decomposition of the waste which generates methane based on the total amount of degradable organic carbon; and

- Water: emissions associated with energy used to pump, convey, deliver, and treat water.

A specific discussion regarding potential GHG emissions associated with the construction and operational phases of the Baseline Condition and Project is provided below.

a. Construction

Project construction would commence with demolition of the existing buildings and surface parking lots, followed by excavation and grading for the subterranean parking garages. Building foundations would then be placed, followed by building renovations of the historic Crossroads of the World complex and building construction, paving/concrete installation, and landscape installation. Project construction is anticipated to occur over approximately 48 months and be completed before 2022. It is estimated that approximately 643,753 cubic yards (cy) of soil would be hauled from the Project Site during the excavation and grading phase, as well as an additional 1,490 cy during off-site improvements to the existing sanitary sewer system related to the re-alignment of Las Palmas Avenue. Haul trucks arriving and leaving the Project Site would travel via one of the following routes: Sunset Boulevard to the Hollywood Freeway; Sunset Boulevard and Highland Avenue to the Hollywood Freeway; or Sunset Boulevard, Highland Avenue, and Santa Monica Boulevard to the Hollywood Freeway. Export of material would require approximately 46,100 haul truck trips using 14 cubic yard trucks. It is anticipated that the export of material would be hauled to Scholl Canyon Landfill, which would require a 32-mile round trip. A summary of construction details (e.g., schedule, equipment mix, and

[22] *Area source emissions include direct sources of GHG emissions located at the project site (e.g., hearths) with the exception of building operations. For the Project, this would be limited to landscape maintenance equipment.*

vehicular trips) and CalEEMod modeling output files are provided in Appendix B of this assessment. The emissions of GHGs associated with construction of the Project were calculated for each year of construction activity. A summary of GHG emissions for each year of construction is presented in Table 4 on page 31.

b. Operation

(1) Area Source Emissions

Area source emissions were calculated for both the Baseline and Project scenarios. The Project scenario includes a reduction in GHG emissions due to a commitment to limit the use of natural gas fired fireplaces to 20 percent of the proposed residential units. The estimated annual emissions from area sources under Baseline and Project are provided in Table 5 on page 31. Detailed emissions calculations are provided in Appendix C of this assessment.

(2) Energy Emissions (Electricity and Natural Gas)

(a) Electricity

As discussed above in Section 2, Methodology, the Baseline condition assumes that the existing land uses would meet 2005 Title 24 Building Standards Code. This assumption is conservative as most of the existing structures were constructed in the early 20th Century. The estimated annual emissions from electrical demand from the Baseline Condition are provided in Table 6 on page 32. Detailed emissions calculations are provided in Appendix C.

The Project would be designed to incorporate project design features (PDFs) that would reduce its energy demand with the goal of achieving or exceeding the requirements of the State of California Green Building Standards (CALGreen) Code, the City of Los Angeles Green Building Code, and the USGBC LEED Silver rating. Thus, the Project would reduce its electricity demand as compared to the default electricity factors in CalEEMod. The PDFs were accounted for in CalEEMod by selecting the appropriate options in the “mitigation measures” section of the model. A summary of the energy-efficiency PDFs is provided below:

Green Building Measures: The Project would be designed and operated to meet or exceed the applicable requirements of the State of California Green Building Standards Code and the City of Los Angeles Green Building Code and achieve the USGBC LEED Silver Certification. The Project would incorporate measures and performance standards to support its LEED Silver Certification, which include but are not limited to the following:

Table 4
Construction-Related Emissions
(metric tons of CO_2e)

Year	Annual GHG Emissions ($MTCO_2e$/yr)
2018	3,315
2019	2,229
2020	2,180
2021	1,716

[a] *CO_2e was calculated using CalEEMod and the results are provided in Section 2.0 of the Construction CalEEMod output file within Appendix B of this assessment.*

Source: Eyestone Environmental, 2016.

Table 5
Area Source Greenhouse Gas Emissions

GHG Emissions Source	Annual GHG Emissions[a] ($MTCO_2e$/yr)
Baseline (2015)	
Fireplaces	26.8
Landscaping	1.5
Total	28.3
Project (2022)	
Fireplaces[b]	45.9
Landscaping	16.4
Total	62.3

[a] *CO_2e was calculated using CalEEMod and the results are provided in Section 2.0 of the Operation CalEEMod output file within Appendix C of this assessment.*

[b] *Project scenario reflects a reduction in GHG emissions due to a commitment to limit the use of natural gas fired fireplaces to 20 percent of the proposed residential units.*

Source: Eyestone Environmental, 2016.

Table 6
Electrical Demand Greenhouse Gas Emissions[a]

Land Use	Units (sf, rm or du)	Annual Electrical Demand Factor (MWh/ 1,000 sf/year)	Annual Electrical Demand (MWh/year)	Annual GHG Emissions[a] ($MTCO_2e/yr$)[d]
Baseline (2015)[b]				
Apartments (Low Rise)	84 du	3,612	303	151
Office	79,107 sf	15.2	1,206	600
Restaurant	475 sf	48.3	23	11
Retail	26,690 sf	16.0	426	212
Parking Lot	137,600 sf	0.9	121	60
Total Baseline (2015)			**2,079**	**1,034**
Project (2022)[c]				
Apartments High Rise	760 du	3,382.7	2,5719	697
Condominiums High Rise	190 du	4,235.2	805	218
Hotel (Rooms)	348,500 sf	7.4	2,582	700
Office	95,000 sf	12.6	1,193	323
Restaurant (High Quality)	41,600 sf	43.4	1,807	490
Restaurant (High Turnover)	41,600 sf	43.4	1,807	490
Retail	61,800 sf	13.5	832	225
Supermarket	40,000 sf	37.3	1,491	404
Parking Structure	**1,223,700 sf**	2.9	3,573	968
Total Project (2022)			16,662	4,515
Reduction Measures				
135 kW of Photovoltaic Panels[e]			(188)	(56)
15% Below Title 24 2016, Use of Energy Efficient Lighting (25%), and Energy Star–Labeled Products and Appliances			(2,343)	(635)
Total Project (2022) less Reduction Measures			**14,131**	**3,825**

du = dwelling units

sf = square feet

rm = rooms

[a] *Totals may not add up exactly due to rounding in the modeling calculations.*

[b] *The Baseline condition conservatively assumed that energy demand for the older buildings on the Project site, most of which were constructed in the early 20th Century, would meet the 2005 Title 24 Building Standards Code.*

[c] *The Project scenario assumed that energy demand would comply with the 2016 Title 24 Building Standards Code. CalEEMod default values only account for compliance with 2008 Title 24. Therefore, energy usage was reduced as follows: 2013 Standards reduce Title 24 energy requirements by 25 percent for residential and 30 percent for non-residential (www.energy.ca.gov/releases/2012_releases/2012-05-31_energy_commission_approves_more_efficient_buildings_nr.html and 2016*

Table 6 (Continued)
Electrical Demand Greenhouse Gas Emissions

Land Use	Units (sf, rm or du)	Annual Electrical Demand Factor (MWh/ 1,000 sf/year)	Annual Electrical Demand (MWh/year)	Annual GHG Emissions[a] ($MTCO_2e$/yr)[d]

Standards reduce Title 24 electricity requirements by 28 percent for residential and 5 percent for non-residential (www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf, accessed April 7, 2016.).

[d] *Energy calculation worksheets are provided in Appendix C. CO_2e was calculated using CalEEMod, and the results are provided in Section 2.0 of the Operation CalEEMod output file within Appendix C of this assessment. The CalEEMod output for the unmitigated condition reflects consistency with 2016 Title 24 Standards. The mitigated condition reflects the reduction in energy usage from LEED Silver (i.e., 15 percent below 2016 title 24, use of energy efficient lighting, and Energy Star–labeled products and Appliances).*

[e] *The Project shall provide the equivalent of 135 kilowatts of photovoltaic panels on the Project site. Reduction in energy usage from 135 kW of photovoltaic solar panels (187,690 kWh/year at Statewide average of 595 lbs of CO_2e per kW generated.*

Source: Eyestone Environmental, 2016.

- The Project would implement a construction waste management plan to recycle and/or salvage a minimum of 75 percent of nonhazardous construction debris or minimize the generation of construction waste to 2.5 pounds per square foot of building floor area. (LEED Materials and Resources Credit 5 [v4][23]);

- The Project would be designed to optimize energy performance and reduce building energy cost by 15 percent for new construction compared to ASHRAE 90.1-2010, Appendix G and the 2016 Title 24 Building Standards Code. (LEED Energy and Atmosphere Credit 2 [v4]);

- The Project would use of Energy Star–labeled products and appliances, including dishwashers in the residential units, where appropriate.

- The Project would use of light emitting diode (LED) lighting or other energy-efficient lighting technologies, such as occupancy sensors or daylight harvesting and dimming controls, where appropriate, to reduce electricity use.

- The Project shall provide the equivalent of 135 kilowatts of photovoltaic panels on the Project site.

[23] *The bracketed text "v4" denotes version 4 of the LEED Building Design and Construction credits.*

Project lighting would be energy efficient, effective and aesthetically pleasing and would minimize light trespass from the Project Site. All on-site exterior lighting would be automatically controlled to illuminate only when necessary and would be shielded or directed toward areas to be illuminated and, thereby, limit spillover onto nearby residential areas. In addition, all interior lighting would be equipped with occupancy sensors that would automatically extinguish and/or dim lights when not in use. Electricity from lighting would also be reduced consistent with the Energy Independence and Security Act, which requires approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014.

While this analysis does not account for installation of electric vehicle supply equipment (EVSE), the Project Applicant shall provide at least twenty (20) percent of the total code-required parking spaces provided for all types of parking facilities, but in no case less than one location, shall be capable of supporting future EVSE.

The estimated annual emissions from electrical demand from the Project are provided in Table 6 on page 32. Detailed emissions calculations are provided in Appendix C.

(b) Natural Gas

As discussed above in Section 2, Methodology, the Baseline condition assumes that the existing land uses would meet 2005 Title 24 Building Standards Code. This assumption is conservative as many of the existing structures were built well before 2005. The estimated annual emissions from natural gas demand from the Baseline Condition are provided in Table 7 on page 35. Detailed emissions calculations are provided in Appendix C.

The Project would be designed to incorporate PDFs that would reduce its energy demand with the goal of achieving or exceeding the requirements of the State of California Green Building Standards (CALGreen) Code, the City of Los Angeles Green Building Code, and the USGBC LEED Silver rating. Thus, the Project would reduce its natural gas demand as compared to the default electricity factors in CalEEMod. The PDFs were accounted for in CalEEMod by selecting the appropriate options in the “mitigation measures” section of the model.

The Project would be designed to incorporate PDFs that would reduce its natural gas demand with the goal of achieving or exceeding the requirements of the CALGreen Code, the City of Los Angeles Green Building Code, and the USGBC LEED Silver rating. Thus, the Project would reduce its natural gas demand as compared to the default natural

Table 7
Natural Gas Combustion Greenhouse Gas Emissions

Land Use	Units (sf, rm, or du)	Annual Natural Gas Demand Factor[a] (KBtu/ sf/year)	Annual Natural Gas Demand[a] (MMBtu/year)	Annual GHG Emissions ($MTCO_2e$/yr)[d]
Baseline (2015)[b]				
Apartments (Low Rise)	84 du	14,251.6	1,197	64
Office	79,107 sf	12.4	984	53
Restaurant	475 sf	234.4	111	6
Retail	26,690 sf	1.8	49	3
Parking Lot	137,600 sf	0	0	0
Total Baseline (2015)			**2,341**	**126**
Project (2022)[c]				
Apartments High Rise	760 du	5,530.4	4,203	226
Condominiums High Rise	190 du	13,676.8	2,599	140
Hotel (Rooms)	348,500 sf	18.7	6,527	350
Office	95,000 sf	7.8	738	40
Restaurant (High Quality)	41,600 sf	219.4	9,129	490
Restaurant (High Turnover)	41,600 sf	219.4	9,129	490
Retail	61,800 sf	1.3	83	4
Supermarket	40,000 sf	19.5	780	42
Parking Structure	**1,223,700 sf**	0	0	0
Total Project (2022)			**33,187**	**1,7812**
Reduction Measures				
15 Percent Below Title 24 2016, Use of Energy Efficient Lighting (25 Percent), and Energy Star–Labeled Products and Appliances			**(2,062)**	**(111)**
Total Project (2022) less Reduction Measures			**31,125**	**1,671**

du = dwelling units

rm = rooms

sf = square feet

[a] *Totals may not add up exactly due to rounding in the modeling calculations.*

[b] *The Baseline condition conservatively assumed that energy demand for the older buildings on the Project site, most of which were constructed in the early 20th Century, would meet the 2005 Title 24 Building Standards Code.*

[c] *The Project scenario assumed that natural gas demand would comply with the 2016 Title 24 Building Standards Code. CalEEMod default values only account for compliance with 2008 Title 24. Therefore, natural gas usage was reduced as follows: 2013 Standards reduce Title 24 energy requirements by 25 percent for residential and 30 percent for non-residential (www.energy.ca.gov/releases/ 2012_releases/2012-05-31_energy_commission_approves_more_efficient_buildings_nr.html).*

[d] *Natural gas calculation worksheets are provided in Appendix C. CO_2e was calculated using CalEEMod,*

Table 7 (Continued)
Natural Gas Combustion Greenhouse Gas Emissions

Land Use	Units (sf, rm, or du)	Annual Natural Gas Demand Factor[a] (KBtu/ sf/year)	Annual Natural Gas Demand[a] (MMBtu/year)	Annual GHG Emissions ($MTCO_2e/yr$)[d]
and the results are provided in Section 2.0 of the Operation CalEEMod output file within Appendix C of this assessment. The CalEEMod output for the unmitigated condition reflects consistency with 2016 Title 24 Standards. The mitigated condition reflects the reduction in energy usage from LEED Silver (i.e., 15 percent below 2016 title 24 and Energy Star–labeled products and appliances).				
Source: Eyestone Environmental, 2016.				

gas factors in CalEEMod. The PDFs were accounted for in the CalEEMod tool by selecting the appropriate options in the "mitigation measures" section of the model.

The estimated annual emissions from natural gas combustion from the Project are provided in Table 7 on page 35. Detailed emissions calculations are provided in Appendix C.

(3) Mobile Source Emissions

Emissions of GHGs from motor vehicles are dependent on model years and the specific types of vehicles that are used to travel to and from the existing Project Site. The emissions were calculated using a representative motor vehicle fleet mix for year 2015 as provided in CalEEMod. The estimated annual emissions from mobile sources from the Baseline Condition are provided in Table 8 on page 37. Detailed emissions calculations are provided in Appendix C.

The Project represents an infill development within an existing urbanized area that would concentrate new residential, office, and neighborhood serving commercial uses within a High-Quality Transit Area (HQTA), which is defined in SCAG's 2012–2035 RTP/SCS as generally walkable transit villages or corridors that are within 0.5 mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours. The Project site is located approximately 0.13 mile from the Metro Red Line Station at Hollywood Boulevard and Highland Avenue. As such, the Project Site's location would support the use of public transportation and a reduction in vehicle miles traveled by Project residents.

The Project would incorporate characteristics and PDFs that would reduce trips and VMT as compared to standard ITE trip generation rates. The Project characteristics listed

Table 8
Mobile Source Greenhouse Gas Emissions

Condition	Fleet Mix Year (All Vehicle Classes)	Estimated Annual VMT	CO_2 Emission Factor (grams/mile)	Annual GHG Emissions[a] ($MTCO_2e$/year)
Baseline (2015)	2015	4,857,412	CalEEMod[a]	2,295
Project (Buildout)	2022	29,191,797	400	11,677
	2023	29,191,797	391	11,414
	2024	29,191,797	384	11,210
	2025–Beyond	29,191,797	375	10,947

[a] *Mobile source GHG emissions for 2015 are based on the direct model result output from CalEEMod.*
Source: Eyestone Environmental, 2016.

below are consistent with the CAPCOA guidance document, *Quantifying Greenhouse Gas Mitigation Measures*,[24] which provides emission reduction values for recommended mitigation measures, and would reduce VMT and vehicle trips to the Project site by approximately 45 percent compared to a development without these characteristics. They would therefore result in a corresponding reduction in VMT and associated GHG emissions.

- **Increase Density (LUT-1):** Increased density, measured in terms of persons, jobs, or dwelling units per unit area, reduces emissions associated with transportation as it reduces the distance people travel for work or services and provides a foundation for the implementation of other strategies, such as enhanced transit services. The Project would increase the site density from 11 dwelling units per acre and 10 jobs per acre to approximately 119 dwelling units per acre and 208 jobs per acre.

- **Increase Location Efficiency (LUT-2):** Location efficiency describes the location of the Project relative to the type of urban landscape, such as an urban area, compact infill, or suburban center. In general, compared to the statewide average, a project could realize VMT reductions up to 65 percent in an urban area, up to 30 percent in a compact infill area, or up to 10 percent in a suburban center from land use/location strategies. The Project Site represents an urban/compact infill location within the Hollywood community of the City of Los Angeles. The Project Site is served by existing public transportation located

[24] *California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, (2010).*

within 0.25 mile. The Project Site is also located within the Hollywood Center, which is generally located on both sides of Hollywood and Sunset Boulevards between La Brea Avenue and Gower Street.[25] The Community Plan calls for the Hollywood Center to function as: (1) the commercial center for Hollywood and surrounding communities; and (2) an entertainment center for the entire region. The Community Plan further states that development, combining residential and commercial uses, is especially encouraged in the Hollywood Center. The location efficiency of the Project Site would result in benefits that would reduce vehicle trips and VMT compared to the statewide average and would result in corresponding reductions in transportation-related emissions for both the Baseline and Project conditions.

- **Increase Diversity of Urban and Suburban Developments (Mixed-Uses) (LUT-3):** The Project would co-locate complementary commercial and residential land uses in proximity to other existing off-site commercial and residential uses. The Project would also introduce new uses on the Project Site, including a new hotel and increase in open space. The increases in land use diversity and mix of uses on the Project Site would reduce vehicle trips and VMT by encouraging walking and non-automotive forms of transportation, which would result in corresponding reductions in transportation-related emissions.

- **Increased Destination Accessibility (LUT-4):** The Project would be located in an area that offers access to multiple other nearby retail and entertainment destinations, including Hollywood & Highland Center located approximately 0.13 mile to the northwest of the Project Site. In addition, the Project Site is located within 5.5 miles of Downtown Los Angeles, a primary job center, also easily accessible by public transportation (including the Metro Red Line, which connects the Hollywood/Highland Station to several stations in Downtown Los Angeles and North Hollywood). The access to multiple destinations in proximity to the Project Site would reduce vehicle trips and VMT compared to the statewide average and encourage walking and non-automotive forms of transportation and would result in corresponding reductions in transportation-related emissions for both the Baseline and Project conditions.

- **Increase Transit Accessibility (LUT-5):** The Project would be located approximately 0.13 mile from the Metro Red Line Hollywood/Highland Station and along several Metro transit and DASH routes. This reduction measure is applicable for both the Baseline and Project conditions. The Project would also provide adequate bicycle parking spaces for residential and commercial uses to encourage utilization of alternative modes of transportation.

[25] *City of Los Angeles, Hollywood Community Plan, December 13, 1988, p. HO-2.*

- **Integrate Affordable and Below Market Rate Housing (LUT-6):** Below market rate housing provides greater opportunity for people to live closer to job centers and to accommodate more people in urban infill areas. The Project would include 84 below market rate dwelling units, which would result in an increase in alternative transit usage and a corresponding reduction in transportation-related emissions as income has a statistically significant effect on the probability that a commuter would take transit or walk to work.

- **Improve Design of Development (LUT-9)**: The project would include improved design elements including developing ground floor retail, pedestrian paseos, open space and improved streetscape which would enhance walkability in the project vicinity. The Project would also locate a development in an area with 113 intersections per square mile which improves street accessibility and connectivity. This reduction measure is applicable for both the Baseline and Project conditions.

- **Provide Pedestrian Network Improvements (SDT-1):** Providing pedestrian access that minimizes barriers and links the Project Site with existing or planned external streets encourages people to walk instead of drive. The Project would provide an internal pedestrian network that links to the existing off-site pedestrian network including existing off-site sidewalks, to encourage and increase pedestrian activities in the area, which would further reduce VMT and associated transportation-related emissions. Furthermore, the Project would result in an improved and aesthetically appealing streetscape that would promote pedestrian activity, particularly between the Metro Red Line Hollywood/Highland Station and the Hollywood & Highland Center and the Project Site, and enhance the urban lifestyle of the surrounding neighborhood.

- **Traffic Calming Measures (SDT-2):** Providing traffic calming measures encourages people to walk or bike instead of using a vehicle. This mode shift results in a decrease in VMT. Streets within 0.5 mile of the Project Site are equipped with sidewalks, and approximately 25 percent of the intersections include marked crosswalks and/or count-down signal timers.

The estimated annual emissions from mobile sources from the Project are provided in Table 8 on page 37. Detailed emissions calculations are provided in Appendix C.

(4) Solid Waste Emissions

Emissions of GHGs associated with solid waste disposal were calculated using the CalEEMod emissions inventory model. The emissions are based on the size of the commercial and retail land uses, the waste disposal rate for the land uses, the waste diversion rate, the GHG emission factors for solid waste decomposition, and the GWP values for the GHGs emitted. Annual solid waste disposal rates used in CalEEMod are based on data from the California Department of Resources Recycling and Recovery

(CalRecycle). The rates were based on statewide averages and the total amount of waste disposed was reduced by the diversion rate of 50 percent, pursuant to the City of Los Angeles Solid Waste Management Policy Plan, which was adopted by the City to comply with Assembly Bill 939. The estimated annual emissions from solid waste disposal from the Baseline Condition and Project are provided in Table 9 on page 41. Detailed emissions calculations are provided in Appendix C.

(5) Water Usage and Wastewater Generation Emissions

The Baseline condition assumes that the existing land uses would not include any reductions in indoor and outdoor water usage in comparison to CalEEMod default usage rates. This assumption is conservative based on the age of many of the existing structures on the Project site. The estimated annual emissions from water and wastewater from the Baseline Condition are provided in Table 10 on page 42. Detailed emissions calculations are provided in Appendix C.

The Project would be designed to incorporate PDFs that would reduce its indoor and outdoor water usage with the goal of achieving or exceeding the requirements of the State of California Green Building Standards (CALGreen) Code, the City of Los Angeles Green Building Code, and the USGBC LEED Silver rating. Thus, the Project would reduce its indoor and outdoor water usage as compared to the default factors in CalEEMod. The PDFs were accounted for in CalEEMod by selecting the appropriate options in the "mitigation measures" section of the model. A summary of the water-efficiency PDFs is provided below:

- The Project would reduce indoor water use by a minimum of 35 percent by installing water fixtures that exceed applicable standards.
- The Project would reduce outdoor water us by a minimum of 50 percent from the calculated baseline at peak watering month by installing efficient irrigation.

The estimated annual emissions from water and wastewater from the Project are provided in Table 10. Detailed emissions calculations are provided in Appendix C.

(6) Emergency Generator Emissions

The Project would include eight emergency generators with a combined rating of 6,355 kilowatts or 8,519 horsepower. The equipment would be operated approximately once per month for 30 minutes for routine maintenance and testing purposes. The estimated annual emissions from emergency generators would be approximately 22 MT/CO_2e per year. Detailed emissions calculations are provided in Appendix C.

Table 9
Baseline Condition Solid Waste Disposal Greenhouse Gas Emissions

Land Use	Waste Disposal Rate (tons/yr)	Waste Disposal Rate after 50% Diversion[b] (tons/yr)	Annual GHG Emissions[a,c] ($MTCO_2e$/yr)
Baseline (2015)			
Apartments (Low Rise)	38.6	19.3	8.8
Office	73.6	36.8	16.7
Restaurant	5.7	2.9	1.3
Retail	28	14	6.4
Parking Lot (Spaces)	0	0	0
Total Baseline (2015)			**33.2**
Project (2022)			
Apartments High Rise	349.6	174.8	79.5
Condominiums High Rise	87.4	43.7	19.9
Hotel (Rooms)	168.6	84.3	38.4
Office	88.34	44.2	20.1
Restaurant (High Quality)	38	19	8.6
Restaurant (High Turnover)	495	247.5	112.6
Retail	64.9	32.4	14.8
Supermarket	225.6	112.8	51.3
Parking Structure (Spaces)	0	0	0
Total Project (2022)			**345.2**

[a] *Totals may not add up exactly due to rounding in the modeling calculations.*

[b] *The rates were based on statewide averages and the total amount of waste disposed was reduced by the diversion rate of 50%, pursuant to the City of Los Angeles Solid Waste Management Policy Plan, which was adopted by the City to comply with Assembly Bill 939.*

[c] *CO_2e was calculated using CalEEMod and the results are provided in Section 2.0 of the Operation CalEEMod output file within Appendix C of this assessment.*

Source: Eyestone Environmental, 2016.

(7) Summary of GHG Emissions and Comparison to Baseline Condition

Table 11 on page 43 provides a summary of the determination of net additional GHG emissions comparing the existing site GHG emissions and the Project GHG emissions. As shown in Table 11, the Project site generates approximately 3,757 metric tons of carbon dioxide equivalents ($MTCO_2e$) per year under the Baseline Condition. This excludes any one-time construction GHG emissions that were generated when the existing

Table 10
Baseline Condition Water and Wastewater Greenhouse Gas Emissions

Land Use	Indoor Water Demand[a,b] (Mgal/yr)	Outdoor Water Demand[a,b] (Mgal/yr)	Annual GHG Emissions[a,c] ($MTCO_2e$/yr)
Baseline (2015)			
Apartments (Low Rise)	5.5	3.5	61.3
Office	14.1	8.6	156.1
Restaurant	0.2	<0.1	1.2
Retail	2.0	1.2	22.0
Parking Lot (Spaces)	0	0	0
Total Baseline (2015)			**240.5**
Project (2022)			
Apartments High Rise	32.2	15.6	196.5
Condominiums High Rise	8.1	3.9	49.1
Hotel (Rooms)	5.1	0.4	24.9
Office	11.0	2.2	66.6
Restaurant (High Quality)	8.2	0.4	39.4
Restaurant (High Turnover)	8.2	0.4	39.4
Retail	3.0	1.4	18.1
Supermarket	3.2	<0.1	15.1
Parking Structure (Spaces)	0	0	0
Total Project (2022)			**449.0**

[a] *Totals may not add up exactly due to rounding in the modeling calculations.*

[b] *The Project would be designed to incorporate PDFs that would reduce its water usage with the goal of achieving or exceeding the requirements of USGBC LEED Silver rating (i.e., reduce indoor water use by a minimum of 35% by installing water fixtures that exceed applicable standards and 50% from the outdoor water calculated baseline at peak watering month by installing efficient irrigation).*

[c] *CO_2e was calculated using CalEEMod and the results are provided in Section 2.0 of the Operation CalEEMod output file within Appendix C of this assessment.*

Source: Eyestone Environmental, 2016.

uses and related infrastructure were originally built. Construction of the Project would generate one-time GHG emissions of approximately 3,314 $MTCO_2e$ per year during the first year, 2,229 $MTCO_2e$ during the second year, 2,180 $MTCO_2e$ per year during the third year, and 1,716 $MTCO_2e$ during the fourth year. At Project buildout (2022), the Project Site would generate approximately 18,051 $MTCO_2e$ during the first full year of operation. Future year emissions would decline as a greater percentage of motor vehicles meet more stringent emissions standards, including the Pavley Phase I and Phase II emissions

Table 11
Summary of Annual GHG Emissions ($MTCO_2e/yr$)

GHG Emission Source	2018	2019	2020	2021	2022	2023	2024	2025–2029	2030–2051
Baseline (2015)									
Area					28	28	28	28	28
Energy					1,160	1,160	1,160	1,160	1,160
Mobile					2,296	2,296	2,296	2,296	2,296
Waste					33	33	33	33	33
Water					241	241	241	241	241
Total Baseline (2015)					**3,757**	**3,757**	**3,757**	**3,757**	**3,757**
Project									
Construction	3,314	2,229	2,180	1,716	0	0	0	0	0
Area					62	62	62	62	62
Energy					5,496	5,496	5,496	5,496	4,184
Mobile					11,677	11,414	11,210	10,947	10,947
Waste					345	345	345	345	345
Water					449	449	449	449	330
Emergency Generators					22	22	22	22	22
Total Project	3,314	2,229	2,180	1,716	18,051	17,788	17,583	17,321	15,890
Project less Baseline	3,314	2,229	2,180	1,716	14,294	14,031	13,826	13,564	12,133
Voluntary Carbon Credits[a]	(3,314)	(2,229)	(2,180)	(1,716)	(14,294)	(14,031)	(13,826)	(13,564)	(12,133)
Difference	0	0	0	0	0	0	0	0	0
Exceed Baseline?	No	No	No	No	No	No	No	No	No

[a] *Total voluntary carbon credits required for the life of the Project (30 years) equal 374,209 MT CO_2e.*

Source: Eyestone Environmental, 2016.

standards, and power companies meet the 50 percent Renewables Portfolio Standard. In 2030, annual Project emissions would be reduced to approximately 15,890 $MTCO_2e$. As shown in Table 11 on page 43, the Project would commit to purchase voluntary carbon credits for the life of the Project. Consistent with SCAQMD's definition of the "life of the project" for CEQA GHG purposes, provided in SCAQMD's Governing Board Agenda Item 31, December 5, 2008, the Project would be required to offset 374,209 MT CO_2e over a 30-year lifetime. The SCAQMD recommends that offsets should have a 30-year project life, should be real, quantifiable, verifiable, and surplus and will be considered in the following prioritized manner: (1) project design feature/on-site reduction measures; (2) off-site within neighborhood; (3) off-site within district; (4) off-site within state; and (5) off-site out of state.

(8) Method to Offset Emissions

The Project Sponsor agreed to meet the requirement set forth in California Public Resources Code Section 21183, subdivision (c) to demonstrate that the Project would result in no net additional GHG emissions through the purchase of voluntary carbon credits sufficient to offset all projected additional GHG emissions. A copy of the commitment letter is provided in Appendix A.

Notably, the commitments to enter into contracts to offset net additional GHG emissions will be incorporated as an improvement measure in the Final EIR for the Project. All improvement measures will be enforceable through the Project's Mitigation Monitoring and Reporting Program (MMRP), which represents a binding and enforceable agreement between the Project Sponsor and the lead agency (City of Los Angeles).

Based on this assessment, the Project would not result in any net additional GHGs, including GHG emissions from employee transportation, in accordance with Public Resources Code Section 21183(c) with the purchase of voluntary carbon credits. Therefore, the Project would meet the GHG emissions requirements for streamlined environmental review under CEQA.