ATTACHMENT 2

Greenhouse Gas Emissions Methodology Documentation for Environmental Leadership Development Project Application

1045 Olive Street Project

(Submitted December 22, 2017)

ESA

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memorandum

date August 25, 2017

to Lezlie Kimura Szeto, Sustainable Communities Policy & Planning Section, CARB

cc

from Heidi Rous, CPP, ESA
Alan Sako, LEED AP BD+C, ESA

subject **Procedure for Evaluating Greenhouse Gas Emissions Under the "Jobs And Economic Improvement Through Environmental Leadership Act" for the 1045 Olive Street Project**

1.0 Introduction

1.1 Purpose

ESA is conducting a comprehensive greenhouse gas (GHG) emissions assessment for the 1045 Olive Street Project (the "Project"), proposed by 1045 Olive, LLC, to demonstrate that the Project meets the GHG requirements of the Jobs and Economic Improvement Through Environmental Leadership Act ("the Act") (Public Resources Code Section 21178 et seq.). 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 to the California Air Resources Board (CARB) 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). The GHG emissions associated with construction of the Project are also to be considered in the analysis.

This submittal describes the proposed methodology used to estimate the GHG emissions from baseline and Project conditions and describes the proposed methodology used to quantify GHG emission reductions from Project design features and mitigation measures.

1.2 Site Location, Existing Uses, and Project Description

The Project is located at 1045 Olive Street in the South Park community of Downtown Los Angeles ("the Project Site"), approximately 0.6 miles north of the Santa Monica Freeway (I-10) and 0.6 miles east of the Harbor Freeway (I-110). The approximately 0.96-acre Project site is at the northwest corner of the intersection of Olive Street and 11th Street. An alleyway is located on the northwest side of the Project Site.

The Project would remove four existing commercial buildings on the Project Site, and would construct in their place an approximately 751,777 square foot (approximately 1,343,113 square foot gross building floor area inclusive of common space and open space areas) mixed-use high-rise building containing a maximum of 794 residential condominium units and 12,504 square feet of ground- and mezzanine-level neighborhood serving commercial uses along Olive Street and 11th Street. The Project would also include approximately 10,652 square feet of open space. The maximum building height would be 810 feet (approximately 70 stories), and the floor-area ratio (FAR) for the transit area mixed use Project would be 13:1.

Vehicle parking would be provided consistent with the Central City Parking Exception and Downtown Business District parking requirements and is proposed to be located within 5 subterranean levels and 9 levels above grade. Residential units are proposed to wrap the podium along 11th Street and Olive Street on levels 5 through 9. The podium level (10th floor) would contain residential amenities. Residential units are proposed to be located on levels 11 through 51 and 56 through 70. Level 52 would contain mechanical equipment. Levels 53 through 55 would have residential amenity areas, including outdoor space.

Vehicle access (ingress/egress) would be provided from one entrance along Olive Street, near the northern property line and one entrance on the alley, near the north property line. An on-site loading and move-in/out service area would also be accessed from the alley near the middle of the Project Site. The Project would provide up to 891 parking spaces, with 878 spaces dedicated to residential parking and 13 spaces provided for commercial uses. Bicycle parking would also be provided consistent with the requirements of the Los Angeles Municipal Code (LAMC), with approximately 800 long-term spaces provided within the parking garage on ground level, mezzanine and one level below grade. An additional maximum of 85 short-term bicycle parking spaces would be provided consistent with LAMC Section 12.21.A.16.

Construction of the Project would be completed over approximately 3.5 years. The Project would export approximately 80,520 cubic yards of soil and generate approximately 3,400 cubic yards of demolition debris (asphalt, interior and exterior building demolition, and general demolition debris).

2.0 Proposed Procedure for Evaluating GHG Emissions

2.1 Construction

The Project would demolish and remove the existing structures and associated infrastructure from the Project site. The existing uses will be vacated prior to construction and all uses would cease to operate. Construction of the Project would result in one-time GHG emissions during the period of construction activity. Construction of the Project would be completed over approximately 3.5 years and emissions would be estimated for each year of construction. After construction is completed, the Project would become operational. ESA will assume that all new Project facilities will be fully operational on the expected opening day. Therefore, Project construction emissions would not occur contemporaneously with either baseline operational emissions or Project operational emissions.

Consistent with the procedure used for other similar types of certified Environmental Leadership Development Projects (ELDP), such as the Yucca Argyle project, the approach to determine if Project construction would result in net additional GHG emissions would be to consider the Project construction emissions on an annual, calendar year, basis as net new emissions occurring during the Project's construction phase. The Project's construction GHG emissions would be required to be offset in full to meet the requirement of a net zero increase in GHG

emissions. Based on the currently anticipated construction schedule, the final months of construction may occur in the same calendar year as the initial operational year of the Project. The GHG emissions associated with these final months of construction would be added to the Project's initial partial-year operational GHG emissions and the total compared to the baseline annual operational emissions.

Construction emissions will be estimated by assuming a conservative approach to construction activities (i.e., assuming construction occurs at the earliest feasible date) and applying the equipment emissions factors. The emissions will be estimated using the most recent version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.1) software, an emissions inventory software program developed by the California Air Pollution Control Officers Association (CAPCOA) in conjunction with California air quality management districts and air pollution control districts. The local South Coast Air Quality Management District (SCAQMD) recommends the use of CalEEMod for estimating emissions from land use development projects. CalEEMod is based on outputs from OFFROAD and EMFAC, which are emissions estimation models developed by the California Air Resources Board (CARB) and used to calculate emissions from construction activities, including off- and on-road vehicles. The CalEEMod software will be programmed with Project-specific information such as equipment types expected to be used and the Project construction schedule.

The construction emissions estimates may be supplemented by the EMFAC2014 on-road emissions factor model for on-road trucks. While CalEEMod incorporates the EMFAC2014 model and can provide emissions estimates for on-road trucks, EMFAC2014 may be used directly to provide a more detailed analysis if necessary to account for changes in daily truck trips during the various phases of construction activities. If EMFAC2014 is used, emission factors will be generated using the emissions mode (also referred to as the "burden" mode) to generate South Coast Air Basin-specific vehicle fleet emission factors in units of grams or metric tons per mile, which is the same methodology that CalEEMod uses to generate emission factors.

All construction emissions modeling output files used in the analysis will be incorporated into the GHG Report and submitted to CARB for review.

2.2 Operations

Operation of the existing uses and proposed Project uses results in annual GHG emissions from mobile sources, building energy use, water demand and wastewater treatment, and solid waste generation. The Project's annual, calendar year, operational emissions will be compared to the baseline annual operational GHG emissions to determine the net change in GHG emissions. Emissions will be estimated for a 30-year land use Project lifetime.

Operational emissions will be estimated using the CalEEMod (Version 2016.3.1) software. The emissions estimates may be supplemented by the EMFAC2014 on-road emissions factor model for on-road vehicles. For mobile sources, annual vehicle miles traveled (VMT) from the existing uses and proposed Project uses will be based on trip and VMT data in the traffic report that will be prepared by The Mobility Group. The estimated VMT for the existing uses and proposed Project uses will take into account trip distance reductions from land use characteristics including the existing Project site's infill location and proximity to existing multi-modal public transit services. The estimated reduction in VMT will be supported by evidence from the City of Los Angeles. The City has conducted a comprehensive health study that describes the baseline health conditions in the City and provides a context for understanding the demographic conditions, social and economic factors, physical environment, access to health care, and health behaviors contributing to the health of City residents and workers. The findings are documented in the *Health Atlas for the City of Los Angeles* (Health Atlas), published in June

2013.[1] The Health Atlas is not a plan specifically developed to reduce GHG emissions. Nonetheless, while the primary focus of the Health Atlas is on factors that affect the health behaviors and health status of residents and workers, much of the quantitative data is relevant to a project area's VMT and land use-related GHG emissions as they reflect similar issues regarding land use patterns, urban design, and transportation efficiency. If EMFAC2014 is used, emission factors will be obtained from EMFAC2014, using the same methodology that CalEEMod used to generate emission factors, as described previously under the construction heading. Mobile source emissions are the product of the CalEEMod estimated VMT and the EMFAC2014 emission factors.

Emissions of GHGs from on-site natural gas combustion and off-site electricity generation will be estimated using CalEEMod, which are based on usage data from the CEC's California Commercial End Use Survey (CEUS). Since 1978, the CEC has established building energy efficiency standards, which are updated periodically. CalEEMod applies correction factors to account for compliance with the 2013 version of the Title 24 Building Energy Efficiency Standards. The existing buildings were built prior to the 2008 standards; therefore, electricity and natural gas usage rates will be adjusted to account for compliance with prior Title 24 Building Energy Efficiency Standards. The proposed Project uses would be built to comply with the latest standards; therefore, electricity and natural gas usage rates will be adjusted to account for compliance with the latest 2016 Title 24 Building Energy Efficiency Standards, inclusive of additional energy saving features that would be included in the Project to reduce energy demand. Emission factors for GHGs due to electrical generation to serve the demands of the existing Project Site will be based on the CARB supplied emissions factors in its January 2017 memorandum, *Statewide Emission Factors For Use With AB 900 Projects*. This memorandum provides factors consistent with the "marginal" supply profile for new generation that will be added to the State grid consistent with the year 2020 Renewables Portfolio Standard (RPS). State legislation signed into law in October 2015 further increased the Renewables Portfolio Standard to 50 percent by 2030 and also included interim targets of 40 percent by 2024 and 45 percent by 2027. Future year factors will be reduced proportionately based on these mandated legislative targets.

Emissions of GHGs from solid waste disposal will be calculated using the CalEEMod software based on the solid waste generation rates for the existing uses and the proposed Project uses. The solid waste GHG emissions will take into account the City of Los Angeles municipal solid waste diversion rates.

Emissions of GHGs from water and wastewater are due to the energy required to supply, distribute and treat. Wastewater also results in emissions of GHGs from wastewater treatment systems. Emissions will be calculated using the CalEEMod software based on the water demand rates for the existing uses and the proposed Project uses inclusive of green building features that would be incorporated into the Project to reduce water demand.

Other sources of GHG emissions from existing uses include equipment used to maintain landscaping, such as lawnmowers and trimmers. The CalEEMod software uses landscaping equipment GHG emission factors from the CARB OFFROAD model and the *CARB Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment (6/13/2003)*. The CalEEMod software estimates that landscaping equipment operate for 250 days per year in the South Coast Air Basin.

[1] City of Los Angeles, The Health Atlas, (2013), http://healthyplan.la/the-health-atlas/. Accessed January 2017.

2.3 Emission Mitigation Measures and Offsets

Annual emissions of GHGs from the Project will incorporate GHG emission mitigation measures, and offsets as necessary to achieve a net zero increase in site GHG emissions for the estimated Project lifetime. Mitigation measures may include rooftop solar projects or other community-based measures. Although not required by regulation, it is understood that it is CARB policy to prioritize offsets in the following order: local, regional, in-state, and lastly out-of-state/out-of-country. The Project will prioritize offsets based on CARB’s prioritization order.

February 14, 2018

Ms. Anny Huang, Manager
Emission Inventory Analysis Section
California Air Resource Board
1001 I Street
Sacramento, CA 95814

Re: Greenhouse Gas Emissions Offset Approach for the 1045 Olive Project

Dear Ms. Huang:

This letter is provided as a supplement to the application filed by 1045 Olive, LLC. (the "Project Applicant"), who proposes to develop the 1045 Olive Project (the "Project") in the Central City Community Plan and the City Center Redevelopment Plan Project area of the City of Los Angeles.

As you know, the Project Applicant has applied for certification by the Governor as a leadership project under the Jobs and Economic Improvement Through Environmental Leadership Act of 2011, as amended (collectively, "AB 900" or the "Act"). The application includes projected emissions for the Project that show certain projected net additional emissions of greenhouse gases (GHG) as a result of the construction of the Project and as a consequence of Project operations.

The Applicant has committed to no net increase in construction and operation-related GHG emissions. Consistent with policy recommendations included in California Air Resources Board's (CARB) California 2017 Climate Change Scoping Plan,[1] while offsets are a potential way to mitigate GHG emissions, other options will continue to be explored as well to the extent feasible, with the following order of preference: (1) project design feature/on-site reduction measures; (2) off-site local reductions; (3) off-site regional reductions, and (4) offset credits issued by a recognized and reputable carbon registry. To the extent offsets are used to mitigate GHG emissions, prior to issuance or any Certificate of Occupancy for any building in the project, the Applicant or its successor shall enter into one or more contracts to purchase carbon credits issued by a recognized and reputable carbon registry, which contract, together with any previous contracts, shall evidence the purchase of carbon credits in an amount sufficient to offset the operational emissions attributable to each building constructed within the project over the analysis horizon of 30 years. Prior to execution of the contract(s), the Applicant shall provide the lead agency (the City of Los Angeles) a calculation of the net additional operational GHG emissions according to the methodology followed in the

[1] The California 2017 Climate Change Scoping Plan is available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

Greenhouse Gas Emissions Methodology and Documentation for the 1045 Olive Street Project document. The Applicant shall agree to promptly submit copies of executed contracts for purchased carbon credits to CARB and to the Governor's office. The commitments to enter into contracts to offset net additional GHG emissions will be incorporated as a condition of project approval under the Public Resources Code sec. 21183(e), which is binding and enforceable by the lead agency.

The Project Applicant proposes to meet the requirement set forth in California Public Resources Code Section 21183(c), which requires that the Project demonstrate that it will not result in net additional emissions of GHG, through the implementation of GHG-reducing Project Design Features and/or acquisition of voluntary carbon credits sufficient to offset all projected additional emissions, in the following manner:

1. No later than six (6) months after the issuance of a Temporary Certificate of Occupancy for the Project, the Project Applicant shall commit to providing to the lead agency, the City of Los Angeles, a calculation of the net additional emissions resulting from the construction of the Project (the "Construction Emissions"), to be calculated in accordance with the methodology agreed upon by the California Air Resources Board (CARB) in connection with the AB 900 certification of the Project (the "Agreed Methodology"). Project Applicant shall provide courtesy copies of the calculations to CARB and the Governor's Office promptly following transmittal of the calculations to the City of Los Angeles. Project Applicant shall enter into one or more contracts for the implementation of GHG-reducing Project Design Features and/or purchase voluntary carbon credits from a recognized and reputable carbon registry in an amount sufficient to offset the Construction Emissions. The Project Applicant shall provide courtesy copies of any such contracts to CARB and the Governor's Office promptly following the execution of such contracts.

2. Prior to issuance of any Certificate of Occupancy for the Project, the Applicant or its successor shall commit to entering into one or more contracts to purchase carbon credits from a recognized and reputable carbon registry (to be selected from an accredited registry), which contract, together with any previous contracts for the purchase of carbon credits, shall evidence the purchase of carbon credits in an amount sufficient to offset the Operational Emissions attributable to the Project, and shall be calculated on a net present value basis for a 30-year useful life.

   Prior to execution of the contract(s), the Applicant and its consultant shall calculate the Operational Emissions, in accordance with the methodology described in the Applicant's "Application for Environmental Leadership Development Project," specifically the "Greenhouse Gas Emissions Methodology and Documentation" prepared by Environmental Science Associates (ESA).

   Once the City has had an opportunity to review and approve the methodology and associated calculations, the Applicant shall provide copies of the calculation methodology to the California Air Resources Board (CARB) and Governor's Office of Planning and Research (OPR), which is then subject to a determination signed by the Executive Officer

of CARB pursuant to the procedures set forth in Section 6 of OPR's Guidelines. The City will issue a Certificate of Occupancy upon receipt of the following: (1) a fully executed copy of the carbon offset purchase agreement(s); (2) a final CARB Determination that the Project will not result in any net additional GHG emissions; and (3) a copy of OPR's Certification Letter for the Project.

3. The following project design features were accounted for in the AB 900 application for purposes of reducing GHG emissions and are, therefore, included as commitments in this letter.

   A. The design of the new buildings shall incorporate features to be capable of achieving Gold certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED)-CS® or LEED-NC® Rating System as of January 1, 2011. Specific sustainability features that are integrated into the Project design to enable the Project to achieve at least LEED® Gold certification would include but not be limited to the following:

      a. The Project will incorporate heat island reduction strategies for 50 percent of the site hardscapes or provide 100 percent structured parking and incorporate heat island reduction strategies for the Project roof areas.

      b. The Project will promote alternatives to conventionally fueled automobiles by providing electric vehicle charging stations and/or preferred parking for alternative-fuel vehicles, low-emitting, and fuel-efficient and ride-sharing vehicles.

      c. The Project will optimize building energy performance with a minimum of a 5 percent reduction from the LEED baseline consistent with LEED requirements.

      d. The Project will reduce water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline.

      e. The Project would reduce indoor potable water use by a minimum of 20 percent compared to baseline or standard water consumption by installing water fixtures that exceed applicable standards.

      f. The Project will provide on-site recycling areas with containers to promote the recycling of paper, metal, glass, and other recyclable materials and adequate storage areas for such containers.

   B. The residential units within the Project shall not include the use of natural gas-fueled fireplaces.

The commitments outlined herein will be incorporated into the Project's Final Environmental Impact Report (FEIR) as a proposed improvement measure. The Project Applicant will agree to comply with all improvement measures and mitigation measures

contained in the FEIR through the Project's Mitigation Monitoring and Reporting Program, which represents a binding and enforceable agreement with the Project's lead agency, the City of Los Angeles.

Should you have any questions, please do not hesitate to call Elliott Kahn at (424) 653-2100.

Sincerely,

1045 Olive, LLC,
a California limited liability company

By: _____

Name: Adam Tartakovsky
Its: Authorized Signatory

cc: Alejandro Huerta, City Planner, City of Los Angeles, Department of City Planning
Ryan Leaderman, Partner, DLA Piper LLP
Heidi Rous, Air Quality and Noise Group Director, ESA

1045 Olive Project

Application for CEQA Streamlining

- LEED Measures

1045 Olive Project

LEED Measures

The following list highlights the main sustainability strategies to be implemented into the 1045 Olive Project in order to achieve Gold certification or greater under LEED v3 or the LEED v4 rating system, as applicable. This is in addition to the strategies needed to reduce the greenhouse gas (GHG) emissions, as required by the California Air Resources Board (CARB).

Design

- Prior to Project approvals, a preliminary LEED action plan will be submitted to the City of Los Angeles Department of City Planning. Prior to issuance of a building permit, conduct a preliminary LEED meeting with a minimum of four key Project team members and the owner or owner's representative. As part of the meeting, review a LEED action plan that, at a minimum (1) determines the LEED certification level to pursue (Gold or Platinum); (2) selects the LEED credits to meet the targeted certification level; and (3) identifies the responsible parties, including but not limited to the Los Angeles Department of Building and Safety, the City of Los Angeles Department of City Planning, the City of Los Angeles Department of Public Works, Bureau of Engineering, to ensure the LEED requirements for each prerequisite and selected credit are met. Modifications to the selected criteria are permissible during construction as long as the targeted LEED certification level continues to be met.

Site

- Implementation of an erosion and sedimentation plan for all construction activities.
- Provision of heat island mitigation strategies for 50 percent of hardscapes or provide 100 percent structured parking.
- Development of tenant design and construction guidelines, which applies to LEED Core & Shell certification only.

Transportation

- The Project proposes a TDM package to encourage the use of non-auto modes and reduce vehicle trips, that could include the following measures:
  - Promotion and support of carpools and rideshares, including parking and transit incentives.
  - Preferential parking for carpools and vanpools for employees.
  - Provide on-site real-time information displays to make available real-time information on car-sharing, transit, vanpools, taxis.
  - External and internal multimodal wayfinding signage.
  - Enroll tenants in trip tracking applications, if applicable.
  - Transit Welcome Package – to all new residents/employees with info on alternate modes and walk to destination opportunities.
  - Provide off-street residential and retail parking, and freight-loading spaces, and participate in a Car-Share Program to provide spaces for car-share vehicles.
  - Pursue with the City the implementation of on-street commercial loading spaces for deliveries and drop-off.
  - Pursue with the City the implementation of on-street passenger drop-off spaces.
  - Provide access to collapsible shopping carts and/or cargo bike for ease of local shopping.
  - Discounts for employees who utilize public transit to travel to the site.
  - On-site bicycle amenities such as access to free bicycles for residential guests, on-site repair station and bicycle racks, and lockers / showers for residents and employees, etc.
  - Participate in the City's Bike Share Program by providing an area for bike share facilities.

Water Quality

- Use of on-site storm water treatment in accordance with City standards.
- Installation of catch basin inserts and screens to provide runoff contaminant removal in accordance with City standards.
- Preparation and implementation of a Stormwater Pollution and Prevention Plan (SWPPP) and Standard Urban Stormwater Mitigation Plan (SUSMP), both of which would include Best Management Practices (BMPs) to control stormwater runoff, minimize pollutant loading and erosion effects during and after construction.

Energy Conservation and Efficiency

- Use of full-cutoff or fully shielded on-street lighting oriented to pedestrian areas/sidewalks so as to minimize overlighting, light trespass, and glare.
- Inclusion of outdoor air flow measuring devices, additional outdoor air ventilation, and use of low emitting materials to promote indoor environmental quality.
- Use of refrigerants that reduce ozone depletion.
- Provision of conduit that is appropriate for future photovoltaic and solar thermal collectors.
- Post-construction commissioning of building energy systems performed on an ongoing basis to ensure all systems are running at optimal efficiency.
- Purchase of renewable source power (“green power”) or implementation of other carbon offset programs or carbon offset purchases to minimize carbon emissions.
- Review of commissioning activities by an independent Commissioning Agency and development and implementation of commissioning plan.
- Implementation of building level energy meter to provide monthly tracking of energy consumption.
- Provision of metering for tenant space.

Solid Waste

- Provision of on-site recycling containers to promote the recycling of paper, metal, glass, and other recyclable materials and adequate storage areas for such containers during construction and after the building is occupied.

- Implementation of a construction waste management plan to recycle and/or salvage a minimum of 65 percent of nonhazardous construction debris.

- Diversion of construction materials from landfill. Diversion must include at least three material streams (e.g., recovery, reuse, and recycling).

Air Quality

- Employment of practices that prohibit the use of chlorofluorocarbons (CFCs) in heating, ventilation, and air conditioning (HVAC) systems.

- Installation of MERV 11 filtration at outside air intakes to improve indoor air quality (per LEED minimum indoor air quality performance requirements).

- Meeting applicable California and/or Los Angeles air emissions requirements for all heating or cogeneration equipment utilized at the Project Site.

- Installation of landscaping and canopy trees throughout the Project Site, including roof decks, pool decks, and terraces, to provide shading and capture carbon dioxide (CO_2) emissions.

- Use of adhesives, sealants, paints, finishes, carpet, and other materials that emit low quantities of volatile organic compounds (VOCs) and/or other air pollutants.

- Development of an Indoor Air Quality Management Plan for construction and pre-occupancy phases.

- Provision of individual control on thermostats to 50 percent of building occupants. For residential buildings, the credit can be achieved by providing access to operable windows. For commercial spaces, control must be provided to 50 percent of occupants in order to meet the intent of the credit.

- HVAC system design compliance to ASHRAE 55. The Core & Shell base building mechanical systems must allow for the tenant build-out to meet the requirement of this credit.

GREENHOUSE GAS EMISSIONS METHODOLOGY AND DOCUMENTATION FOR THE 1045 OLIVE STREET PROJECT

Application for CEQA Streamlining Under the "Jobs and Economic Improvement through Environmental Leadership Act" (Public Resources Code Section 21178 et seq.)

Prepared for
1045 Olive LLC

December 2017

ESA

GREENHOUSE GAS EMISSIONS METHODOLOGY AND DOCUMENTATION FOR THE 1045 OLIVE STREET PROJECT

Application for CEQA Streamlining Under the "Jobs and Economic Improvement through Environmental Leadership Act" (Public Resources Code Section 21178 et seq.)

Prepared for
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December 2017

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OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

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SECTION 1
Executive Summary

ESA has been retained to conduct a comprehensive greenhouse gas (GHG) emissions assessment for the 1045 Olive Street 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. In September 2011, the Governor 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. In 2016, Senate Bill (SB) 734 was signed, which extends the authority of the Governor to certify a project to January 1, 2018 and provides that the certification expires and is no longer valid if the lead agency fails to approve a certified project before January 1, 2019. In October 2017, AB 246 was signed, which further extends the authority of the Governor to certify a project to January 1, 2020 and provides that the certification expires and is no longer valid if the lead agency fails to approve a certified project before January 1, 2021. 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).

The Project is located at 1045 S. Olive Street in Downtown Los Angeles, California. The approximately 0.96-acre site occupies a parcel on the southeast corner of the block bounded by 11th Street to the southwest and S. Olive Street to the southeast ("the Project Site"). The property currently contains four existing commercial buildings totaling 35,651 square feet and 5,952 square feet of paved parking and hardscape area. The Project would demolish and remove the existing uses from the site.

The proposed mix of uses would be developed within one building with a podium structure. The development would include a 61-story tower atop a nine level podium structure (Podium) for a total of 70 floors, up to 810 feet in height.[1] The mixed-use high-rise building will contain a mix of residential and commercial uses. The Project would include 739,273 square feet of residential uses (zoning area) with 794 residential units, and 12,504 square feet of commercial uses accessible at the ground level. Vehicle parking would be provided consistent with the Central City Parking Exception and Downtown Business District parking requirements and is proposed to be located within a parking structure with 6 subterranean levels and 8 partial levels above grade (as certain above grade levels will contain

[1] The height to the top of the residential development, i.e. to the Tower Roof Terrace, is 770 feet. The 810 feet is the height to the top of the rooftop screening.

residential units and other active uses along the 11th and Olive Street frontages) with a total of 891 spaces (878 residential and 13 commercial). Bicycle parking would also be provided consistent with the requirements of the Los Angeles Municipal Code (LAMC), with approximately 886 bicycle spaces provided within the parking garage on ground level, mezzanine and one level below grade.

Under the Baseline Condition, which is defined as the year 2017 existing site operating conditions, the site generates approximately 603 metric tons of carbon dioxide equivalents ($MTCO_2e$) per year. This excludes any one-time construction GHG emissions that were generated when the existing uses and related infrastructure were originally built. Construction of the Project would generate one-time GHG emissions of approximately 1,121 $MTCO_2e$, during the first year, 1,748 $MTCO_2e$ during the second year, 2,795 $MTCO_2e$ during the third year and 1,573 $MTCO_2e$ during the 4th year. At Project buildout, emissions of approximately 9,968 $MTCO_2e$ would be generated during the first full year of operation. Compared to the Baseline Condition, the Project's operational GHG emissions represent a net increase in GHG emissions from the site of approximately 5,563 $MTCO_2e$ during the first full year of operation. The net Project operational GHG emissions would decline in future years primarily as a result of vehicle fleet turnover and as utilities provide a greater percentage of electricity from renewable sources. 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 standards,[2] and the a greater percentage of electricity is provided by renewable sources in accordance with the Renewables Portfolio Standard, which requires 50 percent renewable electricity by 2030.[3] The Project would obtain GHG offsets that would result in the Project to having no net increase in GHG emissions. As a result, the Project would generate decreased GHG emissions in future years and would require decreased offsets to achieve no net increase in GHG emissions.

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). Therefore, the Project would meet the GHG emissions requirements for streamlined environmental review under CEQA.

2 Assembly Bill 1493 (Pavley Regulations) reduces GHG emissions in new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017–2025 (Phase II). Also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020.

3 On April 12, 2011, Governor Jerry Brown signed SB X1-2 to increase California's Renewables Portfolio Standard to 33 percent by 2020. SB 350 (Chapter 547, Statues of 2015) further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 was signed into law on October 7, 2015.

SECTION 2
Introduction

2.1 Purpose

ESA has been retained to conduct a comprehensive greenhouse gas (GHG) emissions assessment for the 1045 Olive Street 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.). 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 used 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, wastewater treatment and water conveyance, and solid waste disposal.

2.2 Project Description, Site Location, Existing Uses

1045 Olive, LLC (Applicant) proposes a new mixed-use development on an approximately 0.96-acre site located at 1045 S. Olive Street on the northwest corner of Olive Street and 11th Street ("the Project Site"). Four existing single story commercial buildings would be removed and replaced with a new 751,777 square foot (net) mixed-use high-rise building. The maximum floor-area ratio (FAR) for the Transit Area Mixed Use Project would be 13:1.

The development would include a 61-story tower atop a nine level podium structure (Podium) for a total of 70 floors, up to 810 feet in height.[4] The Project would include a maximum of 794 residential units and 12,504 square feet of neighborhood serving commercial uses located at the ground level. The residential units would be mostly located within the residential tower; however, approximately 40 units, would be located along the top five levels of the Podium facing

[4] The height to the top of the residential development, i.e. to the Tower Roof Terrace, is 770 feet. The 810 feet is the height to the top of the rooftop screening.

Olive Street and 11th Street. Approximately 103,380 square feet of amenity/open space would be provided including a ground level public plaza with streetscaping, landscaping and a public art display (Plaza). Open space and recreation facilities for residents would be located atop the Podium (10th Floor Terrace), at mid-tower, on a terrace on the tower rooftop (Tower Roof Terrace) and within private balconies. At the pedestrian level, the Project would provide a 17-foot sidewalk along Olive Street and a 15-foot sidewalk (including a 3-foot sidewalk easement) along 11th Street.

The Project's 12,504 square feet of commercial space would be located on the ground level. Access to the individual commercial units would be from 11th Street, Olive Street and the Plaza area. The specific commercial uses may vary; however, it is expected that a substantial amount of the commercial area would be devoted to restaurant uses. For the purposes of assessing GHG emissions, this assessment conservatively assumes that the commercial space would be restaurant uses, which generate greater environmental impacts than retail uses.[5]

Vehicle access (ingress/egress) would be provided from one entrance along Olive Street, near the northern property line, and from two entrances on the alley between 11th Street and Olympic Boulevard. An on-site loading and move-in/out service area would also be accessed from the alley near the center of the Project Site. Vehicle parking would be provided within 6 subterranean parking levels and in 8 levels of parking above grade within the Podium. The Project would provide up to 891 parking spaces, and up to 886 bicycle spaces.

There are no trees located on the Project Site; however, five street trees are located along the street-side edge of Olive Street. The Project would include the addition of 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover at the Project Site. The Project would provide a large elevated garden on the 8th and 10th floors of the building, three outdoor amenity spaces with planting areas and canopy trees, and a rooftop garden with planting areas and canopy trees. Landscaping would be provided along the street edges and throughout all of the Project's open space and would be selected from a large pallet of native plants.

The Project Site is located in the Downtown area and South Park community of the City of Los Angeles (City). The Project Site lies within the southeast quadrant of the block that is surrounded by Olive Street on the east, 11th Street on the south, Grand Avenue on the west and Olympic Boulevard on the north. The block is split by a south to north alley at midblock between S Olive Street and S Grand Avenue. The alley serves as the western boundary of the Project Site.

The Project Site is currently developed with four commercial buildings totaling 35,651 square feet and an approximately 5,952 square foot paved parking and hardscape area for a total of 41,603 square feet. The size of the Project Site will be reduced during Project implementation to increase the width of the alley and adjacent sidewalks to meet current standards. The post dedication Site would be 37,172 square feet. Uses within the block that lie adjacent to the Project

[5] Calculations included in the analysis of environmental impacts for this Project conservatively assume that all of the commercial space would be used for restaurant uses. This provides for conservative analyses as restaurant uses generate greater impacts than retail uses. For example, restaurant uses generate greater levels of traffic, consumption of resources such as energy and water consumption, and associated GHG emissions.

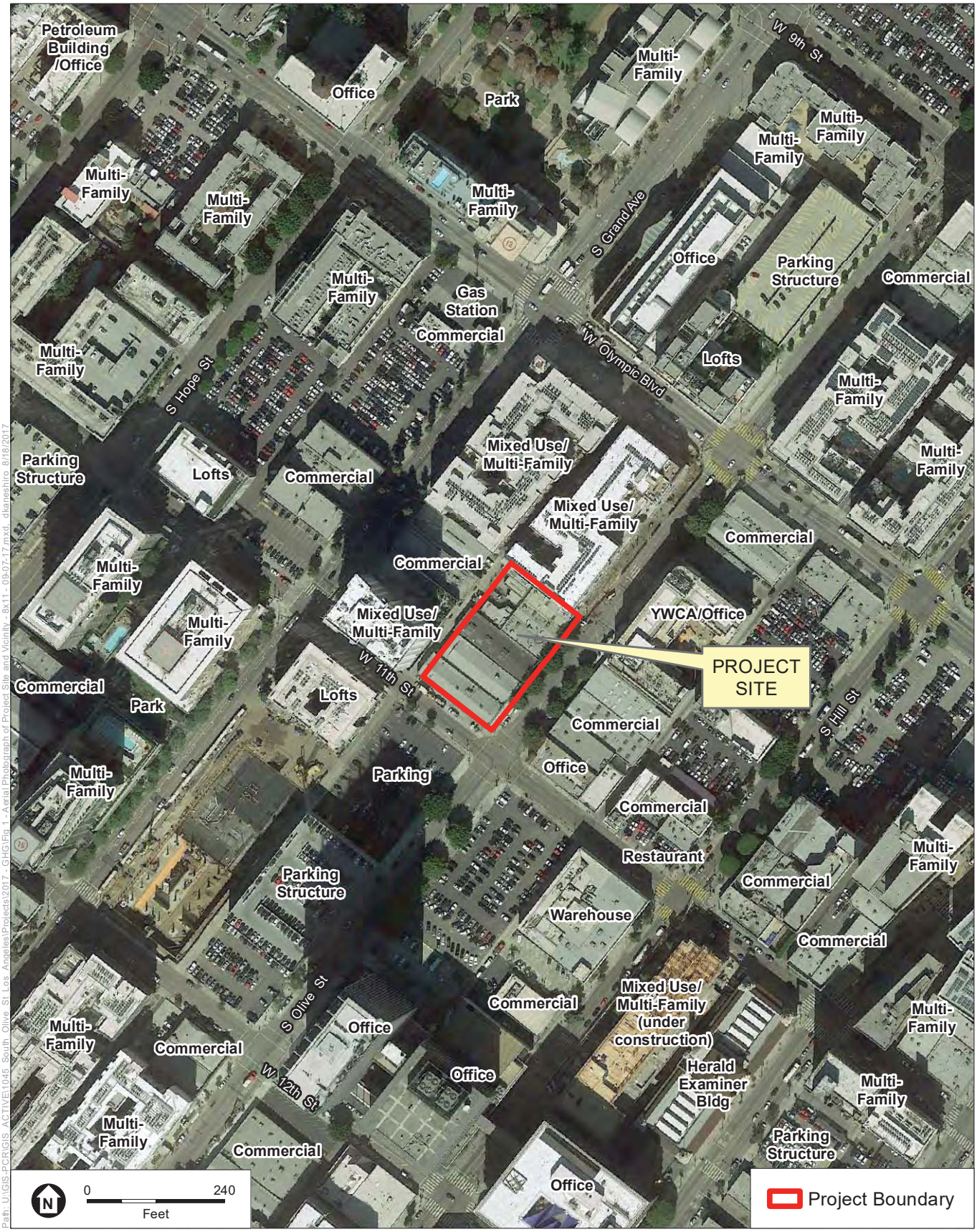
include a 7-story mixed-use development to the north, 7-story mixed-use development to the northwest, and a two story commercial building and 25-story mixed-use high-rise building to the west. Adjacent development across Olive Street to the east includes single story commercial uses; and across 11th Street to the south includes a surface parking. Surrounding development includes a large array of newer mixed use development, and older commercial, office, residential and warehouse uses.

The Project vicinity is highly urbanized and generally built-out. The South Park community of Downtown Los Angeles is one of nine-districts in the Central City Community Plan area, and is representative of the Downtown Center with its concentration of government-related uses, high- and mid-rise office buildings, residential buildings, hotels, retail uses, museums, and cultural districts. The South Park area includes a mix of residential, medical, commercial, and retail uses; with a substantial concentration of housing located next to and over support services, such as retail and commercial developments that provide employment opportunities for area residents.

The Project Site is served by a network of regional transportation facilities that provide access to the greater metropolitan area. It is located less than 0.5 miles from the Metro Blue Line and Expo Line station at Pico Boulevard. The Project is located adjacent to multiple bus and shuttle lines within a ¼-mile walking distance, including multiple existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the Los Angeles Department of Transportation (LADOT) Downtown Area Short Hop (DASH) Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. The Project Site is located approximately 0.6 miles north of the Santa Monica Freeway (I-10) and 0.6 miles east of the Harbor Freeway (I-110).

Construction of the Project would be completed over an approximately 3.5-year period. The Project would export approximately 80,520 cubic yards of soil and generate approximately 3,400 cubic yards of demolition debris (asphalt, interior and exterior building demolition, and general demolition debris).

The Project Site and surrounding uses are shown in **Figure 1**. The site plan for the Project is provide in **Figure 2**.



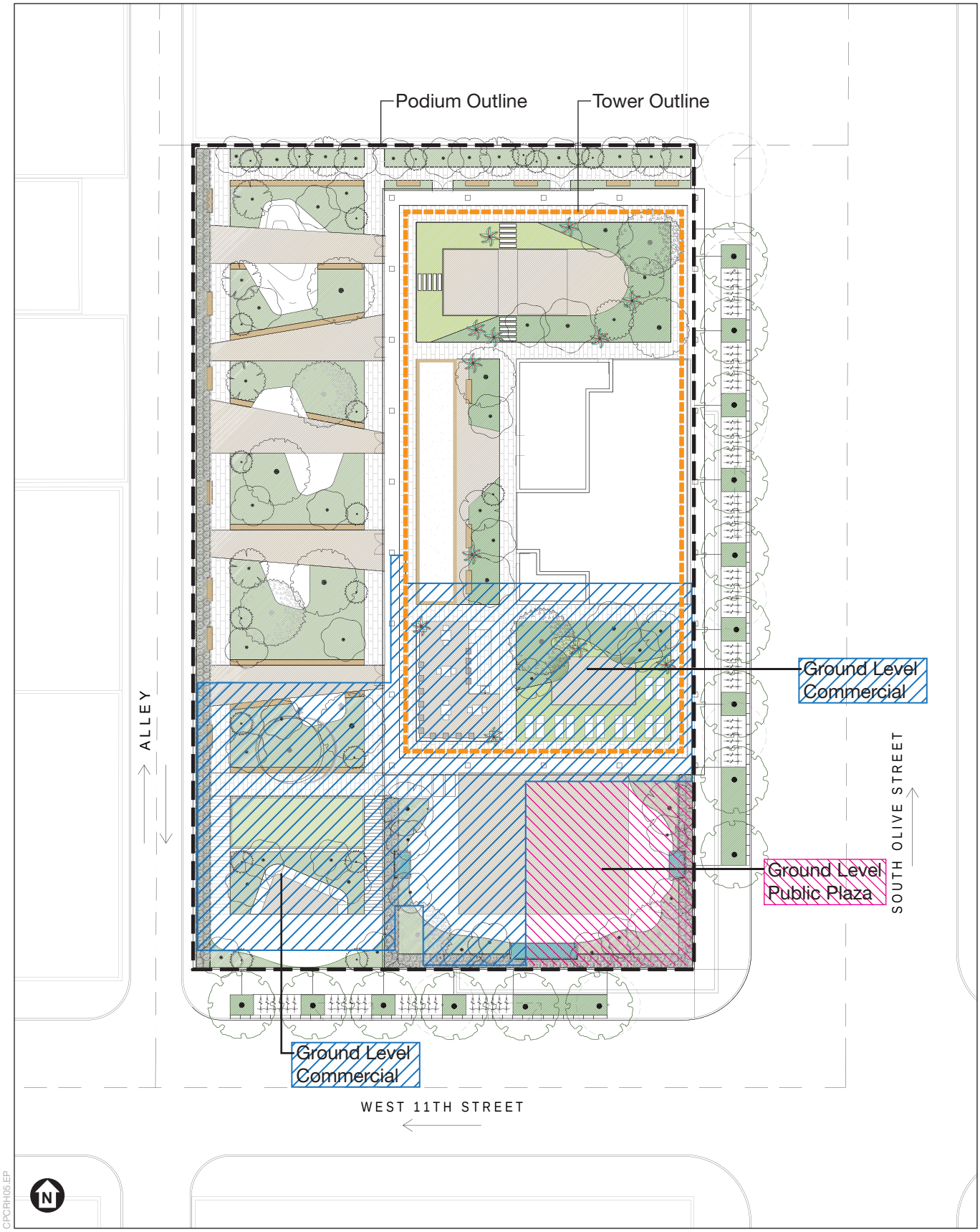
SOURCE: Google Earth, 2016

1045 Olive Street

Figure 1

Aerial Photograph with Surrounding Land Uses

ESA



SOURCE: ODA New York, 2017; ESA, 2017

1045 Olive Street

Figure 2

Proposed Site Plan

ESA

2.3 Jobs and Economic Improvement Through Environmental Leadership Act

In September 2011, the Governor 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:

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

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

   (1) Both direct and indirect greenhouse gas emissions associated with the project's construction and operation, including emissions from the project's projected energy use and transportation related emissions; and

   (2) 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).

c. Within 60 days of receiving the documentation in 6.b. above, the Board 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.

d. The Board 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.

SECTION 3
Greenhouse Gas Emissions

3.1 Global Climate Change and Greenhouse Gases

The natural process through which heat is retained in the troposphere[6] is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through a three-fold process as follows: (1) short wave radiation in the form of visible light emitted by the Sun is absorbed by the Earth as heat; (2) long-wave radiation re-emitted by the Earth; and (3) GHGs in the atmosphere absorbing or trapping the long-wave radiation and re-emitting it back towards the Earth and into space. This third process is the focus of global climate change actions.

The most commonly emitted GHG from anthropogenic (i.e., human) activities is carbon dioxide (CO_2). Not all GHGs possess the same ability to induce climate change; as a result, GHG contributions are commonly quantified in the units of equivalent mass of carbon dioxide (CO_2e). Mass emissions are calculated by converting pollutant-specific emissions to CO_2e emissions by applying the proper global warming potential (GWP) value.[7] These GWP ratios are available from the Intergovernmental Panel on Climate Change (IPCC). Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). The IPCC updated the GWP values based on the latest science in its Fourth Assessment Report (AR4). The updated GWPs in the IPCC AR4 are currently in use by the State of California for official GHG emission inventory purposes. By applying the GWP ratios, Project-related CO_2e emissions can be tabulated in metric tons of CO_2e ($MTCO_2e$) per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline. The CO_2e values are calculated for construction years as well as existing and Project build-out conditions in order to generate a net change in GHG emissions for construction and operation. Compounds that are regulated as GHGs are discussed below.

- Carbon Dioxide (CO2): CO2 is the most abundant GHG in the atmosphere and is primarily generated from fossil fuel combustion from stationary and mobile sources. CO2 is the reference gas (GWP of 1) for determining the GWPs of other GHGs.
- Methane (CH4): CH4 is emitted from biogenic sources (i.e., resulting from the activity of living organisms), incomplete combustion in forest fires, landfills, manure management, and

6 The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

7 GWPs and associated CO2e values were developed by the Intergovernmental Panel on Climate Change (IPCC). Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). The IPCC updated the GWP values based on the latest science in its Fourth Assessment Report (AR4). The California Air Resources Board (CARB) has begun reporting GHG emission inventories for California, starting with the 2012 inventory, using the GWP values from the IPCC AR4.

leaks in natural gas pipelines. The GWP of CH4 is 21 in the IPCC SAR and 25 in the IPCC AR4.

- Nitrous Oxide (N2O): N2O produced by human-related sources including agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of N2O is 310 in the IPCC SAR and 298 in the IPCC AR4.
- Hydrofluorocarbons (HFCs): HFCs are fluorinated compounds consisting of hydrogen, carbon, and fluorine. They are typically used as refrigerants in both stationary refrigeration and mobile air conditioning systems. The GWPs of HFCs ranges from 140 for HFC-152a to 11,700 for HFC-23 in the IPCC SAR and 124 to 14,800 in the IPCC AR4.
- Perfluorocarbons (PFCs): PFCs are fluorinated compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. The GWPs of PFCs range from 6,500 to 9,200 in the IPCC SAR and 7,390 to 17,700 in the IPCC AR4.
- Sulfur Hexafluoride (SF6): SF6 is a fluorinated compound consisting of sulfur and fluoride. It is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF6 has a GWP of 23,900 in the IPCC SAR and 22,800 in the IPCC AR4.

The Climate Registry (TCR) has prepared the General Reporting Protocol for calculating and reporting GHG emissions from a number of general and industry-specific activities.[8] No specific protocols are available for land use development projects; however, the General Reporting Protocol has been adapted to address the land use development GHG emissions in this assessment. The information provided in this assessment is generally consistent with the General Reporting Protocol minimum 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:

- 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 employee commute and business travel and waste disposal.

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

[8] The Climate Registry, General Reporting Protocol, Version 2.1, (2016).

CARB to be considered for future strategies by the industrial sector.[9] 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."[10] Therefore, direct and indirect emissions are considered in this assessment.

3.2 Baseline Operational Emissions

3.2.1 Description of Baseline Condition

The Project Site encompasses four existing commercial buildings totaling 35,651 square feet and 5,952 square feet of paved parking and hardscape area. Existing active land uses include 14,653 square feet of manufacturing space and 5,171 square feet of retail space. The remaining 15,827 square feet is currently vacant and not included in the analysis. For the purposes of estimating emissions within CalEEMod, the existing active uses were modeled as retail (strip mall) and manufacturing uses. The buildings were originally constructed between about the 1910s to the 1950s. The Project would demolish and remove the existing structures and associated infrastructure from the Project Site and the existing uses would be vacated prior to construction and would cease to operate. Therefore, the GHG emissions from the existing site uses would not occur contemporaneously with either Project construction emissions or Project operational emissions. The square footage for these existing land uses are provided in **Table 1**.

TABLE 1
BASELINE CONDITION FLOOR AREA

Land Use	Modeled CalEEMod Land Use	Square Feet (sqft)
Retail	Strip Mall	5,171
Manufacturing	Unrefrigerated Waterhouse-No Rail	14,653
Parking Lot/Hardscape Areas	Parking Lot	5,952

SOURCE: 1045 Olive, LLC 2017.

3.2.2 GHG Emission Sources and Calculation Methodology

Construction

The Project Site is currently built-out. Construction of the buildings and associated parking areas and infrastructure resulted in one-time GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O from heavy-duty construction equipment, haul trucks, and worker vehicles. However, sufficient detail is not available with respect to the construction schedule, equipment usage, and number of haul trips to provide a quantitative construction GHG emissions assessment for the

9 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).

10 Office of Planning and Research, Technical Advisory, CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review, page 5, (2008).

Baseline Condition. Therefore, construction-related GHG emissions are not included for the Baseline Condition. This is a conservative approach since, by excluding the Baseline Condition construction-related GHG emissions, the Project would need to provide slightly greater GHG reductions in order to meet the requirements of AB 900 of no net additional GHG emissions.

Operational Energy – Electricity

The generation of electricity in California is achieved through the combustion of fossil fuels, primarily natural gas, using steam boilers, internal combustion engines, and combustion turbines. A portion of the electricity in California is imported from outside the state and is derived from the combustion of coal and other non-gaseous fossil fuels. The combustion of fossil fuels to produce electricity results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. These emissions occur due to the electrical demand of the existing land uses that currently operate on the Project Site. The electricity generation occurs off-site; therefore, electricity use results in GHG emissions that are considered to be indirect.

Emissions of GHGs associated with the Baseline Condition energy demand are based on the size of the retail, manufacturing, and parking/hardscape 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 generally calculated as follows:

<u>Electricity:</u>

Annual Emissions $[MTCO_2e] = \left(\sum_i (\text{Units} \times D_E \times EF_E \times GWP)_i \right) \div 2204.62$ **[Equation 1]**

Where:	Units	=	Number of land use units (same land use type) [dwelling unit (DU) or 1000 sqft]
	D_E	=	Electrical demand factor [megawatt-hour (MWh)/DU or 1000 sqft/year]
	EF_E	=	GHG emission factor [pounds per megawatt-hour (MWh)]
	GWP	=	Global warming potential [CO_2 = 1, CH_4 = 25, N_2O = 298]
	2204.62	=	Conversion factor [pounds/MT]
	i	=	Summation index

Electrical demand is based on data from the California Energy Commission (CEC) *California Commercial End Use Survey* (CEUS), which lists energy demand by building type,[11] as incorporated into the California Emissions Estimator Model (CalEEMod).[12] The data from the CEUS is from 2002. Since 1978, the CEC has established building energy efficiency standards, which are updated periodically. CalEEMod (version 2016.3.2) incorporates correction factors to account for the 2016 Title 24 Building Energy Efficiency Standards. The existing buildings on the Project Site were built in the 1910s to the 1950s. Thus, the building electricity usage rates are

[11] California Energy Commission, California Commercial End-Use Survey, http://capabilities.itron.com/CeusWeb/ChartsSF/Default2.aspx. Accessed September 2017

[12] See: http://www.caleemod.com.

adjusted within CalEEMod using the "historical data" option to use the prior 2005 Title 24 Building Energy Efficiency Standards.[13] This is considered a conservative adjustment because the existing buildings were built prior to implementation of the 2005 Standards and thus would have been built to a less stringent energy standard and data is not available within CalEEMod to adjust usage factors prior to the 2005 Standards. Parking lot and hardscape areas result in electricity usage due to lighting needs and were included as sources.

The Los Angeles Department of Water and Power (LADWP) provides electric service to the Project Site. Emission factors for GHGs due to electrical generation to serve the electrical demands of the Baseline Condition were obtained from the LADWP 2016 Draft Power Integrated Resource Plan, which provides a CO_2 intensity of 1,132 pounds of CO_2 per MWh in 2015 (the most recent year for which data is provided).[14] LADWP has achieved average renewable energy sales of approximately 20 percent for the 2010 through 2013 period.[15] Emission factors for CH_4 and N_2O were obtained from CalEEMod.[16]

The estimated annual emissions from electrical demand from the Baseline Condition are provided in **Table 2**. Detailed emissions calculations are provided in **Appendix A**.

TABLE 2
BASELINE CONDITION ELECTRICAL DEMAND GREENHOUSE GAS EMISSIONS

Land Use	Units (1000 sqft)	Annual Electrical Demand Factor, D_E (MWh/year) [a]	Emission Factor, EF_E (pounds/MWh)			Annual GHG Emissions ($MTCO_2e$/year) [d]
			CO_2 [b]	CH_4 [c]	N_2O [c]	
Existing Site						
Retail	5.17	82.5	1,132	0.029	0.0062	42.5
Manufacturing	14.65	67.0	1,132	0.029	0.0062	34.5
Parking/Hardscape	5.95	5.2	1,132	0.029	0.0062	2.7
Subtotal						**80**

[a] California Air Resources Board, CalEEMod User's Guide, Appendix D, Section 5, November 2017, http://caleemod.com/. Accessed December 2017. Factors are based on the historical data option.
[b] Los Angeles Department of Water and Power, 2016 Draft Power Integrated Resource Plan, (2016) C-13.
[c] California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.
[d] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix A.**

SOURCE: ESA 2017.

13 California Air Resources Board, CalEEMod User's Guide, Section 4.6, November 2017, http://caleemod.com/. Accessed December 2017.
14 Los Angeles Department of Water and Power, 2016 Draft Power Integrated Resource Plan, (2016) C-13.
15 Los Angeles Department of Water and Power, 2016 Draft Power Integrated Resource Plan, (2016) ES-1.
16 California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

Operational Energy – Natural Gas

The existing land uses under the Baseline Condition utilize natural gas primarily for heating needs. The combustion of natural gas results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. The combustion of natural gas occurs on-site; therefore, the associated GHG emissions are considered to be direct.

The emissions of GHGs associated with natural gas combustion under the Baseline Condition are based on the size of the existing 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 $MTCO_2e$ are generally calculated as follows:

<u>Natural Gas:</u>

Annual Emissions [$MTCO_2e$] = $(\sum_i (\text{Units} \times D_{NG} \times EF_{NG} \times GWP)_i) \div 2204.62$ **[Equation 2]**

Where:	Units	=	Number of land use units (same land use type) [DU or 1000 sqft]
	D_{NG}	=	Natural gas combustion factor [MMBtu/DU or 1000 sqft/year]
	EF_{NG}	=	GHG emission factor [pounds/MMBtu]
	GWP	=	Global warming potential [CO_2 = 1, CH_4 = 25, N_2O = 298]
	2204.62	=	Conversion factor [pounds/MT]
	i	=	Summation index

Similar to the electricity calculations, natural gas demand is based on data from the CEUS, which lists energy demand by building type, as incorporated into CalEEMod. As discussed previously, the existing buildings on the Project Site were built in the 1910s to the 1950s. Thus, the building natural gas usage rates are adjusted within CalEEMod using the "historical data" option to use the prior 2005 Title 24 Building Energy Efficiency Standards. This is considered a conservative adjustment because the existing buildings were built prior to implementation of the 2005 Standards and thus would have been built to a less stringent energy standard and data is not available within CalEEMod to adjust usage factors prior to the 2005 Standards. Parking lot and hardscape areas do not result in natural gas combustion and were excluded as sources.

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 of the Baseline Condition were obtained from CalEEMod, which provides statewide emission factors.

The estimated annual emissions from natural gas combustion from the Baseline Condition are provided in **Table 3**. Detailed emissions calculations are provided in **Appendix A**.

TABLE 3
BASELINE CONDITION NATURAL GAS GREENHOUSE GAS EMISSIONS

Land Use	Units (1000 sqft)	Annual Natural Gas Demand Factor, D_{NG} (MMBtu/year) [a]	Emission Factor, EF_{NG} (pounds/MMBtu)			Annual GHG Emissions ($MTCO_2e$/year) [c]
			CO_2 [b]	CH_4 [b]	N_2O [b]	
Existing Site						
Retail	5.17	9.4	117.65	0.0023	0.0022	0.5
Manufacturing	14.65	15.2	117.65	0.0023	0.0022	0.8
Subtotal						**1**

[a] California Air Resources Board, CalEEMod User's Guide, Appendix D, Section 5, November 2017, http://caleemod.com/. Accessed December 2017. Factors are based on the historical data option.

[b] California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

[c] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix A.**

SOURCE: ESA 2017.

Operational Mobile

Mobile source emission calculations associated with the Baseline Condition are calculated using vehicle miles traveled (VMT) from the traffic analysis prepared for the Project.[17] The estimated VMT in the traffic analysis is based on average trip lengths for each land use were determined using CalEEMod. The trip type describes the purpose of the trip generated at each land use, such as for commercial trips. Commercial trips include commercial-customer (C-C), commercial-work (C-W), and commercial-nonwork (C-NW). The trip lengths are based on the location and urbanization of the Project area. The average trip length of each land use is the sum of the trip length of each trip type multiplied by the percentage of trip type and accounting for applicable reductions from proximity to transit and other VMT-reducing land use characteristics.

The annual VMT is based on the sum of the estimated weekday VMT (261 days out of a year) and the weekend VMT (104 days out of a year). Weekday VMT are provided in the traffic analysis prepared for the Project.[18] Weekend VMT are derived from the weekday VMT estimates by scaling the weekday VMT by the weighted factor of the weekend trip rates provided in CalEEMod for the existing site uses. The VMT calculations for the existing site uses are provided in **Appendix A**.

The analysis is also based on the CARB on-road vehicle emissions factor model (EMFAC). EMFAC2014 "represents ARB's current understanding of motor vehicle travel activities and their associated emission levels."[19] Emissions of GHGs associated with mobile sources under the Baseline Condition are based on the average daily trip rate, trip distance, the GHG emission factors for the mobile sources, and the GWP values for the GHGs emitted. The types of vehicles

[17] The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017.

[18] The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017.

[19] California Air Resources Board, Mobile Source Emissions Inventory, http://www.arb.ca.gov/msei/categories.htm#emfac2014. Accessed September 2017.

that visit the Project Site include all vehicle types including automobiles, light-duty trucks, delivery trucks, and waste haul trucks. Modeling for the Baseline Condition was conducted using the vehicle fleet mix for the South Coast Air Basin for all vehicle types as provided in EMFAC2014.

Emission factors were obtained from EMFAC2014, which was run in the emissions mode (also referred to as the "Burden" mode) and used to generate South Coast Air Basin-specific vehicle fleet emission factors in units of grams or metric tons per mile, which is the same methodology used by CalEEMod. 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 the South Coast Air Basin motor vehicle fleet mix for year 2017 as provided in EMFAC2014. Mobile source emissions are the product of the CalEEMod estimated VMT and the EMFAC2014 emission factors. The estimated annual emissions from mobile sources from the Baseline Condition are provided in **Table 4**. Detailed emissions calculations are provided in **Appendix A**.

TABLE 4
BASELINE CONDITION MOBILE SOURCE GREENHOUSE GAS EMISSIONS

Land Use	Estimated Annual VMT [a]	CO_2e Emission Factor (grams/mile) [b]	Annual GHG Emissions ($MTCO_2e$/year)
Existing Site			
Retail/Manufacturing (2017)	760,945	462.4	352
Subtotal			**352**

[a] The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017. Based on the estimated weekday VMT multiplied by 261 days per year and the estimated weekend VMT, using the weighted factor of the weekend trip rates provided in CalEEMod for the existing site uses multiplied by 104 days per year.

[b] EMFAC2014 Emission Factors for the South Coast Air Basin motor vehicle fleet mix.

SOURCE: ESA 2017.

Operational Solid Waste

The existing land uses under the Baseline Condition generate municipal solid waste (MSW) from day-to-day operational activities, which generally consists of product packaging, bottles, food scraps, paper, plastic, and other items routinely disposed of in municipal trash 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 under the Baseline Condition are calculated using CalEEMod. The emissions are based on the size of the existing 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 $MTCO_2e$ are generally calculated in CalEEMod as follows:

Solid Waste:

Annual Emissions [$MTCO_2e$] = ($\sum_i$ (Units × D_{MSW} × EF_{MSW} × GWP)$_i$) ÷ 1.1023
[Equation 3]

Where:	Units	=	Number of land use units (same land use type) [DU or 1000 sqft]
	D_{MSW}	=	Waste disposal rate [tons/DU or 1000 sqft/year]
	EF_{MSW}	=	GHG emission factor [tons/ton waste]
	GWP	=	Global warming potential [CO_2 = 1, CH_4 = 25, N_2O = 298]
	1.1023	=	Conversion factor [tons/MT]
	i	=	Summation index

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 waste disposal rates used in CalEEMod are based on data from the California Department of Resources Recycling and Recovery (CalRecycle).[20] The total amount of waste disposed was reduced by the diversion rate for the City of Los Angeles of approximately 76 percent, according to the most recent data available.[21] 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, are used in this assessment.

The estimated annual emissions from solid waste disposal from the Baseline Condition are provided in **Table 5**. Detailed emissions calculations are provided in **Appendix A**.

TABLE 5
BASELINE CONDITION SOLID WASTE DISPOSAL GREENHOUSE GAS EMISSIONS

Land Use	Waste Diversion Rate [a]	Waste Disposal after Diversion, D_{MSW} (tons/year) [b]	Landfill gas (no capture)	Landfill Gas (capture with flaring)	Annual GHG Emissions ($MTCO_2e$/year) [c]
Existing Site					
Retail/Manufacturing	76%	9.6	6%	94%	5
Subtotal					**5**

[a] City of Los Angeles, Bureau of Sanitation, Zero Waste Progress Report, (2013).
[b] CalRecycle, 2014 Generator-Based Characterization of Commercial Sector Disposal and Diversion in California, September 10, 2015, Table 1 Manufacturing – All Other (converted to lbs/employee/year). Available at: http://www.calrecycle.ca.gov/publications/Documents/1543/20151543.pdf. Accessed September 2017.
[c] Emissions are based on CalEEMod default values for landfill gas capture and flaring for the South Coast Air Basin region. Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix A.**

SOURCE: ESA 2017.

[20] CalRecycle, 2014 Generator-Based Characterization of Commercial Sector Disposal and Diversion in California, September 10, 2015, Table 1 Manufacturing – All Other (converted to lbs/employee/year). Available at: http://www.calrecycle.ca.gov/publications/Documents/1543/20151543.pdf. Accessed September 2017.
[21] City of Los Angeles, Bureau of Sanitation, Zero Waste Progress Report, (2013).

Operational Water and Wastewater

Water and wastewater generated from the existing land uses under the Baseline Condition requires energy to supply, distribute and treat. The combustion of fossil fuels to produce electricity results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. The electricity generation occurs off-site; therefore, the electricity use from water and wastewater results in GHG emissions that are considered to be indirect. Wastewater also results in emissions of GHGs from wastewater treatment systems (e.g., septic, aerobic, or lagoons) as well as from solids that are digested either through an anaerobic digester or with co-generation from combustion of digester gas.

The emissions of GHGs associated with water demand and wastewater generation under the Baseline Condition are calculated using CalEEMod. The emissions are based on the size of the existing 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 generally calculated in CalEEMod as follows for indoor and outdoor water demand:

<u>Water Supply, Treatment, and Distribution; Wastewater Treatment (electricity):</u>

Annual Emissions [$MTCO_2e$] = $\left(\sum_i (Units \times D_W \times (EI_W \div 1000) \times EF_W \times GWP)_i \right) \div 2204.62$
[Equation 4]

Where:	Units	=	Number of land use units (same land use type) [DU or 1000 sqft]
	D_W	=	Water demand factor [million gallons (Mgal)/DU or 1000 sqft/year]
	EI_W	=	Electricity intensity factor [kilowatt-hours (kWh)/Mgal]
	1000	=	Conversion factor [kWh/MWh]
	EF_W	=	GHG emission factor [pounds/MWh]
	GWP	=	Global warming potential [CO_2 = 1, CH_4 = 25, N_2O = 298]
	2204.62	=	Conversion factor [pounds/MT]
	i	=	Summation index

The estimated water demand is based on CalEEMod factors, which are based on annual water demand rates in the Pacific Institute *Waste Not Want Not* report.[22] There is no landscaping at the existing land uses at the Project Site. There are currently no trees or other substantial landscaping located on the Project Site with the exception of five street trees located along the street-side edge of Olive Street that are maintained by the City. Therefore, under the Baseline Condition, this analysis assumes no outdoor water demand associated with the existing land uses.

[22] 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. Published by the Pacific Institute for Studies in Development, Environment, and Security. Full report available online at: http://www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf. Appendices available online at: http://www.pacinst.org/reports/urban_usage/appendices.htm.

The CEC's estimate for energy intensity of the water use cycle in Southern California, as provided in the 2006 CEC report Refining Estimates of Water-Related Energy Use in California, is used to calculate the energy usage related to water supply, treatment, and distribution and wastewater treatment.[23] The same electricity GHG emissions factors discussed under the **Operational Energy – Electricity** subheading are used for water and wastewater energy usage.

The emissions of GHGs associated with wastewater treatment process emissions are also calculated using CalEEMod. The emissions are based on the type of treatment (e.g., aerobic, facultative lagoons, septic systems). The emissions are calculating using the default settings in CalEEMod for the type of wastewater treatment. Calculation formulas are described in detail in the California Emissions Estimator Model User's Guide, Appendix A.[24] As stated in the User's Guide, the GHGs emitted from each type of wastewater treatment are based on the CARB's Local Government Operations Protocol (LGOP),[25] which are in turn based on United States Environmental Protection Agency (USEPA) methodologies.[26] The default CalEEMod settings for wastewater treatment are: 10.33 percent septic tank, 87.46 percent aerobic, 2.21 percent facultative lagoons and 100 percent anaerobic combustion of gas.

The estimated annual emissions from water and wastewater from the Baseline Condition are provided in **Table 6**. Detailed emissions calculations are provided in **Appendix A**.

TABLE 6
BASELINE CONDITION WATER AND WASTEWATER GAS GREENHOUSE GAS EMISSIONS

Land Use	Water Demand, D_W (gal/year) [a]	Electricity Intensity Factor, EI_W (kWh/Mgal) [b]				Annual GHG Emissions ($MTCO_2e$/year) [c]
		Supply	Treat	Distribute	Treatment	
Existing Site						
Retail	382,955 (indoor) / 0 (outdoor)	9,727	111	1,272	1,911	3.1
Manufacturing	3,387,810 (indoor) / 0 (outdoor)	9,727	111	1,272	1,911	27.3
Subtotal						**30**

[a] City of Los Angeles, Department of Public Works, Bureau of Sanitation, Sewerage Facilities Charge, Sewage Generation Factors for Residential and Commercial Categories. Provided in the L.A. CEQA Thresholds Guide, pages M.2-22-M.2-26 (2006). Water demand rates are derived based on the wastewater generation rates.

[b] California Energy Commission, Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report, CEC-500-2006-118, (2006).

[c] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix A.**

SOURCE: ESA 2017.

[23] California Energy Commission, Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report, CEC-500-2006-118, (2006).

[24] California Air Resources Board, CalEEMod User's Guide, Appendix A, November 2017, http://caleemod.com/. Accessed December 2017.

[25] California Air Resources Board, Local Government Operations Protocol, Chapter 10: Wastewater Treatment Facilities, (2008).

[26] United States Environmental Protection Agency, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006, Chapter 8: Waste, (2008).

Operational Area and Stationary

Area sources of GHG emissions typically result from the operation of equipment used to maintain landscaping, such as lawnmowers and trimmers. The combustion of fossil fuels to operate these equipment results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. There is no landscaping at the existing land uses at the Project Site. There are currently no trees or other substantial landscaping located on the Project Site with the exception of five street trees located along the street-side edge of Olive Street that are maintained by the City. There are no other substantial stationary sources on-site, such as generators or industrial sized boilers. Therefore, under the Baseline Condition, this analysis does not include operational area or stationary sources of emissions associated with the existing land uses.

Summary of Baseline Condition GHG Emissions

A summary of the GHG emissions under the Baseline Condition is provided in **Table 7**.

TABLE 7
BASELINE CONDITION SUMMARY OF ANNUAL GREENHOUSE GAS EMISSIONS

Source	Annual GHG Emissions ($MTCO_2e$/year) [a]
Existing Site	
Electricity	80
Natural Gas	1
Mobile	352
Solid Waste	5
Water and Wastewater	30
Area and Stationary	0
Total	**468**

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

SOURCE: ESA 2017.

3.3 Project Construction and Operational Emissions

3.3.1 Description of Project Condition

The Project would demolish all existing buildings and surface parking/hardscape on the Project Site. The Project would construct an approximately 751,777 square foot (net) mixed-use high-rise building with 794 multi-family residential units and 12,504 square feet of neighborhood serving commercial uses. Approximately 103,380 square feet of amenity/open space would be provided including a ground level public plaza with streetscaping, landscaping and a public art Plaza. The Project would include the addition of 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover to the Project Site. The square footage for the Project land uses and modeled in CalEEMod are provided in **Table 8**.

TABLE 8
PROJECT FLOOR AREA

Land Use	Modeled CalEEMod Land Use	Units
Residential Apartments	Apartments High Rise	794 dwelling units (739,273 sqft)
Commercial [a]	High Turnover (Sit Down Restaurant)	12,504 sqft
Common Amenity Area for Residents (exterior/lounge/activity)	General Office	37,927 sqft
Common Amenity Area for Residents (interior/lounge/activity)	General Office	23,025 sqft
Private Balcony Space for Residents	Other Non-Asphalt Surfaces	39,700 sqft
Public Plaza Area	City Park	2,728 sqft
Parking	Enclosed Parking with Elevator	891 spaces (426,458 sqft)

[a] The commercial use is modeled as high turnover (sit down restaurant) in order to provide a conservative analysis. The high turnover (sit down restaurant) use generates more vehicle trips and has greater energy demand compared to other commercial (i.e., retail, office) uses.

SOURCE: 1045 Olive, LLC 2017.

For the purposes of this assessment, in order to provide a comparison of the Project's GHG emissions with the Baseline Condition, and to assess future GHG emissions trends of the Project, emissions of GHGs are estimated for the Project's construction and operational lifetime. Within the Project's operational lifetime, there are several key milestone years. The milestone years correspond to the following circumstances:[27, 28]

- 2023: Expected full initial operational year of the Project (electric utilities, including LADWP, are required to supply a minimum of 33 percent of electricity via renewable sources during this year);
- 2024: The year in which electric utilities, including LADWP, are expected to supply a minimum of 40 percent of electricity via renewable sources;
- 2025: The year in which the model year 2017-2025 light-duty vehicle GHG emissions and Corporate Average Fuel Economy standards are to be fully implemented for new vehicles;
- 2027: The year in which electric utilities, including LADWP, are expected to supply a minimum of 45 percent of electricity via renewable sources;
- 2030: The year in which electric utilities, including LADWP, are expected to supply a minimum of 50 percent of electricity via renewable sources.

[27] Assembly Bill 1493 (Pavley Regulations) reduces GHG emissions in new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017–2025 (Phase II). Also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020.

[28] On April 12, 2011, Governor Jerry Brown signed SB X1-2 to increase California's Renewables Portfolio Standard to 33 percent by 2020. SB 350 (Chapter 547, Statues of 2015) further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 was signed into law on October 7, 2015.

3.3.2 GHG Emission Sources and Calculation Methodology

Construction

Construction of the Project would result in one-time GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O from heavy-duty construction equipment, haul trucks, and worker vehicles. Construction emissions are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the off-road and on-road emissions factors. The emissions are estimated using the CalEEMod tool, which incorporates the CARB off-road equipment emissions factor model (OFFROAD) and on-road vehicle emissions factor model (EMFAC). The output values used in this analysis are adjusted to be Project-specific based on equipment types and the construction schedule. These values are applied to the construction phasing assumptions to generate GHG emissions values for each construction year. The CalEEMod tool provides options for specifying equipment, horsepower ratings, load factors, and operational hours per day. Since a construction contractor(s) has not yet been retained for the Project, specific equipment specifications are not yet known. Therefore, recommended equipment and vehicle horsepower ratings and load factors provided in CalEEMod are used in this assessment. According to the CalEEMod User's Guide, the model "utilizes widely accepted methodologies for estimating emissions combined with default data that can be used when site-specific information is not available."[29] Therefore, the use of the recommended CalEEMod data is an appropriate methodology. In addition, certain equipment, such as tower cranes and compressors, would be electric powered and were modeled in CalEEMod using the electric fuel input, rather than diesel fuel. Haul trucks would be used to export soil from the Project Site. Concrete trucks would be used to import concrete to the Project Site. Emissions from haul trucks and continuous pour concrete trucks were estimated outside of CalEEMod using EMFAC2014 emission factors for heavy-duty trucks because soil would be exported for only a portion of the days during the site preparation and grading/excavation construction phases, and the continuous concrete pour would occur for approximately 1 day (CalEEMod would incorrectly assume soil export and concrete import would occur every day during these phases).

Construction of the Project would occur over a number of phases and include activities such as demolition, debris and soil hauling, building construction, architectural coating, and paving. Information regarding the activities that would occur during these phases is provided below:

- **Demolition:** This phase is anticipated to begin as early as 2019 and last for approximately one month. If construction commences at a later date, this assessment would be considered conservative as future year emission factors tend to decline in future years. Construction equipment would include a concrete saw, loader, haul trucks, jackhammer, sweeper/scrubber and other construction equipment.
- **Site Preparation:** This phase is anticipated to occur during demolition and last for approximately one month. Construction equipment would include a concrete saw, excavator, and sweeper/scrubber.

[29] California Air Resources Board, CalEEMod User's Guide, p.1, November 2017, http://caleemod.com/. Accessed December 2017.

- **Grading and Excavation:** This phase is anticipated to have some overlap with the demolition and site preparation phase and last for approximately four months. Construction equipment would include a backhoe, drill rig, excavators, haul trucks, loaders, and sweeper/scrubber. Up to approximately 80,000 cubic yards of soil would be excavated and exported.
- **Utilities/Trenching:** This activity is anticipated to have some overlap with grading and excavation and last for approximately 3 months. During this phase, trenching for site utilizes would occur. Construction equipment would include a backhoe and sweeper/scrubber.
- **Foundation/Concrete Pouring:** This activity is anticipated to have some overlap with grading and excavation and utilities/trenching and would be on-going through building construction activities for approximately 2.5 years. During this activity, the building foundations would be prepared and concrete pouring would occur. Construction equipment would include a concrete trucks, backhoe, crane, forklift, and sweeper/scrubber.
- **Building Construction:** This phase is anticipated to begin after grading and excavation and after the building foundations have been prepared and last for just over 2 years. During this phase, the building would be constructed. Construction equipment would include cranes, forklifts, sweeper/scrubber, and material/vendor supply trucks.
- **Paving:** This activity is anticipated to last for approximately 2 months and occur during the building construction phase. During this activity, paving materials would be poured during construction of the buildings and related features and the surfaces would be paved. Construction equipment would include a backhoe, sweeper/scrubber, and other equipment.
- **Architectural Coating:** This activity is anticipated to last for approximately 2 years and occur during the building construction phase. During this activity, the interior and exterior coating would be applied to the residential and commercial uses as the floors are built out. Specific coating equipment would include an air compressor and forklift.

The emissions of GHGs associated with construction of the Project were calculated for each year of construction activity. Detailed emissions calculations are provided in **Appendix B**. Results of the GHG emissions calculations are presented in **Table 9**. Although GHGs are generated during construction and are accordingly considered one-time emissions, it is important to them when assessing all of the long-term GHG emissions associated with the Project.

TABLE 9
ESTIMATED UNMITIGATED PROJECT CONSTRUCTION GREENHOUSE GAS EMISSIONS

Emission Source	Annual GHG Emissions [a] (MTCO2e)
Construction Year 1	1,262
Construction Year 2	1,678
Construction Year 3	2,666
Construction Year 4	1,507

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

SOURCE: ESA 2017.

Operational Energy – Electricity

Electricity-related emissions of GHGs associated with operation of the Project are based on the size of the commercial and residential land uses (including residential amenities), 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 are calculated using the general formula shown previously as **Equation 1**. For residential land uses, emission factors are specified in units of dwelling units (DU). For nonresidential land uses, emission factors are specified in units of 1,000 square feet. This assessment also includes electricity-related GHG emissions from the proposed enclosed parking structure, which would include elevators, lighting, and a ventilation system.

Electricity demand is based on data from the CEUS, which lists energy demand by building type.[30] However, since the data from the CEUS is from 2002, CalEEMod incorporates correction factors to account for compliance with the 2016 Title 24 Building Standards Code, which went into effect on January 1, 2017. The Project would be required to meet the Title 24 standards in effect at the time of building permit application. For example, new Title 24 standards are anticipated to be adopted in the 2019 timeframe. Although the energy efficiency requirements of these future standards are not yet known, if these standards are in effect at the time of building permit application, the project would be expected achieve greater levels of energy efficiency compared to the 2016 Title 24 standards and energy-related GHG emissions would be reduced further below the levels shown in the analysis.

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 requirem-ents of the State of California Green Building Standards (CALGreen) Code, the City of Los Angeles Green Building Code, and the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Gold Certification.[31] According to the USGBC, LEED is the most widely used green building rating system in the world. 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. Green building features that would result in quantifiable reductions in GHG emissions would include the following:

> **Green Building Features**: The Project will achieve the USGBC LEED Gold Certification and will 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. A summary of key green building and LEED measures are provided below:

[30] California Energy Commission, California Commercial End-Use Survey, http://capabilities.itron.com/CeusWeb/ChartsSF/Default2.aspx. Accessed September 2017

[31] The LEED Gold Certification requirement for the Jobs and Economic Improvement Through Environmental Leadership Act for ELDP projects is established pursuant to AB 246 (Santiago, Ch. 522, Statutes of 2017), which was signed by the Governor on October 6, 2017.

- The Project will incorporate heat island reduction strategies for 50 percent of the site hardscapes or provide 100 percent structured parking and incorporate heat island reduction strategies for the Project roof areas.
- The Project will promote alternatives to conventionally fueled automobiles by providing electric vehicle charging stations and/or preferred parking for alternative-fuel vehicles, low-emitting, and fuel-efficient and ride-sharing vehicles.
- The Project will optimize building energy performance with a minimum of a 5 percent reduction from the LEED baseline consistent with LEED requirements.
- The Project will reduce water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline.
- The Project will provide on-site recycling areas with containers to promote the recycling of paper, metal, glass, and other recyclable materials and adequate storage areas for such containers.

The LEED building energy efficiency credits are earned relative to the increase in energy efficiency as compared to the LEED building energy baseline, which is established based on prior building energy efficiency standards. While the Project would optimize building energy performance and achieve LEED credits for building energy performance, additional energy reductions from LEED energy efficiency measures are not applied to avoid double counting reductions in the modeling from compliance with California's current 2016 Title 24 building energy requirements.[32]

The LADWP provides electric service to the Project Site. Currently, LADWP provides 20 percent of electricity via renewable sources.[33] LADWP is required to provide an increasing percentage from renewable sources in compliance with the Renewables Portfolio Standard with 33 percent by 2020, 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. During calendar year 2015, 37 percent of the energy delivered to LADWP customers was generated from two coal-fired generating stations: the Intermountain Power Project (IPP), located in Utah, and the Navajo Generating Station (NGS), located in Arizona. These stations provide base load generation to Los Angeles; however, they emit about twice as much CO_2 as energy generated from natural gas.[34] On July 1, 2016, LADWP sold its 477 MW share in NGS to Salt River Project, three and a half years before the operating agreement and land lease expires in December 2019.[35] LADWP continues to focus on early coal replacement options as a means to lower LADWP's CO_2 emission levels and increase renewable sources in accordance with the Renewables Portfolio Standard.

32 The current version of CalEEMod (version 2016.3.2) includes electricity and natural gas correction factors for the 2016 version of the Title 24 building standards. The LEED baseline uses prior energy standards; therefore, in order to avoid double counting reductions, additional energy reductions for LEED compliance are not included in the current calculations. As a result, this assessment provides a conservative assessment of energy-related GHG emissions.

33 Los Angeles Department of Water and Power, 2016 Draft Power Integrated Resource Plan, (2016) ES-1.

34 Los Angeles Department of Water and Power, 2016 Draft Power Integrated Resource Plan, (2016) ES-8.

35 Los Angeles Department of Water and Power, 2016 Draft Power Integrated Resource Plan, (2016) ES-8.

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 [pounds] CO_2/MWh may be used."[36] 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."[37] Therefore, consistent with the CARB staff recommendation, a CO_2 intensity factor of 595 pounds of CO_2 per MWh was used for electricity emissions for Project operational year 2023. Future year CO_2 intensity factors were scaled proportionately based on the future year renewable energy targets of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. Emission factors for CH_4 and N_2O were obtained from CalEEMod.[38] The estimated annual emissions from electrical demand from the project's land uses during the opening year are provided in **Table 10**. Detailed emissions calculations are provided in **Appendix B**.

TABLE 10
PROJECT ELECTRICAL DEMAND GREENHOUSE GAS EMISSIONS

Land Use	Units (1000 sqft)	Annual Electrical Demand Factor, D_E (MWh/year) [a]	Emission Factor, EF_E (pounds/MWh)			Annual GHG Emissions ($MTCO_2e$/year) [d]
			CO_2 [b]	CH_4 [c]	N_2O [c]	
2023						
Apartment	794 DU	3,060.0	595	0.029	0.0062	829.3
High Turnover (Sit Down Rest.)	12.5	551.9	595	0.029	0.0062	149.6
Publicly Accessible Plaza Area	2.7	0.95	595	0.029	0.0062	0.3
Common Open Space (Exterior)	37.9	492.7	595	0.029	0.0062	133.5
Common Open Space (Interior)	23.0	299.1	595	0.029	0.0062	81.1
Private Balconies for Residents	39.7	13.9	595	0.029	0.0062	3.8
Enclosed Parking with Elevator	426.5	2,499.0	595	0.029	0.0062	677.3
Subtotal						**1,875**
2024-2026						
Apartment	794 DU	3,060.0	533	0.029	0.0062	743.3
High Turnover (Sit Down Rest.)	12.5	551.9	533	0.029	0.0062	134.1
Publicly Accessible Plaza Area	2.7	0.95	533	0.029	0.0062	0.2
Common Open Space (Exterior)	37.9	492.7	533	0.029	0.0062	119.7
Common Open Space (Interior)	23.0	299.1	533	0.029	0.0062	72.6
Private Balconies for Residents	39.7	13.9	533	0.029	0.0062	3.4
Enclosed Parking with Elevator	426.5	2,499.0	533	0.029	0.0062	607.0
Subtotal						**1,680**

36 California Air Resources Board, Statewide Emission Factors (EF) For Use With AB 900 Projects, January 2017. The emission factor of 595 pounds CO_2/MWh is from the California LEV III Initial Statement Of Reasons (ISOR, Dec. 7, 2011), http://www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm, based on analysis with CA-GREET model. This document is provided in **Appendix C**.

37 California Air Resources Board, Statewide Emission Factors (EF) For Use With AB 900 Projects, January 2017.

38 California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

Land Use	Units (1000 sqft)	Annual Electrical Demand Factor, D_E (MWh/year) [a]	Emission Factor, EF_E (pounds/MWh)			Annual GHG Emissions ($MTCO_2e$/year) [d]
			CO_2 [b]	CH_4 [c]	N_2O [c]	
2027-2029						
Apartment	794 DU	3,060.0	488	0.029	0.0062	680.8
High Turnover (Sit Down Rest.)	12.5	551.9	488	0.029	0.0062	122.8
Publicly Accessible Plaza Area	2.7	0.95	488	0.029	0.0062	0.2
Common Open Space (Exterior)	37.9	492.7	488	0.029	0.0062	109.6
Common Open Space (Interior)	23.0	299.1	488	0.029	0.0062	66.5
Private Balconies for Residents	39.7	13.9	488	0.029	0.0062	3.1
Enclosed Parking with Elevator	426.5	2,499.0	488	0.029	0.0062	556.0
Subtotal						**1,539**
2030-2052						
Apartment	794 DU	3,060.0	444	0.029	0.0062	619.8
High Turnover (Sit Down Rest.)	12.5	551.9	444	0.029	0.0062	111.8
Publicly Accessible Plaza Area	2.7	0.95	444	0.029	0.0062	0.2
Common Open Space (Exterior)	37.9	492.7	444	0.029	0.0062	99.8
Common Open Space (Interior)	23.0	299.1	444	0.029	0.0062	60.6
Private Balconies for Residents	39.7	13.9	444	0.029	0.0062	2.8
Enclosed Parking with Elevator	426.5	2,499.0	444	0.029	0.0062	506.1
Subtotal						**1,401**

[a] California Air Pollution Control Officers Association, California Emissions Estimator Model, Climate Zone 11, http://www.caleemod.com/. Accessed December 2017. The current version of CalEEMod (version 2016.3.2) includes electricity and natural gas correction factors for the 2016 version of the Title 24 building standards.

[b] California Air Resources Board, Statewide Emission Factors (EF) for Use with AB 900 Projects, January 2017.

[c] California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

[d] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B.**

SOURCE: ESA 2017.

Operational Energy – Natural Gas

Natural gas-related emissions of GHGs associated with operation of the project are based on the size of the commercial, restaurant, and residential land uses (including residential amenities), the natural gas demand factors for the land uses, the GHG emission factors for the natural gas combustion, and the GWP values for the GHGs emitted. Annual natural gas GHG emissions are calculated using the general formula shown previously as **Equation 2**. For residential land uses, emission factors are specified in units of DU. For nonresidential land uses, emission factors are specified in units of 1,000 square feet.

Natural gas demand is based on data from the CEUS, which lists energy demand by building type.[39] However, since the data from the CEUS is from 2002, CalEEMod incorporates correction

[39] California Energy Commission, California Commercial End-Use Survey, http://capabilities.itron.com/CeusWeb/ChartsSF/Default2.aspx. Accessed September 2017.

factors to account for compliance with the 2016 Title 24 Building Standards Code, which went into effect on January 1, 2017 (since the LEED baseline is established based on prior building energy efficiency standards, additional energy reductions from LEED energy efficiency measures are not applied to avoid double counting reductions).[40] 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 CALGreen Code, the City of Los Angeles Green Building Code, and the USGBC LEED Gold Certification. 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. A summary of the energy-efficiency PDFs is provided above in PDF-GHG-1.

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 of the project were obtained from CalEEMod, which provides statewide emission factors.[41] The emissions of GHGs due to natural gas demand would be relatively steady for the years assessed. The estimated annual emissions from natural gas combustion from the project are provided in **Table 11**. Detailed emissions calculations are provided in **Appendix B**.

TABLE 11
PROJECT NATURAL GAS COMBUSTION GREENHOUSE GAS EMISSIONS

Land Use	Units (1000 sqft)	Annual Natural Gas Demand Factor (MBtu/year) [a]	Emission Factor (pounds/MMBtu)			Annual GHG Emissions ($MTCO_2e$/year) [c]
			CO_2 [b]	CH_4 [b]	N_2O [b]	
2023-2052						
Apartment [e]	739.3	7,318.3	117.65	0.0023	0.0022	392.9
High Turnover (Sit Down Rest.)	12.5	2,885.4	117.65	0.0023	0.0022	154.9
Publicly Accessible Plaza Area	2.7	0	117.65	0.0023	0.0022	0
Common Open Space (Exterior)	37.9	394.8	117.65	0.0023	0.0022	21.2
Common Open Space (Interior)	23.0	239.7	117.65	0.0023	0.0022	12.9
Private Balconies for Residents	39.7	0	117.65	0.0023	0.0022	0
Enclosed Parking with Elevator	426.5	0	117.65	0.0023	0.0022	0
Subtotal						**582**

[a] California Air Pollution Control Officers Association, California Emissions Estimator Model, Climate Zone 11, http://www.caleemod.com/. Accessed December 2017. The current version of CalEEMod (version 2016.3.2) includes electricity and natural gas correction factors for the 2016 version of the Title 24 building standards.

[b] California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

[c] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B.**

40 The current version of CalEEMod (version 2016.3.2) includes electricity and natural gas correction factors for the 2016 version of the Title 24 building standards. The LEED baseline uses prior energy standards; therefore, in order to avoid double counting reductions, additional energy reductions for LEED compliance are not included in the current calculations. As a result, this assessment provides a conservative assessment of energy-related GHG emissions.

41 California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

SOURCE: ESA 2017.

Operational Mobile

Mobile source emission calculations associated with the project are calculated using the VMT from the traffic analysis prepared for the project.[42] The estimated VMT in the traffic analysis is based on average trip lengths for each land use were determined using CalEEMod. The trip type describes the purpose of the trip generated at each land use, such as residential trips and commercial trips. Residential trips include home-work (H-W), home-shop (H-S), and home-other (H-O). Commercial trips include commercial-customer (C-C), commercial-work (C-W), and commercial-nonwork (C-NW). The trip lengths are based on the location and urbanization of the project area. The average trip length of each land use is the sum of the trip length of each trip type multiplied by the percentage of trip type.

The project is considered an "infill" project, as it is replacing existing commercial uses with a high-density, mixed-use development. The project proposes higher density, consistent with compact growth, on a parcel of infill urban land accessible to and well served by public transit including frequent and comprehensive transit services provided by the nearby Metro Blue Line and Expo Line, where the Blue line provides convenient access to locations within Downtown Los Angeles, Long Beach and Compton, and where the Expo line provides convenient access to locations in Los Angeles, Culver City and Santa Monica. Both provide direct connections to the Metro Gold, Purple, and Expo lines that provide transit service to a multitude of locations through the Los Angeles region. The project would be located within a half-mile of public transportation, including 10 existing Metro bus routes (14, 28, 37, 70, 71, 76, 78, 79, 96 and 378), two Rapid Lines (770 and 728), one Foothill Transit Line (FT Silver Streak), one Santa Monica Transit Line (BBB10), and two LADOT Commuter Express Lines CE 431 and CE 437. New housing and job growth, as a result of the completed project, is focused in a high-quality transit area (HQTA), which the Southern California Association of Governments (SCAG) defines as an area within a half mile of a well-serviced transit stop. These land use characteristics are analyzed below to demonstrate that the project would result in reduced vehicle trips, VMT, and associated transportation-related GHG emissions, as well as air pollutant emissions, compared to the statewide and South Coast Air Basin average.

Based on the AB 900 Traffic Assessment prepared by The Mobility Group, Project related reductions in trip generation and VMT due to the Project's infill nature, location, design, and TDM program were quantified.[43] The characteristics of the Project listed below would result in a reduction in VMT and associated GHG and air pollutant emissions.

- **Internal Capture Reduction:** The Project's restaurant space would provide a convenient local destination for the residential element of the Project without having to drive to other locations. It was estimated that a reduction of 15 percent of the trips to and from the restaurant space would come from the on-site residential element of the Project.

[42] The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017.
[43] The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017.

- **Transit and Walk/Bike Reduction:** The Project is located in a highly-walkable area of downtown Los Angeles with a high level of provision of bicycle facilities and excellent access to the highest level of transit service in Los Angeles, that will provide convenient access to local employment, shopping and entertainment opportunities without using a car for the residents of the Project. Therefore, it was estimated that vehicle trips would be reduced by 20 percent due to transit and walk/bike trips, consistent with LADOT guidelines and methodology.

- **Transportation Demand Management (TDM) Reduction:** The Project proposes a TDM package to encourage the use of non-auto modes and reduce vehicle trips, that could include the following measures:
  - Promotion and support of carpools and rideshares, including parking and transit incentives.
  - Preferential parking for carpools and vanpools for employees.
  - Provide on-site real-time information displays to make available real-time information on car-sharing, transit, vanpools, taxis.
  - External and internal multimodal wayfinding signage.
  - Enroll tenants in trip tracking applications, if applicable.
  - Transit Welcome Package – to all new residents/employees with information on alternate modes and walk destination opportunities.
  - Unbundling of residential parking
  - Provide off-street residential and retail parking, and freight-loading spaces, and participate in a Car-Share Program to provide spaces for car-share vehicles.
  - Pursue with the City the implementation of on-street commercial loading spaces for deliveries and drop-off.
  - Pursue with the City the implementation of on-street passenger drop-off spaces.
  - Provide access to collapsible shopping carts and/or cargo bike for ease of local shopping.
  - Discounts for employees who utilize public transit to travel to site.
  - On-site bicycle amenities such as access to free bicycles for residential guests, on-site repair station and bicycle racks, and lockers/showers for residents and employees, etc.
  - Participate in the City's Bike Share Program by providing an area for bike share facilities.

  The implementation of the TDM package would result in an estimated reduction of 10 percent of the vehicle trips to and from the residential element of the Proposed Project.

- **Pass-by Trip Reduction:** The Project's commercial restaurant space would provide a convenient local destination for residents in the local neighborhood without having to drive to other locations. It was estimated that a reduction of 20 percent of trips to and from the restaurant space would result from pass-by customers.

The annual VMT is based on the sum of the estimated weekday VMT (261 days out of a year) and the weekend VMT (104 days out of a year). Weekday VMT are provided in the traffic

analysis prepared for the Project.[44] Weekend VMT are derived from the weekday VMT estimates by scaling the weekday VMT by the weighted factor of the weekend trip rates provided in CalEEMod for the existing site uses. The VMT calculations for the project site uses are provided in **Appendix B**.

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 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 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). All vehicle types would visit the project site. Therefore, this assessment uses the South Coast Air Basin motor vehicle fleet mix and the fleet average calendar year emissions factors from EMFAC2014 to estimate mobile source GHG emissions. Mobile source emissions are estimates for calendar years 2023 through 2052.

The estimated annual emissions from mobile sources from the project are provided in **Table 12**, *Project Mobile Source Greenhouse Gas Emissions*. Detailed emissions calculations are provided in **Appendix B**.

TABLE 12
PROJECT MOBILE SOURCE GREENHOUSE GAS EMISSIONS

Fleet Mix Year (All Vehicle Classes)	Extimated Annual VMT [a]	CO_2e Emission Factor (grams/mile) [b]	Annual GHG Emissions ($MTCO_2e$/year)
2023-2052			
2023	17,103,425	392.7	6,716
2024	17,103,425	382.7	6,546
2025	17,103,425	371.0	6,346
2026	17,103,425	361.2	6,178
2027	17,103,425	352.5	6,029
2028	17,103,425	344.9	5,899
2029	17,103,425	338.2	5,785
2030	17,103,425	332.4	5,686
2031	17,103,425	327.7	5,604
2032	17,103,425	323.3	5,529
2033	17,103,425	319.4	5,463
2034	17,103,425	316.2	5,408

44 The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017.

Fleet Mix Year (All Vehicle Classes)	Extimated Annual VMT [a]	CO_2e Emission Factor (grams/mile) [b]	Annual GHG Emissions ($MTCO_2e$/year)
2023-2052			
2035	17,103,425	313.6	5,363
2036	17,103,425	311.6	5,330
2037	17,103,425	310.0	5,302
2038	17,103,425	308.8	5,281
2039	17,103,425	307.9	5,266
2040	17,103,425	307.2	5,255
2041	17,103,425	306.8	5,247
2042	17,103,425	306.5	5,243
2043	17,103,425	306.5	5,242
2044	17,103,425	306.5	5,242
2045	17,103,425	306.6	5,244
2046	17,103,425	306.9	5,249
2047	17,103,425	307.2	5,254
2048	17,103,425	307.6	5,261
2049	17,103,425	308.0	5,269
2050	17,103,425	308.6	5,279
2051 [c]	17,103,425	308.6	5,279
2052 [c]	17,103,425	308.6	5,279

[a] The Mobility Group, 1045 Olive Street Project – AB 900 Traffic Assessment, September 2017. Based on the estimated weekday VMT multiplied by 261 days per year and the estimated weekend VMT, using the weighted factor of the weekend trip rates provided in CalEEMod for the existing site uses multiplied by 104 days per year.

[b] EMFAC2014 Emission Factors for the South Coast Air Basin motor vehicle fleet mix.

[c] EMFAC2014 does not generate emission factors for calendar years after 2050. Therefore, 2050 emission factors were used to represent emissions in calendar years 2051 and 2052.

SOURCE: ESA 2017.

Operational Solid Waste

The project would generate MSW from day-to-day operational activities, which generally consists of product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, plastic, and other items routinely disposed of in trash 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 under the project are calculated using CalEEMod. The emissions are based on the size of the commercial and residential 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 $MTCO_2e$ are generally calculated in CalEEMod using the general formula shown previously as **Equation 3**.

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 waste disposal rates used in CalEEMod are based on waste generation data for applicable residential and nonresidential land uses from the City of Los Angeles and CalRecycle. The total amount of waste disposed was reduced by the diversion rate for the City of Los Angeles of 76 percent, according to data available from the City.[45] 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, are used in this assessment.

The estimated annual emissions from solid waste disposal from the project are provided in **Table 13**. The emissions of GHGs due to waste generation would be relatively steady for the years assessed. Detailed emissions calculations are provided in **Appendix B**.

TABLE 13
PROJECT SOLID WASTE DISPOSAL GREENHOUSE GAS EMISSIONS

Land Use [a]	Waste Diversion [b]	Waste Disposal Rate After Diversion (tons/year)	Landfill gas (no capture)	Landfill Gas (capture with flaring)	Annual GHG Emissions ($MTCO_2e$/year) [c]
2023-2052					
Apartment	76%	425.3	6%	94%	213.9
High Turnover (Sit Down Rest.)	76%	23.8	6%	94%	11.9
Subtotal					**226**

[a] Waste generation factors provided by
Apartment: City of Los Angeles (LA) California Environmental Quality Act (CEQA) Thresholds Guide, Chapter M.3 Solid Waste, (2006). Available at: http://www.environmentla.org/programs/Thresholds/Complete%20Threshold%20Guide%202006.pdf. Accessed September 2017.
Commercial (Restaurant): CalRecycle 2014 Generator-Based Characterization of Commercial Sector Disposal and Diversion in California, September 10, 2015, Table 1 (converted to lbs/employee/year). Available at: http://www.calrecycle.ca.gov/publications/Documents/1543/20151543.pdf. Accessed September 2017. The calculation assumes all of the commercial space would be used for restaurant uses. If other types of retail use are located on the Project Site their solid waste generation would be less than this calculation.

[b] City of Los Angeles, Bureau of Sanitation, Zero Waste Progress Report, (2013).

[c] Emissions are based on CalEEMod default values for landfill gas capture and flaring for the South Coast Air Basin region. Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B.**

SOURCE: ESA 2017.

With respect to municipal solid waste, the State has enacted regulations to address solid waste services and recycling. California Public Resources Code, Division 30, Part 3 Chapter 12.8, Section 42649 et seq. requires businesses that produce four cubic yards or more of solid waste per week or multifamily residential dwellings of five units or more to arrange for recycling services that are consistent with state or local laws or requirements, including a local ordinance or agreement, applicable to the collection, handling, or recycling of solid waste, to the extent that

[45] City of Los Angeles, Bureau of Sanitation, Zero Waste Progress Report, (2013).

these services are offered and reasonably available from a local service provider.[46] In addition, California Public Resources Code, Division 30, Part 3 Chapter 12.9, Section 42649.8 et seq. requires after January 1, 2020, if the department determines that statewide disposal of organic waste has not been reduced to 50 percent of the level of disposal during 2014, a business that generates two cubic yards or more per week of commercial solid waste is required to arrange for organic waste recycling services that include at least one of the following actions: (1) source separate of organic waste from other waste and subscribe to a basic level of organic waste recycling service that includes collection and recycling of organic waste, (2) recycle its organic waste on-site or self-haul its own organic waste for recycling, (3) subscribe to an organic waste recycling service that may include mixed waste processing that specifically recycles organic waste, (4) make other arrangements to meet the organic waste requirements of a local governmental agency that are more stringent or comprehensive than the requirements of Chapter 12.9, unless the department determines that this requirement will not result in significant additional reductions of organics disposal.[47] The City has developed and is in the process of implementing the Solid Waste Integrated Resources Plan (SWIRP), also referred to as the City's Zero Waste Plan, whose goal is to lead Los Angeles towards being a "zero waste" City by 2030.[48] These waste reduction plans, policies, and regulations, along with Mayoral and City Council directives, have increased the level of waste diversion (e.g., recycling) for the City to 76 percent as of 2013.[49] The City has also approved Ordinance No. 181519 (Los Angeles Municipal Code (LAMC) Chapter VI, Article 6, Section 66.32-66.32.5), which requires the diversion of mixed construction and demolition debris to City certified construction and demolition waste processors. The project would be consistent with the City and State waste requirements by utilizing waste collection services that are approved by the City and that meet the applicable requirements for waste diversion and recycling mandates. The City generally relies on single-stream waste recycling where mixed waste is collected and sorted for recycling at a waste reclamation facility. The project would subscribe to a municipal solid waste collection service that is approved by the City and that meets applicable City and State waste collection, management, recycling and diversion requirements.

Operational Water and Wastewater

Water and wastewater generated from the existing land uses under the project would require energy to supply, distribute and treat. Emissions of GHGs would result from the combustion of

46 California Legislature, California Public Resources Code, Division 30, Part 3 Chapter 12.8, Section 42649. 2011, https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=12.8.&article=. Access October 2017

47 California Legislature, California Public Resources Code, Division 30, Part 3 Chapter 12.9, Section 42649.9. January 2015, https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=12.9.&article=. Accessed October 2017.

48 City of Los Angeles Department of Public Works, LA Sanitation, Solid Waste Integrated Resources Plan (SWIRP) – A Zero Waste Management Plan, October 2013, https://www.lacitysan.org/san/sandocview?docname=cnt012522. Accessed October 2017.

49 City of Los Angeles Department of Public Works, LA Sanitation, Recycling, 2017, https://www.lacitysan.org/san/faces/home/portal/s-lsh-wwd/s-lsh-wwd-s/s-lsh-wwd-s-r?_adf.ctrl-state=kq9mn3h5a_188. Accessed October 2017.

fossil fuels to produce electricity as well as the wastewater treatment process itself, which results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O.

The emissions of GHGs associated with water demand and wastewater generation under the project are calculated using CalEEMod. The emissions are based on the size of the commercial and residential 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 generally calculated in CalEEMod using the general formula shown previously as **Equation 4**.

CalEEMod calculates water demand based on annual rates in the Pacific Institute *Waste Not Want Not* report.[50] 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 project would incorporate PDFs to reduce indoor and outdoor water usage, as summarized previous in PDF-GHG-1. Implementation of these PDFs would reduce indoor water usage by approximately 35 percent compared to typical usage values for developments meeting the minimum requirements. These water reduction factors have been accounted for in CalEEMod.

The CEC's estimate for energy intensity of the water use cycle in Southern California, as provided in the 2006 CEC report *Refining Estimates of Water-Related Energy Use in California*, is used to calculate the energy usage related to water supply, treatment, and distribution and wastewater treatment.[51] The same electricity GHG emissions factors discussed under the **Operational Energy – Electricity** subheading are used for water and wastewater energy usage.

The emissions of GHGs associated with wastewater treatment process emissions are also calculated using CalEEMod. The emissions are based on the type of treatment (e.g., aerobic, facultative lagoons, septic systems). The emissions are calculating using the default settings in CalEEMod for the type of wastewater treatment. Calculation formulas are described in detail in the *California Emissions Estimator Model User's Guide, Appendix A*.[52] As stated in the *User's Guide*, the GHGs emitted from each type of wastewater treatment are based on the CARB's *Local Government Operations Protocol* (LGOP),[53] which are in turn based on United States Environmental Protection Agency (USEPA) methodologies.[54] The default CalEEMod settings for wastewater treatment are: 10.33 percent septic tank, 87.46 percent aerobic, 2.21 percent facultative lagoons and 100 percent anaerobic combustion of gas. The estimated annual emissions

50 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. Published by the Pacific Institute for Studies in Development, Environment, and Security. Full report available online at: http://www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf. Appendices available online at: http://www.pacinst.org/reports/urban_usage/appendices.htm.

51 California Energy Commission, Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report, CEC-500-2006-118, (2006).

52 California Air Resources Board, CalEEMod User's Guide, Appendix A, November 2017, http://caleemod.com/. Accessed December 2017.

53 California Air Resources Board, Local Government Operations Protocol, Chapter 10: Wastewater Treatment Facilities, (2008).

54 United States Environmental Protection Agency, Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2006, Chapter 8: Waste, (2008).

from water and wastewater from the project are provided in **Table 14**. Detailed emissions calculations are provided in **Appendix B**.

TABLE 14
PROJECT WATER AND WASTEWATER GREENHOUSE GAS EMISSIONS

Land Use	Indoor Water Demand (gal/year) [a]	Outdoor Water Demand (gal/year) [a]	Suppy Water (kwh/Mgal)	Treat Water (kWh/Mgal)	Distribute Water (kWh/Mgal)	Wastewater Treatment (kWh/Mgal)	Annual GHG Emissions ($MTCO_2e$/year) [b]
2023							
Apartment	31,039,400	16,306,900	9,727	111	1,272	1,911	200.9
High Turnover (Sit Down Rest.)	2,276,500	121,091	9,727	111	1,272	1,911	11.5
Publicly Accessible Plaza Area	0	35,744	9,727	111	1,272	1,911	0.1
Common Open Space (Interior/Exterior) [c]	6,499,720	3,319,750	9,727	111	1,272	1,911	41.8
Subtotal							**254**
2024-2026							
Apartment	31,039,400	16,306,900	9,727	111	1,272	1,911	184.4
High Turnover (Sit Down Rest.)	2,276,500	121,091	9,727	111	1,272	1,911	10.6
Publicly Accessible Plaza Area	0	35,744	9,727	111	1,272	1,911	0.1
Common Open Space (Interior/Exterior) [c]	6,499,720	3,319,750	9,727	111	1,272	1,911	38.4
Subtotal							**234**
2027-2029							
Apartment	31,039,400	16,306,900	9,727	111	1,272	1,911	172.5
High Turnover (Sit Down Rest.)	2,276,500	121,091	9,727	111	1,272	1,911	10.0
Publicly Accessible Plaza Area	0	35,744	9,727	111	1,272	1,911	0.1
Common Open Space (Interior/Exterior) [c]	6,499,720	3,319,750	9,727	111	1,272	1,911	35.9
Subtotal							**218**
2030-2052							
Apartment	31,039,400	16,306,900	9,727	111	1,272	1,911	160.8
High Turnover (Sit Down Rest.)	2,276,500	121,091	9,727	111	1,272	1,911	9.4
Publicly Accessible Plaza Area	0	35,744	9,727	111	1,272	1,911	0.1
Common Open Space (Interior/Exterior) [c]	6,499,720	3,319,750	9,727	111	1,272	1,911	33.5
Subtotal							**204**

[a] California Air Pollution Control Officers Association, California Emissions Estimator Model, http://www.caleemod.com/. Accessed December 2017.

[b] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B.**

[c] For emissions calculation purposes, Common Open Space (Interior/Exterior) was categorized in CalEEMod as the land use type General Office Building which is defined as land uses that house multiple tenants where affairs of businesses commercial or industrial organizations or professional persons or firms are conducted. This was determined to provide a reasonably conservative estimate of emissions for these project uses.

SOURCE: ESA 2017.

Operational Area and Stationary

Area sources of GHG emissions resulting from operation of the Project include equipment used to maintain landscaping, such as lawnmowers and trimmers. The combustion of fossil fuels to operate these equipment results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. There are no other substantial stationary sources on-site, such as generators or industrial sized boilers. Residential hearths would not be installed in the project's residential uses.

The emissions of GHGs associated with operational area sources under the Project are calculated using CalEEMod. The emissions for landscaping equipment are based on the size of the commercial and residential 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:

Landscaping Equipment:

$$\text{Annual Emissions } [MTCO_2e] = \left(\sum_i (\text{Units} \times EF_{LE} \times A_{LE} \times GWP)_i \right) \div 10^6 \qquad \textbf{[Equation 5]}$$

Where:	Units	=	Number of land use units (same land use type) [DU or 1000 sqft]
	EF_{LE}	=	GHG emission factor [grams (g)/DU or 1000 sqft/day]
	A_{LE}	=	Landscaping equipment operating days per year [day/year]
	GWP	=	Global warming potential [CO_2 = 1, CH_4 = 25, N_2O = 298]
	10^6	=	Conversion factor [g/MT]
	i	=	Summation index

CalEEMod uses landscaping equipment GHG emission factors from the CARB OFFROAD model and the CARB *Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment (6/13/2003).* [55] CalEEMod estimates that landscaping equipment operate for 250 days per year in the South Coast Air Basin.

Stationary sources would include on-site emergency generator with an estimated capacity rated at approximately 708 kilowatts (950 horsepower), which would provide emergency power primarily for lighting and other emergency building systems. Emissions of GHGs would be generated during maintenance and testing operations and emissions were estimated separately outside of the CalEEMod software. Emergency generators are permitted by the SCAQMD and regulated under SCAQMD Rule 1470 (Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines). Maintenance and testing would not occur daily, but rather periodically, up to 50 hours per year per Rule 1470. In general, stationary-source emergency generator emissions are calculated as follows:

[55] California Air Resources Board, OFFROAD Modeling Change Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment, (6/13/2003), http://www.arb.ca.gov/msei/2001_residential_lawn_and_garden_changes_in_eqpt_pop_and_ act.pdf. Accessed September 2017.

Stationary Source Emergency Generator:

$$\text{Emissions}_{\text{Diesel}}\,[\text{g}] = \sum_i (\text{EF} \times \text{Pop} \times \text{HP} \times \text{Load} \times \text{Activity})_i \qquad \textbf{[Equation 6]}$$

Where:

EF	=	Emission factor [g/bhp-hr]
Pop	=	Population [quantity of same equipment type]
HP	=	Maximum rated horsepower [hp]
Load	=	Load Factor [dimensionless]
Activity	=	Hours of operation [hours per day, hours per year]
i	=	Summation index

The estimated annual emissions from area and stationary sources under the project are provided in **Table 15**. Detailed emissions calculations are provided in **Appendix B**.

TABLE 15
PROJECT AREA AND STATIONARY SOURCE GREENHOUSE GAS EMISSIONS

Emission Source	Annual GHG Emissions [a]
Landscaping Equipment	14
Emergency Generator	19
Total GHG Emissions	**33**

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

SOURCE: ESA 2017.

Carbon Sequestration from Vegetation

The Project site includes a number of green spaces that will include a mix of canopy trees and native shrubs, perennials, and ground cover. Canopy trees will provide a source of carbon sequestration that would offer a reduction in GHG emissions produced by the project. Native shrubs, perennials, and ground cover would also contribute to carbon sequestration.

Carbon sequestration was estimated using CalEEMod, which calculates carbon sequestration from vegetation based on the Project's net addition of vegetated land uses, the number of new trees, and the types of trees being planted. The Project would include the addition of 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover to the Project Site. According the methodology in the CalEEMod User's Guide, carbon sequestration from vegetation are calculated as follows:

Carbon Sequestration from Vegetation (Land Use Change):

$$\text{Total Sequestered } CO_2 = \sum_i (\text{Seq}CO_2 \times \text{Area})_i - \sum_j (\text{Seq}CO_2 \times \text{Area})_j \qquad \textbf{[Equation 7]}$$

Where:

$\text{Seq}CO_2$	=	Mass of sequestered CO_2 per unit area [$MTCO_2$/acre]
Area	=	Area of land for specific land use type [acre]
i	=	Summation index for final land use type
j	=	Summation index for initial land use type

Carbon Sequestration from Vegetation (Trees):

Total Sequestered $CO_2 = GP \times \sum_i (SeqCO_2 \times Trees)_i$ **[Equation 8]**

Where:	GP	=	Growing period for all trees, expressed in years (20)
	$SeqCO_2$	=	Annual CO_2 accumulation per tree for species class [$MTCO_2$/tree]
	Trees	=	Number of net new trees of broad species class
	i	=	Summation index for broad species class

The Project's planting area of native plants, shrubs, perennials, and ground-cover was modeled using the "grassland" category which is the most applicable vegetation category for the Project. The "grassland" category represents the lowest non-zero carbon sequestration value of the available categories in CalEEMod,[56] thus providing for a conservative estimate of the Project's carbon sequestration from the net addition of native plants, shrubs, perennials, and ground-cover to the Project Site. The Project will provide 137 canopy trees; however, the exact type and species are not known at this Project planning stage. According to the CalEEMod User's Guide, if specific tree types are not known, the "miscellaneous" tree type should be used.[57] Therefore, therefore, the "miscellaneous" tree type option was used per the CalEEMod User's Guide.

The effects of carbon sequestration from canopy trees assumes the IPCC active growing period of 20 years. Accumulation of carbon in biomass decreases as the trees age and would eventually be offset by clipping, pruning, and tree death. Therefore, GHG reductions from carbon sequestration are only applied to the first 20 years of the project's operation. The estimated annual carbon sequestration rate is provided in **Table 16**. Detailed emissions calculations are provided in **Appendix B**.

TABLE 16
CARBON SEQUESTRATION FROM VEGETATION

Reduction Source	Carbon Sequestered ($MTCO_2e$) [a]
Total GHG Reduction	98
Yearly GHG Reduction (20-year growing period) [b]	**5**

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

[b] Annual CO_2 sequestration applied over a 20-year period beginning in the Project's first full operational year.

SOURCE: ESA 2017.

Summary of Project GHG Emissions

A summary of the GHG emissions under the project is provided in **Table 17**.

56 Grassland applies to all grassland as well as woody vegetation and other non-grass vegetation such as herbs and brushes, which are consistent with the types of vegetation (native plants, shrubs, perennials, and ground-cover) proposed for this Project. Cropland and forest have higher carbon sequestration values, but are also less applicable to this Project.

57 California Air Resources Board, CalEEMod User's Guide, Appendix A, Section 11.2, November 2017, http://caleemod.com/. Accessed December 2017.

TABLE 17
SUMMARY OF ANNUAL GHG EMISSIONS

	Annual GHG Emissions ($MTCO_2e$/year)								
Year	Construc-tion	Electricity	Natural Gas	Mobile	Waste	Water and Waste Water	Area and Stationary	CO_2 Seq. from Net New Vegetation [a]	Total [b]
Const Yr 1	1,262	–	–	–	–	–	–	–	1,262
Const Yr 2	1,678	–	–	–	–	–	–	–	1,678
Const Yr 3	2,666	–	–	–	–	–	–	–	2,666
Const Yr 4 [c]	1,507	781	243	2,895	94	106	14	–	5,640
2023	–	1,875	582	6,716	226	254	33	(5)	9,681
2024	–	1,680	582	6,546	226	234	33	(5)	9,296
2025	–	1,680	582	6,346	226	234	33	(5)	9,096
2026	–	1,680	582	6,178	226	234	33	(5)	8,928
2027	–	1,539	582	6,029	226	218	33	(5)	8,622
2028	–	1,539	582	5,899	226	218	33	(5)	8,492
2029	–	1,539	582	5,785	226	218	33	(5)	8,378
2030	–	1,401	582	5,686	226	204	33	(5)	8,127
2031	–	1,401	582	5,604	226	204	33	(5)	8,045
2032	–	1,401	582	5,529	226	204	33	(5)	7,970
2033	–	1,401	582	5,463	226	204	33	(5)	7,904
2034	–	1,401	582	5,408	226	204	33	(5)	7,849
2035	–	1,401	582	5,363	226	204	33	(5)	7,804
2036	–	1,401	582	5,330	226	204	33	(5)	7,771
2037	–	1,401	582	5,302	226	204	33	(5)	7,743
2038	–	1,401	582	5,281	226	204	33	(5)	7,722
2039	–	1,401	582	5,266	226	204	33	(5)	7,707
2040	–	1,401	582	5,255	226	204	33	(5)	7,696
2041	–	1,401	582	5,247	226	204	33	(5)	7,688
2042	–	1,401	582	5,243	226	204	33	(5)	7,684
2043	–	1,401	582	5,242	226	204	33	–	7,688
2044	–	1,401	582	5,242	226	204	33	–	7,688
2045	–	1,401	582	5,244	226	204	33	–	7,690
2046	–	1,401	582	5,249	226	204	33	–	7,695
2047	–	1,401	582	5,254	226	204	33	–	7,700
2048	–	1,401	582	5,261	226	204	33	–	7,707
2049	–	1,401	582	5,269	226	204	33	–	7,715
2050	–	1,401	582	5,279	226	204	33	–	7,725
2051	–	1,401	582	5,279	226	204	33	–	7,725
2052	–	1,401	582	5,279	226	204	33	–	7,725

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

[b] The Project GHG emissions may be re-evaluated periodically to account for future reductions from the promulgation of state regulations, such as post-2025 model year vehicle emissions standards and post-2030 Renewables Portfolio Standard and other regulations that would reduce Project-related operational GHG emissions but cannot be quantified at this time.

[c] Based on the anticipated Project construction schedule, the Project could be operational during the last 5 months of year 2022. Therefore, estimated operational emissions associated with approximately 5 months of operational activity are included for year 2022.

SOURCE: ESA 2017.

3.3.3 Project GHG Emissions Offsets

Annual emissions of GHGs from the Project will incorporate GHG emission offsets as necessary to achieve a net zero increase in site GHG emissions, relative to the baseline annual GHG emissions, for the estimated Project lifetime. The Project proposes to meet the requirement set forth in California Public Resources Code Section 21183 (c), which requires that the Project demonstrate that it will not result in net additional emissions of GHG, through Project-based or community-based program measures that will reduce GHG emissions in the region. Examples of the types of Project-based or community-based program measures that could be implemented are as follows:

- Install solar photovoltaic panels on Project building rooftops based on available physical roof space taking into account space dedicated for rooftop amenities, open space/landscaping, decks/pool areas, and space required for rooftop equipment, such as heating, ventilation, and air conditioning units.
- Purchase certified green-power from the local utility provider to offset Project-related GHG emissions from electricity demand.
- Coordinating with property owners in the City of Los Angeles or in other cities or communities in California for the installation of rooftop solar photovoltaic panels in accordance with state and local permitting standards on existing buildings, parking structures, carports, or other facilities.
- Seek opportunities for offsetting GHG emissions from existing sources in the City of Los Angeles or in other cities or communities in California. Examples include coordinating with local transportation agencies and property owners and establishing electric vehicle supply equipment (EVSE) at park-and-ride lots or other appropriate locations, coordinating with local transportation agencies and school districts and replacing diesel- or gasoline-fueled buses with less-polluting technologies such as compressed natural gas, electric, hybrid-electric, fuel cell, or other commercially available technologies, implementing methane capture and destruction programs at dairy farms, or other GHG emissions offset programs.
- Plant new drought-tolerant, high-carbon sequestering, and/or native trees of appropriate size and type at off-site locations such as parks in the City of Los Angeles or in other cities or communities in California, that would result in a net sequestration of CO_2 emissions.
- Purchase carbon credits from a reputable carbon market. Priority should be given to those credits generated within the City of Los Angeles, and in decreasing preference, credits generated within the region, in-state, and out-of-state.

Through implementation of the Project-based or community-based GHG reduction program, the Project will meet the requirement set forth in California Public Resources Code Section 21183 (c), which requires that the Project demonstrate that it will not result in net additional emissions of GHG emissions. The acquisition of carbon credits as part of the Project-based or community-based GHG reduction program will serve to ensure that all projected additional GHG emissions are offset. If acquiring carbon credits, the Applicant or its successor shall enter into one or more contracts to purchase carbon credits from a qualified GHG emissions broker (to be selected from an accredited registry), which contract, together with any previous contracts for the purchase of carbon credits, shall evidence the purchase of carbon credits in an amount sufficient to achieve a net zero increase in site GHG emissions. 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 emissions 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 the neighborhood; (3) off-site within the SCAQMD jurisdiction; (4) off-site within the State; (5) off-site out-of-State. The project would obtain offsets following this prioritization. The necessary offsets are summarized below in **Section 4.0**. Offsets are estimated for a project useful lifetime of 30 years, which is recommended as a presumed project lifetime per SCAQMD guidance.[58]

[58] South Coast Air Quality Management District, Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October 2008, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2. Accessed September 2017.

SECTION 4
Comparison of Project to Baseline Condition

Table 18 provides a summary of the determination of net additional GHG emissions comparing the existing site GHG emissions and the Project GHG emissions including the Project's total construction-related GHG emissions. Based on these GHG emissions estimates, the Project would not result in net additional contemporaneous GHG emissions compared to the baseline annual operational emissions at any time.

TABLE 18
EVALUATION OF NET GHG EMISSIONS FOR THE PROJECT

Year	Baseline Annual Operations	Project Total	Project GHG Reductions from Offsets [a]	Net Change from Baseline
Const Yr 1	0	1,262	(1,262)	0
Const Yr 2	0	1,678	(1,678)	0
Const Yr 3	0	2,666	(2,666)	0
Const Yr 4 [b]	195	5,640	(5,172)	0
2023	468	9,681	(9,213)	0
2024	468	9,296	(8,828)	0
2025	468	9,096	(8,628)	0
2026	468	8,928	(8,460)	0
2027	468	8,622	(8,154)	0
2028	468	8,492	(8,024)	0
2029	468	8,378	(7,910)	0
2030	468	8,127	(7,659)	0
2031	468	8,045	(7,577)	0
2032	468	7,970	(7,502)	0
2033	468	7,904	(7,436)	0
2034	468	7,849	(7,381)	0
2035	468	7,804	(7,336)	0
2036	468	7,771	(7,303)	0
2037	468	7,743	(7,275)	0
2038	468	7,722	(7,254)	0
2039	468	7,707	(7,239)	0
2040	468	7,696	(7,228)	0
2041	468	7,688	(7,220)	0
2042	468	7,684	(7,216)	0
2043	468	7,688	(7,220)	0
2044	468	7,688	(7,220)	0
2045	468	7,690	(7,222)	0

Year	Baseline Annual Operations	Project Total	Project GHG Reductions from Offsets [a]	Net Change from Baseline
2046	468	7,695	(7,227)	0
2047	468	7,700	(7,232)	0
2048	468	7,707	(7,239)	0
2049	468	7,715	(7,247)	0
2050	468	7,725	(7,257)	0
2051	468	7,725	(7,257)	0
2052	468	7,725	(7,257)	0

[a] The quantity of GHG emissions offsets may be re-evaluated periodically to account for future reductions from the promulgation of state regulations, such as post-2025 model year vehicle emissions standards and post-2030 Renewables Portfolio Standard and other regulations that would reduce Project-related operational GHG emissions but cannot be quantified at this time.

[b] Based on the anticipated Project construction schedule, the Project could be operational during the last 5 months of year 2022. Therefore, estimated operational emissions associated with approximately 5 months of operational activity are included for year 2022.

SOURCE: ESA 2017.

The Project will commit to implementing Project-based or community-based program measures, as discussed in the previous section, that will achieve no net increase in GHG emissions. As such, the Project would not result in net contemporaneous GHG emissions compared to the Baseline Condition, taking into account GHG Project-based or community-based program measures and offsets. Therefore, this analysis demonstrates that the Project meets the GHG emissions requirements of the “Jobs and Economic Improvement through Environmental Leadership Act” (Public Resources Code Section 21178 et seq.) and would result in no net GHG emissions.

Application for Environmental Leadership Development Project

1045 Olive, LLC

1045 Olive Street, Los Angeles, California 90015

December 2017

Application for Environmental Leadership Development Project

Project Title: 1045 Olive Street

Project Applicant: 1045 Olive, LLC

Project Location: Los Angeles, California

PROJECT PROPOSAL

1045 Olive, LLC (Applicant) proposes a new mixed-use development (Project) on an approximately 0.96-acre site located at the northwest corner of Olive Street and 11th Street (Project Site). Four existing single story commercial buildings would be removed and replaced with a new 751,777 square foot (net) mixed-use high-rise building. The maximum floor-area ratio (FAR) for the Transit Area Mixed Use Project would be 13:1.

The development would include a 61-story tower atop a nine level podium structure (Podium) for a total of 70 floors, up to 810 feet in height.[1] The Project would include a maximum of 794 residential units and 12,504 square feet of neighborhood serving commercial uses located at the ground level. Approximately 103,380 square feet of amenity/open space would be provided including a ground level public plaza with streetscaping, landscaping and a public art display (Plaza). Open space and recreation facilities for residents would be located atop the Podium (10th Floor Terrace), at mid-tower, on a terrace on the tower rooftop (Tower Roof Terrace) and within private balconies. At the pedestrian level, the Project would provide a 17-foot sidewalk along Olive Street and a 15-foot sidewalk (including a 3-foot sidewalk easement) along 11th Street.

The residential units would include a large range of housing types to serve a broad section of the housing market, including singles, small families, and empty-nesters as well as few larger units that could accommodate a larger family. The unit mix would include: studios, 1- and 2-bedroom units (with and without dens), and 3-bedroom units. Approximately two thirds of the units would be smaller than 2-bedroom in size and approximately one third of the units would be 2-bedrooms or larger in size. The residential units would be mostly located within the residential tower; however, approximately 40 units would be located along the top five levels of the Podium facing Olive Street and 11th Street.

The Project's 12,504 square feet of commercial space would be located on the ground level. Access to the individual commercial units would be from 11th Street, Olive Street and the Plaza area. The commercial uses would meet needs of neighborhood residents. The specific commercial uses may vary; however, it is expected that a substantial amount of the commercial area would be devoted to restaurant uses. For the purposes of assessing environmental impacts, including for traffic and greenhouse gas (GHG) emissions, this assessment conservatively

1 The height to the top of the residential development, i.e. to the Tower Roof Terrace, is 770 feet. The 810 feet is the height to the top of the rooftop screening.

assumes that the commercial space would be restaurant uses, which generate greater environmental impacts than retail uses.[2]

Vehicle access (ingress/egress) would be provided from one entrance along Olive Street, near the northern property line, and from two entrances on the alley between 11th Street and Olympic Boulevard. An on-site loading and move-in/out service area would also be accessed from the alley near the center of the Project Site. Vehicle parking would be provided within 6 subterranean parking levels and in 8 levels of parking above grade within the Podium. The Project would provide up to 891 parking spaces, and up to 886 bicycle spaces.

There are no trees located on the Project Site; however, five street trees are located along the street-side edge of Olive Street. The Project would include the addition of 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover to the Project Site. The Project would provide a large elevated garden on the 8th and 10th floors of the building, three outdoor amenity spaces with planting areas and canopy trees, and a rooftop garden with planting areas and canopy trees. Landscaping would be provided along the street edges and throughout all of the Project's open space and would be selected from a large pallet of native plants.

PROJECT SITE

The Project Site is located at 1045 Olive Street on the northwest corner of Olive Street and 11th Street in the Downtown area and South Park community of the City of Los Angeles (City). The Project Site lies within the southeast quadrant of the block that is surrounded by Olive Street on the east, 11th Street on the south, Grand Avenue on the west and Olympic Boulevard on the north. The block is split by a south to north alley at midblock between S Olive Street and S Grand Avenue. The alley serves as the western boundary of the Project Site.

The Project Site is currently developed with four commercial buildings totaling 35,651 square feet and an approximately 5,952 square foot paved parking and hardscape area for a total of 41,603 square feet. The size of the Project Site will be reduced during Project implementation to increase the width of the alley and adjacent sidewalks to meet current standards. The post dedication Site would be 37,172 square feet.

Uses within the block that lie adjacent to the Project include a 7-story mixed-use development to the north, 7-story mixed-use development to the northwest, and a two story commercial building and 25-story mixed-use high-rise building to the west. Adjacent development across Olive Street to the east includes single story commercial uses; and across 11th Street to the south includes a surface parking. Surrounding development includes a large array of newer mixed use development, and older commercial, office, residential and warehouse uses.

2 Calculations included in the analysis of environmental impacts for this Project conservatively assume that all of the commercial space would be used for restaurant uses. This provides for conservative analyses as restaurant uses generate greater impacts than retail uses. For example, restaurant uses generate greater levels of traffic and greater consumption of resources such as water consumption.

The Project vicinity is highly urbanized and generally built-out. The South Park community of Downtown Los Angeles is one of nine-districts in the Central City Community Plan area, and is representative of the Downtown Center with its concentration of government-related uses, high- and mid-rise office buildings, residential buildings, hotels, retail uses, museums, and cultural districts. The South Park area includes a mix of residential, medical, commercial, and retail uses; with a substantial concentration of housing located next to and over support services, such as retail and commercial developments that provide employment opportunities for area residents.

The Project Site is served by a network of regional transportation facilities that provide access to the greater metropolitan area. It is located less than 0.5 miles from the Metro Blue Line and Expo Line station at Pico Boulevard. The Project is located adjacent to multiple bus and shuttle lines within a ¼-mile walking distance, including multiple existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the Los Angeles Department of Transportation (LADOT) Downtown Area Short Hop (DASH) Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. The Project Site is located approximately 0.6 miles north of the Santa Monica Freeway (I-10) and 0.6 miles east of the Harbor Freeway (I-110).

The Project Site is also located within walking distance (approximately 0.27 miles) east of the Figueroa Street Corridor, the focus of the MyFigueroa Streetscape project that is transforming the Figueroa Corridor into a multimodal street with improved transit, streetscape and landscaping features to better serve the needs of pedestrians, bicyclists, transit riders, and drivers alike. The MyFigueroa project extends eastward from Figueroa Street along 11th Street adjacent to the Project Site, ending at Broadway. Figueroa Street in the Project vicinity is also the focus of regional activity including LA LIVE, an entertainment, hotel, and residential complex that is a Citywide focus of entertainment activity; the Staples Center Arena, a multipurpose sports arena which is home to the Los Angeles Clippers, Los Angeles Kings, Los Angeles Lakers and Los Angeles Sparks; and the Los Angeles Convention Center, which regularly features conventions, trade shows, and exhibitions.

CONSISTENCY WITH STATUTORY REQUIREMENTS FOR CEQA STREAMLINING

This application was prepared in accordance with the Governor's Guidelines for Streamlining Judicial Review under the California Environmental Quality Act (CEQA), which is provided on the Governor's Office of Planning and Research Website (http://opr.ca.gov/s californiajobs.php).

The following information (in addition to all exhibits) is submitted to establish that the Project satisfies the statutory requirements for CEQA streamlining as further informed by the criteria set forth in the Governor's Guidelines under California Public Resources Code Section 21178 et seq.

Information to show the project is residential, retail, commercial, sports, cultural, entertainment, or recreational in nature.

The Project is a mixed-use development that is both residential and commercial in nature, located on property zoned for high density residential development and commercial uses. As previously

stated, the Project would include 794 multi-family residential units and 12,504 square feet of neighborhood serving commercial uses located at the ground level.

The residential units would include a large range of housing types to serve a broad section of the housing market, including singles, small families, and empty-nesters as well as few larger units that could accommodate a larger family. The unit mix would include: studios, 1- and 2-bedroom units (with and without dens), and 3-bedroom units. The Project's commercial uses would meet needs of neighborhood residents. The specific commercial uses may vary; however, it is expected that a substantial amount of the commercial area would be devoted to restaurant uses.

Amenity/open space would be provided including a ground level public plaza with streetscaping, landscaping and a public art display (Plaza). Open space and recreation facilities for residents would be located atop the Podium (10th Floor Terrace), at mid-tower, on a terrace on the tower rooftop (Tower Roof Terrace) and within private balconies. At the pedestrian level, the Project would provide a 17-foot sidewalk along Olive Street and a 15-foot sidewalk (including a 3-foot sidewalk easement) along 11th Street.

Proposed site plans for the Project are attached as **Exhibit 1**. Renderings of the Project are attached as **Exhibit 2**.

Information to show the project will qualify for LEED Gold Certification. The application shall specify those design elements that make the project eligible for LEED Gold Certification, and the applicant shall submit a binding commitment to delay operating the project until it receives LEED Gold Certification. If, upon completion of construction, LEED Gold Certification is delayed as a result of the certification process rather than a project deficiency, the applicant may petition the Governor to approve project operation pending completion of the certification process.

The Project will encourage design and construction decisions that have the potential to reduce energy and water use, promote resource conservation through redevelopment and the sourcing of local construction materials and create healthier indoor environments. The Project will achieve the United States Green Building Standards (USGBC) Leadership in Energy and Environmental Design (LEED) Gold Certification. Achieving LEED Gold Certification requires obtaining at least 60 points satisfying seven categories, which can be organized into three overarching themes: Siting and Transportation, Building Performance, and Material Selection. The end result is a positive impact on resource conservation, the built environment, and the local community.

Siting, Transportation, and Mixed Use: This overarching theme addresses preservation of undeveloped property by encouraging infill development, adaptive re-use of existing historic buildings, and facilitating pedestrian activity by integrating a diversity of uses and providing convenient access to public transportation. The Project is located in a prime urban location close to transit, entertainment and employment and will integrate a range of residential and commercial uses around public and private open spaces.

The Project will be designed as a high-density residential building with neighborhood serving commercial uses on a previously developed site in close proximity (i.e., within a one-half mile) to a number of services including restaurant, grocery, laundry/cleaner, movie theater, fitness center uses and other service uses. The Project would also incorporate heat island reduction strategies for 50 percent of the site hardscapes or provide 100 percent underground parking and incorporate heat island reduction strategies for the Project roof areas.

The Project's placement within Downtown Los Angeles results in increased efficiencies with respect to the siting and transportation in the area. The Project is located less than 0.5 miles from Metro Blue Line and Expo Line station at Pico Boulevard, which connects to the 7th Street/Metro Center and the Red Line and Purple Line. The Project is also located adjacent to multiple bus and shuttle lines within a ¼-mile walking distance, including multiple existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the Los Angeles Department of Transportation (LADOT) DASH Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. Additionally, the Project will provide short- and long-term bicycle parking for bicycle commuters to facilitate "last mile" connectivity to nearby multi-modal transit options.

The Project would promote alternatives to conventionally fueled automobiles by providing electric vehicle charging stations and/or preferred parking for alternative-fuel vehicles, low-emitting, and fuel-efficient and ride-sharing vehicles.

Building Performance: This overarching theme emphasizes water and energy efficiency to maximize livability with reduced resource consumption. Consideration will be taken to select high-performance materials, fixtures and appliances to optimize building energy performance to achieve a minimum of a 5 percent reduction from the LEED baseline consistent with LEED requirements and water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline. The Project would include other specific design features that would be incorporated into the Project design to enhance energy efficiency and sustainability. Wraparound-cantilevered balconies would be provided on every residential level that would provide shade and minimize solar gain throughout the building. Further considerations regarding energy efficiency and sustainability include native plants and drip/subsurface irrigation systems, individual metering or sub metering for water use, leak detection systems, rainwater harvesting and provisions for electric vehicle charging (wiring for 5 percent of all parking spaces and pre-wiring for 20 percent of all parking spaces).

Material Selection: This overarching theme attempts to reduce the building's life cycle impact through the selection of upcycled, recycled and locally sourced materials where feasible and also minimize exposure to environmental toxins by choosing low volatile organic compound (VOC) materials. A few practices being considered are using salvaged, refurbished or reused materials for at least 5 percent of the total value of materials on the Project, using materials with recycled content for at least 10 percent of the total value of materials on the Project, using refrigerants that minimize ozone depletion, using adhesives, sealants, paints, finishes, carpet, and other materials that emit low quantities of VOCs and/or other air quality pollutants, and providing on-site recycling containers to promote the recycling of paper, metal, glass, and other recyclable

materials and adequate storage areas for such containers during construction and after the building is occupied. Additionally, a construction and demolition waste management plan will maximize the recycling or salvage of nonhazardous construction debris.

Green Building Features: The Project will achieve the USGBC LEED Gold Certification and will 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. A summary of key green building and LEED measures are provided below.

- The Project will incorporate heat island reduction strategies for 50 percent of the site hardscapes or provide 100 percent structured parking and incorporate heat island reduction strategies for the Project roof areas.
- The Project will promote alternatives to conventionally fueled automobiles by providing electric vehicle charging stations and/or preferred parking for alternative-fuel vehicles, low-emitting, and fuel-efficient and ride-sharing vehicles.
- The Project will optimize building energy performance to achieve a minimum of a 5 percent reduction from the LEED baseline consistent with LEED required prerequisites.
- The Project will reduce water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline.
- The Project would reduce indoor potable water use by a minimum of 20 percent compared to baseline or standard water consumption by installing water fixtures that exceed applicable standards.
- The Project will provide on-site recycling areas with containers to promote the recycling of paper, metal, glass, and other recyclable materials and adequate storage areas for such containers.

The GHG Emissions Offset Approach for the 1045 Olive Street Project / Commitment Letter and LEED Measures, dated December 2017, is attached as **Exhibit 3**.

Information to show the project will achieve at least 15 percent greater transportation efficiency than comparable projects. "Transportation efficiency" is defined as the number of vehicle trips by employees, visitors, or customers to the project divided by the total number of employees, visitors, and customers. The applicant shall provide information setting forth its basis for determining and evaluating comparable projects and their transportation efficiency, and how the project will achieve at least 15 percent greater transportation efficiency. For the purpose of this provision, comparable means a project of the same size, capacity and location.

The Project is considered an "infill" project, as it is replacing existing commercial uses with a high-density, mixed-use development. The Project Site is located in the South Park community of Downtown Los Angeles. The Project Site is located approximately 0.6 miles north of the Santa Monica Freeway (I-10) and 0.6 miles east of the Harbor Freeway (I-110), which provide regional access to the Site.

The Project includes a mix of residential and neighborhood serving commercial uses (restaurant and retail) located at the ground level, which would provide convenient local destinations for the residential element of the Project without having to drive to other locations. The mix of uses on the Project Site provides for internal capture of vehicle trips that would otherwise occur without the mix of uses. The Project is also located in a highly-walkable area of downtown Los Angeles with a high level of provision of bicycle facilities and excellent access to the highest level of transit service in Los Angeles, that will provide convenient access to local employment, shopping and entertainment opportunities without using a car for the residents of the Project. The Project Site is served by a network of regional transportation facilities that provide access to the greater metropolitan area. It is located less than 0.5 miles from the Metro Blue Line and Expo Line station at Pico Boulevard. The Project is located adjacent to multiple bus and shuttle lines within a ¼-mile walking distance, including multiple existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the LADOT DASH Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. The Project would also implement a Traffic Demand Management (TDM) Program that would provide new on-site residents and employees with transit information, on-site bicycle amenities (bicycle racks, lockers, showers, etc.), unbundle residential parking, and other measures to encourage the use of non-auto modes and reduce vehicle trips to and from the Project Site.

The combined effects of the Project's urban infill location along major corridors, proximity to transit and pedestrian amenities, and proposed TDM program would reduce the Project's anticipated daily vehicular trip generation estimates by approximately 32 percent as compared to a comparable mixed-use project. Therefore, the Project results in substantially more than the 15 percent greater transportation efficiency requirement.

The AB 900 Traffic Assessment for the 1045 Olive Street Project, dated September 2017, is attached as **Exhibit 4**.

Information to show the project is located on an infill site, defined at Public Resources Code Section 21061.3, and in an urbanized area, as defined at Public Resources Code Section 21071

The Project is located on an infill site. Under Public Resources Code Section 21061.3, an "infill site" is defined as a site that "has been previously developed for qualified urban uses." In turn, a "qualified urban use" is defined, pursuant to Public Resources Code Section 21072, as "any residential, commercial, public institutional, transit or transportation passenger facility, or retail use, or any combination of those uses." The Project Site meets this definition as it is currently developed with four existing commercial buildings. Additionally, the Project is located in an "urbanized area," which is defined under Public Resources Code Section 21071 as "an incorporated city" that meets the criteria of having a population of at least 100,000 persons. The City of Los Angeles has an estimated population of 4,041,707 in 2017 according to the 2017 estimates prepared by the California Department of Finance. The Project would represent an urban infill development since it would be located on a site that meets the definition of an infill site in an urbanized area and would be considered a qualified urban use.

For a project that is within a metropolitan planning organization for which a sustainable communities strategy or alternative planning strategy is in effect, information to show the project is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, for which the State Air Resources Board, pursuant to subparagraph (H) of paragraph (2) of subdivision (b) of Section 65080 of the Government Code, has accepted a metropolitan planning organization's determination that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve the greenhouse gas emission reduction targets. For the purposes of this provision, "in effect" means that the sustainable communities strategy or the alternative planning strategy has been adopted by the metropolitan planning organization, and that the Air Resources Board has accepted the metropolitan planning organization's determination that the sustainable communities strategy or alternative planning strategy meets the adopted greenhouse gas reduction targets and is not the subject of judicial challenge.

California Senate Bill (SB) 375 was passed by the State Assembly on August 25, 2008 and signed into law by the Governor on September 30, 2008. This legislation links regional planning for housing and transportation with the greenhouse gas (GHG) reduction goals outlined in California Assembly Bill (AB) 32. Under SB 375, each Metropolitan Planning Organization (MPO) is required to adopt a Sustainable Community Strategy to encourage compact development that reduces passenger vehicle miles traveled (VMT) and trips so that the region will meet a target, created by the California Air Resources Board (CARB), for reducing GHG emissions.

The Project is within the jurisdiction of the Southern California Association of Governments (SCAG). On April 4, 2012, SCAG's Regional Council adopted the 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): Towards a Sustainable Future (2012–2035 RTP/SCS). On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 RTP/SCS: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life. The 2016-2040 RTP/SCS reaffirms the land use policies that were incorporated into the 2012-2035 RTP/SCS. On June 28, 2016, CARB accepted SCAG's quantification of GHG emission reductions from the 2016 SCS and the determination that the 2016 SCS would, if implemented, achieve the 2020 and 2035 GHG emission reduction targets established by CARB.[3]

The purpose of the SCAG RTP/SCS is to achieve its assigned regional per capita GHG reduction targets for the passenger vehicle and light-duty truck sector established by CARB pursuant to SB 375. SCAG's RTP/SCS plans for regional population growth using smart land use strategies. As part of the SCS/RTP, "transportation network improvements would be included, and more compact, infill, walkable and mixed-use development strategies to accommodate new region's growth would be encouraged to accommodate increases in population, households, employment,

3 CARB, Executive Order G-16-066, SCAG 2016 SCS ARB Acceptance of GHG Quantification Determination, April 2016 (http://www.arb.ca.gov/cc/sb375/scag_executive_order_g_16_066.pdf).

and travel demand."[4] Moreover, the RTP/SCS states that while "[p]opulation and job growth would induce land use change (development projects) and increase VMT, and would result in direct and indirect GHG emissions," the RTP/SCS would "supports sustainable growth through a more compact, infill, and walkable development pattern."[5] Accordingly, the RTP/SCS outlines the region's plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Additionally, the RTP/SCS demonstrates the region's ability to attain and exceed the GHG emission-reduction targets set forth by CARB. The majority of new housing and job growth is focused in high-quality transit areas (HQTA) and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development (TOD). This overall land use development pattern supports and complements the proposed transportation network that emphasizes system preservation, active transportation, and transportation demand management TDM measures.

Adopted strategies for the reduction of GHG emissions, as part of the 2012–2035 RTP/SCS and the 2016-2040 RTP/SCS, have the potential to significantly change the region's land use and travel patterns to achieve GHG reductions by 2020, 2035, and 2040. Such strategies include (but are not limited to) the following:

- Compact growth in areas accessible to transit;
- Half of all new development on three percent of the region's land use;
- More multi-family housing, jobs, and housing closer to transit;
- New housing and job growth focused in HQTAs; and
- Investments in biking and walking infrastructure to improve active transportation options and transit access.

Consistent with the RTP/SCS, the Project proposes higher density, consistent with compact growth, on a parcel of infill urban land accessible to and well served by public transit including frequent and comprehensive transit services provided by the nearby Metro Blue Line and Expo Line station at Pico Boulevard, which provides convenient access to locations within Downtown Los Angeles, Long Beach, Culver City, Santa Monica, and direct connections to the Metro Red and Purple lines that provide transit service to a multitude of locations through the Los Angeles region including Hollywood, Koreatown, and Universal City. The Project would be located within a quarter-mile of public transportation, including existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the Los Angeles Department of Transportation (LADOT) DASH Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. The SCAG objective of locating multi-family housing in proximity to jobs and transit would be accomplished by the Project. New housing and job growth, as a result of the completed

4 Southern California Association of Governments, Draft Program Environmental Impact Report – 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, (2015), page 3.8-35.

5 Ibid, page 3.8-36.

Project, is focused in a HQTA, which SCAG defines as an area within a half mile of a well-serviced transit stop. A well-service transit stop is one which has a 15 minute or less service frequency during peak commute hours."[6] As discussed above, the Project would be consistent with this strategy.

The Project would also be consistent with the general land use designation, density, and building intensity outlined in the SCAG 2016–2040 RTP/SCS. Using data collected from local jurisdictions, including General Plans, SCAG categorized existing land use into "land use types," then combined these land use types into 35 place types, and then classified sub-regions into one of three land use development categories: urban, compact, or standard. SCAG used each of these three categories to describe the conditions that exist and/or are likely to exist within each specific area of the region.[7]

SCAG identified the existing General Plan land uses as Multi-Family Residential (SCAG Data Request Maps, refer to the attached **Figure 1**). After converting this data into Scenario Planning Zone-level place types, SCAG categorized the area surrounding the Project as an urban area.[8]

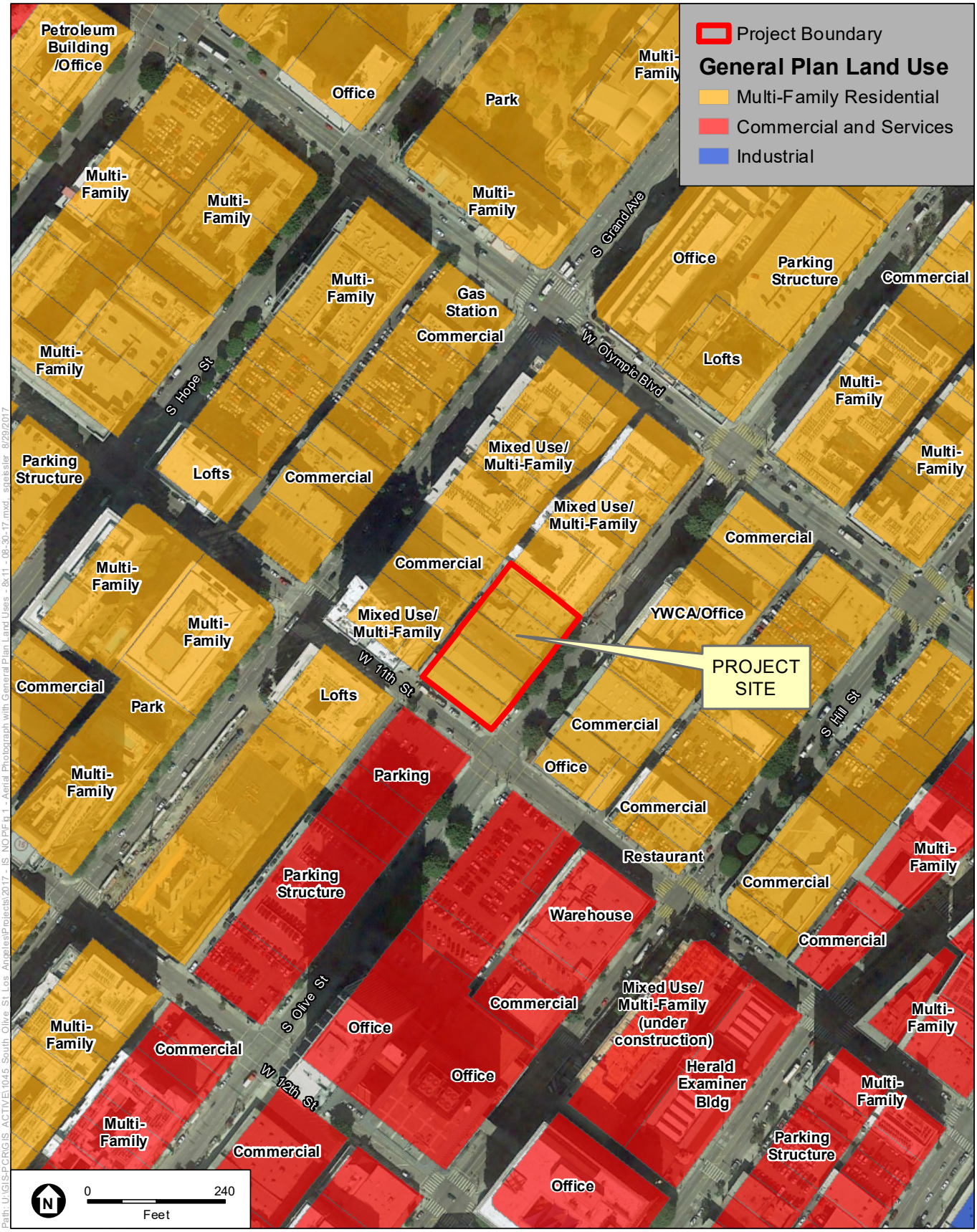
The RTP/SCS defines urban areas as "often found within and directly adjacent to moderate and high density urban centers. Nearly all urban growth in these areas would be considered infill or redevelopment. The majority of housing is multi-family and attached single-family (townhome), which tend to consume less water and energy than the large types found in greater proportion in less urban locations. These areas are supported by high levels of regional and local transit service. They have well-connected street networks, and the mix and intensity of uses result in a highly walkable environment. These areas offer enhanced access and connectivity for people who choose not to drive or do not have access to a vehicle."[9]

6 Technical Evaluation of the Greenhouse Gas Emission Reduction Quantification for the Southern California Association of Governments' SB 375 Sustainable Communities Strategy, dated May 2012. Document located on the ARB website: http://www.arb.ca.gov/cc/sb375/scag_scs_tech_eval0512.pdf.

7 Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, pages 20-21, (2016). Available at: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. Accessed September 2017.

8 Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy Background Documentation, Exhibit 13 Forecasted Regional Development Types (2012) – Los Angeles City Subregion, (2015). Available at: http://scagrtpscs.net/Documents/2016/draft/d2016RTPSCS_SCSBackgroundDocumentation.pdf. Accessed September 2017.

9 Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, page 20, (2016). Available at: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. Accessed September 2017.



SOURCE: Google Earth, 2016, SCAG 2012.

1045 Olive Street

Figure 1
Aerial Photograph with General Plan Land Uses

ESA

The SCAG urban land development category comprises the following urban footprint scenario models, including urban mixed use, urban residential, urban commercial, city mixed use, city residential, and city commercial.[10, 11] The Project would consist of multi-family residential uses with ground- and mezzanine-level neighborhood serving commercial uses and thus would be consistent with the range of place types within the SCAG urban land development category.

Additionally, the RTP/SCS states that "urban mixed-use districts are exemplified by a variety of intense uses and building types. Typical buildings are between 10 and 40+ stories tall, with offices and/or residential uses and ground-floor retail space. Parking is usually structured below or above ground. Workers, residents, and visitors are well served by transit, and can walk or bicycle for many of their transportation needs." The land use mix for the urban mixed-use place type is approximately 18 percent residential, 16 percent employment, 45 percent mixed-use, and 21 percent open space/civic.[12]

Urban residential uses are the most intense residential-focused type, and are typically found within or adjacent to major downtown areas. They include high-rise and mid-rise residential towers, with some ground-floor retail space. Parking is usually structured below or above ground. Residents are well served by transit and can walk or bicycle for many of their daily needs.[13]

City mixed-use areas are transit oriented and walkable, and contain a variety of uses and building types. Typical buildings are between 5 and 30 stories tall, with ground-floor retail space and offices and/or residential on the floors above. Parking is usually structured below or above ground. The land use mix for this place type is typically approximately 28 percent residential, 17 percent employment, 35 percent mixed use, and 20 percent open space/civic. The residential mix is composed of 97 percent multi-family and 3 percent townhomes. The average total net floor-area ratio (FAR) is 3.4, floor count ranges from 3 to 40 stories, and gross density ranges from 10 to 75 households per acre.[14]

The RTP/SCS describes city residential place types as "dominated by mid- and high-rise residential towers, with some ground-floor retail space, and offices and/or residences on the floors above. Parking is usually structured below or above ground. Residents are well served by transit, and can walk or bicycle for many of their daily needs." The land use mix for this place type is typically approximately 65 percent residential, 4 percent employment, 11 percent mixed use, and 20 percent open space/civic. The residential mix is 97 percent multi-family and 3 percent

10 Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy Background Documentation, Reference Document 9, (2016). Available at: http://www.scagrtpscs.net/Documents/2016/supplemental/LDC_PlaceType.pdf. Accessed September 2017.

11 Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy Background Documentation, Reference Document 6, (2016). Available at: http://scagrtpscs.net/documents/2016/supplemental/UrbanFootprint_PlaceTypesSummary.pdf. Accessed September 2017.

12 Ibid.

13 Ibid.

14 Ibid.

townhome. The average total net FAR is 2.9, floor count ranges from 5 to 40 stories, and the gross density ranges from 35 to 37 households per acre.[15]

The Project consists of the development of a building containing mixed-use residential and commercial units in the South Park community of the city of Los Angeles. Surrounding land uses include a mixed-use development to the northeast of the Project site, a high-rise building to the west, commercial to the east, and a parking lot to the south.

The Project Site (1045 Olive Street) is currently occupied by four commercial buildings. The Project would consist of multi-family residential and ground- and mezzanine-level neighborhood serving commercial uses in a 61-story tower atop a nine level podium structure. The Project would include 6 subterranean and 8 above-grade parking levels within the podium, creating 802 residential vehicle parking spaces. Overall, the Project would include 794 residential units, and approximately 12,504 square feet of commercial space. Approximately 103,380 square feet of amenity/open space would be provided including a ground level public plaza with streetscaping, landscaping and a public art display. The maximum floor-area ratio (FAR) for the Transit Area Mixed Use Project would be 13:1.

The Project is located within the Central City Community Plan area and is designated as High Density Residential and is zoned [Q]R5-4D-O. The R5 zoning designation permits the development of high density residential development. The "[Q]" Condition allows commercial uses to be included along with the residential development provided the floor area for the commercial uses does not exceed a 2:1 FAR. The Height District No. 4 permits a FAR of 13:1. However, the "D" limitation limits the floor area to a maximum of 6:1 FAR, unless additional floor area is permitted through a Transfer of Floor Area (TFAR). The Project is located within a designated Transit Priority Area and as a mixed-use Project qualifies for the 13:1 FAR pursuant to Section 14.5 of the Los Angeles Municipal Code (LAMC) as a Transit Area Mixed Use Project that allows the proposed FAR to be based on the area contained within the centerlines of Olive Street 11th Street, and the abutting alley. Therefore, the Project is consistent with the SCAG urban land development category and consistent with the land use designation.

Information to show that the applicant has notified a lead agency prior to the release of the draft environmental impact report that it intends to certify a project for streamlined environmental review under the Jobs and Economic Improvement Through Environmental Leadership Act of 2011. Written acknowledgment from the lead agency of the applicant's intent to apply for certification may be used to satisfy this requirement.

Prior to the circulation of the Draft Environmental Impact Report and well before approval of the Project entitlements, the City of Los Angeles, lead agency for the Project, has been notified that the Applicant is seeking certification for the Project under the Jobs and Economic Improvement

15 Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy Background Documentation, Reference Document 6, (2016). Available at: http://scagrtpscs.net/documents/2016/supplemental/UrbanFootprint_PlaceTypesSummary.pdf. Accessed September 2017.

Through Environmental Leadership Act of 2011. The letter of acknowledgement and binding agreement between the Applicant and the City of Los Angeles is provided in **Exhibit 7**.

Information to show that the project will result in a minimum investment of $100 million in California through the time of completion of construction.

The Project will far exceed the $100 million minimum investment as required by Public Resources Code section 21183(a). In addition to the roughly $10 million in direct public benefit payments, the Project entails the demolition of 35,651 square feet of commercial buildings and construction of a 70-story urban mixed-used retail and residential project consisting of 794 apartments and 12,504 square feet of ground-level neighborhood serving commercial space. Based on recent construction cost information, the Project's hard costs are estimated to be over $300 million. The fiscal impacts and economic benefits are summarized in **Table 1** below.

TABLE 1
OVERVIEW OF FISCAL IMPACTS AND ECONOMIC BENEFITS

	Construction (One-Time/Short-Term)	Ongoing Operation (Annual)
Employment	**4,720 Jobs**	**550 Jobs**
Labor Income	**$327,400,000**	**$20,500,000**
Economic Output	**$808,200,000**	**$67,100,000**
State and Local Taxes	**$33,200,000**	**$8,600,000**
City of Los Angeles and other Local Cities	$3,800,000	$1,400,000
County of Los Angeles	$8,600,000	$4,800,000
State	$20,800,000	$2,400,000
Federal Taxes	**$65,700,000**	**$5,600,000**

SOURCE: Los Angeles Economic Development Corporation (LAEDC) Institute for Applied Economics, Project 1045 Olive – An Economic and Fiscal Impact Analysis, December 2017.

A detailed Fiscal Impact and Economic Benefit Analysis for the Project, dated December 2017, is attached as **Exhibit 5**.

Information to show that the project will satisfy the prevailing and living wage requirements of Public Resources Code section 21183(b).

The Project will create high-wage, highly skilled jobs that pay prevailing wages and living wages and will comply with all provisions of Public Resources Code Section 21183(b) as ordered. As defined in Section 21183(b)(1), "jobs that pay prevailing wages" means that all construction workers employed in the execution of the project will receive at least the general prevailing rate of per diem wages for the type of work and geographic area, as determined by the Director of Industrial Relations pursuant to Sections 1773 and 1773.9 of the Labor Code. The Project Applicant will include this requirement in all contracts for the performance of the work.

As per Section 21183(b)(2)(B), the obligation of the contractors and subcontractors to pay prevailing wages may be enforced by the Labor Commissioner through the issuance of a civil wage and penalty assessment pursuant to Section 1741 of the Labor Code, which may be reviewed pursuant to Section 1742 of the Labor Code, within 18 months after the completion of the project, or by an underpaid worker through an administrative complaint or civil action. Section 21183(b)(2)(B) does not apply if a project labor agreement is in place with enforcement through an arbitration process. The Project has not entered into a project labor agreement; therefore, enforcement is subject to the provisions of Section 21183(b)(2)(B).

Information establishing that the project will not result in any net additional greenhouse gas emissions. This information includes (1) a proposed methodology for quantifying the project's net additional greenhouse gas emissions, and (2) documentation that quantifies both direct and indirect greenhouse gas emissions associated with the project's construction and operation, including emissions from the project's projected energy use and transportation related emissions; and quantifies the net emissions of the project after accounting for any mitigation measures. This information is subject to a determination signed by the Executive Officer of the Air Resources Board that the project does not result in any net additional greenhouse gas emissions, following the procedures set forth in section 6 of the Governor's Guidelines.

The Project will not result in any net additional GHG emissions. The proposed methodology for quantifying the project's GHG emissions is attached as **Exhibit 6**.

Prior to the onset of construction activity, the existing uses will be vacated and all facilities will cease to operate. The Project Site is currently developed with four commercial buildings totaling 35,651 square feet and an approximately 5,952 square foot paved parking and hardscape area for a total of 41,603 square feet. These existing uses would be demolished and removed to allow for development of the Project. Given the physical space limitations of the Project Site, the entire site would be fully built out prior to occupancy. Thus, the project would not result in simultaneous construction and operation GHG emissions from partial occupancy during construction.

Construction of the project would result in one-time GHG emissions of carbon dioxide (CO_2) and smaller amounts of methane (CH_4) and nitrous oxide (N_2O) from heavy-duty construction equipment, haul trucks, and worker vehicles. Construction emissions are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the off-road and on-road emissions factors. The emissions are estimated using the California Emissions Estimator Model (CalEEMod), which incorporates the CARB off-road emissions factor model, OFFROAD, and the on-road emissions factor model, EMFAC. The output values used in this analysis are adjusted to be project-specific based on expected equipment types and the construction schedule. These values are applied to the construction phasing assumptions to generate GHG emissions values for each construction year. The CalEEMod tool provides options for specifying equipment, horsepower ratings, load factors, and operational hours per day. Since a specific construction contractor(s) has not yet been

retained for the project, specific equipment specifications are not yet known. Therefore, air district recommended default equipment and vehicle horsepower ratings and load factors provided in CalEEMod are used in this assessment. The use of these CalEEMod factors is recognized as providing a reasonably conservative estimate of a project's construction emissions. Construction of the project would occur over a number of phases and include activities such as demolition, debris and soil hauling, building construction, architectural coating, and paving. The construction phases are not independent of each other, as there may be overlap and efficiency built into the construction process. Information regarding the activities that would occur during these phases is provided below:

- **Demolition:** This phase is anticipated to begin as early as 2019 and last for approximately one month. If construction commences at a later date, this assessment would be considered conservative as future year emission factors tend to decline in future years. Construction equipment would include a concrete saw, loader, haul trucks, jackhammer, sweeper/scrubber and other construction equipment.
- **Site Preparation:** This phase is anticipated to occur during demolition and last for approximately one month. Construction equipment would include a concrete saw, excavator, and sweeper/scrubber.
- **Grading and Excavation:** This phase is anticipated to have some overlap with the demolition and site preparation phase and last for approximately four months. Construction equipment would include a backhoe, drill rig, excavators, haul trucks, loaders, and sweeper/scrubber. Up to approximately 80,000 cubic yards of soil would be excavated and exported.
- **Utilities/Trenching:** This activity is anticipated to have some overlap with grading and excavation and last for approximately 3 months. During this phase, trenching for site utilizes would occur. Construction equipment would include a backhoe and sweeper/scrubber.
- **Foundation/Concrete Pouring:** This activity is anticipated to have some overlap with grading and excavation and utilities/trenching and would be on-going through building construction activities for approximately 2.5 years. During this activity, the building foundations would be prepared and concrete pouring for various building and Project Site elements would occur. Construction equipment would include a concrete trucks, backhoe, crane, forklift, and sweeper/scrubber.
- **Building Construction:** This phase is anticipated to begin after grading and excavation and after the building foundations have been prepared and last for just over 2 years. During this phase, the building would be constructed. Construction equipment would include cranes, forklifts, sweeper/scrubber, and material/vendor supply trucks.
- **Paving:** This activity is anticipated to last for approximately 2 months and occur during the building construction phase. During this activity, paving materials would be poured during construction of the buildings and related features and the surfaces would be paved. Construction equipment would include a backhoe, sweeper/scrubber, and other equipment.
- **Architectural Coating:** This activity is anticipated to last for approximately 2 years and occur during the building construction phase. During this activity, the interior and exterior coating would be applied to the residential and commercial uses as the floors are built out. Specific coating equipment would include an air compressor and forklift.

Operation of the Project would generate GHG emissions from vehicles traveling to and from the site, area sources (landscaping equipment and hearths) energy demand (electricity and natural gas), water demand, and solid waste generation. Physical and operational land use characteristics and green building features for which sufficient data is available to quantify the reductions from building energy and resource consumption are accounted for in the quantitative analysis, and include but are not limited to the following measures described below.

Land Use Characteristics: The Project includes a mix of residential and neighborhood serving commercial uses (restaurant and retail) located at the ground level, which would provide convenient local destinations for the residential element of the Project without having to drive to other locations. The mix of uses on the Project Site provides for internal capture of vehicle trips that would otherwise occur without the mix of uses. The Project is also located in a highly-walkable area of downtown Los Angeles with a high level of provision of bicycle facilities and excellent access to the highest level of transit service in Los Angeles, that will provide convenient access to local employment, shopping and entertainment opportunities without using a car for the residents of the Project. The Project is located in an area well served by multi-modal transportation options and in close proximity to services, which reduces VMT from private automobiles. The Project Site is less than 0.5 miles from the Metro Blue Line and Expo Line station at Pico Boulevard, which provides convenient access to locations within Downtown Los Angeles, Long Beach, Culver City, Santa Monica, and direct connections to the Metro Red and Purple lines that provide transit service to a multitude of locations through the Los Angeles region including Hollywood, Koreatown, and Universal City. The project would be located within a quarter-mile of public transportation, including existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the Los Angeles Department of Transportation (LADOT) DASH Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. The Project Site is also an infill location in close proximity (i.e., within a one-half mile) to a number of services including restaurant, grocery, laundry/cleaner, movie theater, fitness center uses and other service uses. The Project would also implement a TDM Program that would provide new on-site residents and employees with transit information, on-site bicycle amenities (bicycle racks, lockers, showers, etc.), unbundle residential parking, and other measures to encourage the use of non-auto modes and reduce vehicle trips to and from the Project Site. These characteristics result in a substantial reduction in VMT compared to the regional average.

Green Building Features: The Project will achieve the USGBC LEED Gold Certification and will 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. Green building and LEED measures include the following.

- The Project will incorporate heat island reduction strategies for 50 percent of the site hardscapes or provide 100 percent structured parking and incorporate heat island reduction strategies for the Project roof areas.
- The Project will promote alternatives to conventionally fueled automobiles by providing electric vehicle charging stations and/or preferred parking for alternative-fuel vehicles, low-emitting, and fuel-efficient and ride-sharing vehicles.

- The Project will optimize building energy performance to achieve a minimum of a 5 percent reduction from the LEED baseline consistent with LEED required prerequisites.
- The Project will reduce water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline.
- The Project would reduce indoor potable water use by a minimum of 20 percent compared to baseline or standard water consumption by installing water fixtures that exceed applicable standards.
- The Project will provide on-site recycling areas with containers to promote the recycling of paper, metal, glass, and other recyclable materials and adequate storage areas for such containers.

To achieve the goal of the Project not resulting in any net additional GHG emissions, the Project would implement GHG reduction measures and programs that may include community-based programs that reduce sources of GHG emissions in the regions. These may include installing solar panels on existing rooftops and carports or other similar community-based measures. The Project may also purchase green-power to offset the GHG emissions from the Project's building electricity demand, obtain GHG credit offsets, or other similar types of GHG reductions. Detailed GHG emissions calculations demonstrating a net zero increase in GHG emissions is attached as **Exhibit 6**.

Information documenting a binding agreement between the project proponent and the lead agency establishing the requirements set forth in Public Resources Code sections 21183(d) (all mitigation measures will be conditions of approval and enforceable, and environmental mitigation measures will be monitored and enforced for the life of the obligation), (e) (applicant will pay costs for hearing by Court of Appeal), and (f) (applicant will pay costs of preparing the administrative record).

SB 734 (effective January 1, 2014) amended the AB 900 Guidelines, regarding the documentation of a binding agreement between the project proponent and the lead agency establishing the requirements set forth in Public Resources Code sections 21183 (d) (e) and (f), to remove the need for a binding agreement prior to the release of the Draft Environmental Impact Report. Section 21181 as amended by AB 246 requires the Governor to certify the project as an environmental leadership development project eligible for streamlining prior to January 1, 2020.

The letter of acknowledgement and binding agreement between the Applicant and the City of Los Angeles is provided in **Exhibit 7**.

Information per Public Resources Code 21184.5 as amended by SB 734 to show the project is providing unbundled parking for residential dwelling units, except for affordable dwelling units.

The project will provide unbundled parking for the residential dwelling units.

Information per Public Resources Code 21183(d) to show the project demonstrates compliance with the requirements of Chapters 12.8 (commencing with Section 42649) and 12.9 (commencing with Section 42649.8) of Part 3 of Division 30, as applicable.

With respect to municipal solid waste, the State has enacted regulations to address solid waste services and recycling. California Public Resources Code, Division 30, Part 3 Chapter 12.8, Section 42649 et seq. requires businesses that produce four cubic yards or more of solid waste per week or multifamily residential dwellings of five units or more to arrange for recycling services that are consistent with state or local laws or requirements, including a local ordinance or agreement, applicable to the collection, handling, or recycling of solid waste, to the extent that these services are offered and reasonably available from a local service provider.[16] In addition, California Public Resources Code, Division 30, Part 3 Chapter 12.9, Section 42649.8 et seq. requires after January 1, 2020, if the department determines that statewide disposal of organic waste has not been reduced to 50 percent of the level of disposal during 2014, a business that generates two cubic yards or more per week of commercial solid waste is required to arrange for organic waste recycling services that include at least one of the following actions: (1) source separate of organic waste from other waste and subscribe to a basic level of organic waste recycling service that includes collection and recycling of organic waste, (2) recycle its organic waste on-site or self-haul its own organic waste for recycling, (3) subscribe to an organic waste recycling service that may include mixed waste processing that specifically recycles organic waste, (4) make other arrangements to meet the organic waste requirements of a local governmental agency that are more stringent or comprehensive than the requirements of Chapter 12.9, unless the department determines that this requirement will not result in significant additional reductions of organics disposal.[17] The City has developed and is in the process of implementing the Solid Waste Integrated Resources Plan (SWIRP), also referred to as the City's Zero Waste Plan, whose goal is to lead Los Angeles towards being a "zero waste" City by 2030.[18] These waste reduction plans, policies, and regulations, along with Mayoral and City Council directives, have increased the level of waste diversion (e.g., recycling) for the City to 76 percent as of 2013.[19] The City has also approved Ordinance No. 181519 (Los Angeles Municipal Code (LAMC) Chapter VI, Article 6, Section 66.32-66.32.5), which requires the diversion of mixed construction and demolition debris to City certified construction and demolition waste processors. The project would be consistent with the City and State waste requirements by utilizing waste collection services that are approved by the City and that meet the

16 California Legislature, California Public Resources Code, Division 30, Part 3 Chapter 12.8, Section 42649. 2011, https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=12.8.&article=. Access October 2017

17 California Legislature, California Public Resources Code, Division 30, Part 3 Chapter 12.9, Section 42649.9. January 2015, https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=3.&chapter=12.9.&article=. Accessed October 2017.

18 City of Los Angeles Department of Public Works, LA Sanitation, Solid Waste Integrated Resources Plan (SWIRP) – A Zero Waste Management Plan, October 2013, https://www.lacitysan.org/san/sandocview?docname=cnt012522. Accessed October 2017.

19 City of Los Angeles Department of Public Works, LA Sanitation, Recycling, 2017, https://www.lacitysan.org/san/faces/home/portal/s-lsh-wwd/s-lsh-wwd-s/s-lsh-wwd-s-r?_adf.ctrl-state=kq9mn3h5a_188. Accessed October 2017.

applicable requirements for waste diversion and recycling mandates. The City generally relies on single-stream waste recycling where mixed waste is collected and sorted for recycling at a waste reclamation facility. The project would subscribe to a municipal solid waste collection service that is approved by the City and that meets applicable City and State waste collection, management, recycling and diversion requirements.

Consistency with Planning Goals, Policies and Objectives of the City of Los Angeles.

The Project Site is located within the Central City Community Plan area in the City of Los Angeles. The Project Site has a General Plan land use designation of High Density Residential and is currently zoned [Q]R5-4D-O. The R5 zoning designation permits the development of high density residential development. The "[Q]" Condition allows commercial uses to be included along with the residential development provided the floor area for the commercial uses does not exceed a 2:1 FAR. The Height District No. 4 permits a FAR of 13:1. However, the "D" limitation limits the floor area to a maximum of 6:1 FAR, unless additional floor area is permitted through a Transfer of Floor Area (TFAR). The Project is located within a designated Transit Priority Area and as a mixed-use project qualifies for the 13:1 FAR pursuant to Section 14.5 of the LAMC as a Transit Area Mixed Use Project that allows the proposed FAR to be based on the area contained within the centerlines of Olive Street 11th Street, and the abutting alley. The Project Site is also located in a Los Angeles State Enterprise Zone, Central City and Downtown Parking Districts, Greater Downtown Housing Incentive Area, South Park II Business Improvement District, and Central City Revitalization Zone.

The Project is consistent with many of the goals, policies and objectives of the City of Los Angeles General Plan, the Housing Element, and the Do Real Planning Guidelines. In addition, all entitlements being considered for approval by the City of Los Angeles conform with the appropriate sections set forth in the LAMC and the underlying zoning.

General Plan Framework

The General Plan Framework includes the following goals, objectives and policies relevant to the proposed mixed-use development:

Objective 3.1: Accommodate a diversity of uses that support the needs of the City's existing and future residents, businesses, and visitors.

Policy 3.1.1: Identify areas on the Land Use Diagram and the Community Plans sufficient for the development of a diversity of uses that serve the needs of existing and future residents (housing, employment, retail, entertainment, cultural/institutional, educational, health, services, recreation, and similar uses), provide job opportunities, and support visitors and tourism.

The Project would provide 794 multi-family residential units and approximately 12,504 square feet of neighborhood serving commercial uses and would replace the existing four commercial buildings that total 35,651 square feet on the Project Site. The range of housing types and

commercial uses represent a more diverse mix of land uses that would support the needs of the City's existing and future residents, businesses, and visitors. Downtown Los Angeles is a jobs-rich area and providing more residential uses on the Project Site would provide for needed housing in the City, particularly housing in close proximity to multi-modal transportation options.

The Framework Element Land Use Diagram(s) designate(s) districts, centers and mixed-use boulevards that are encouraged to develop with appropriate uses and character for their land use designations. The Project Site is located in an area that is identified as "Downtown Center," which is targeted for major cultural and entertainment facilities, hotels, professional offices, corporate headquarters, financial institutions, high-rise residential towers, regional transportation facilities and the Convention Center according to the City's General Plan Framework's Land Use Diagram. The Downtown Center is generally characterized by a floor area ratio up to 13:1 and high-rise buildings. Development of the Project would support the intent of the Downtown Center designation by providing high-rise residential with neighborhood serving commercial uses that provide housing options near regional transportation facilities, including the Metro Blue Line and Expo Line station at Pico Boulevard, and near job and entertainment opportunities including professional, offices, corporate headquarters, financial institutions, museums, theaters, restaurant, shopping, and other commercial service uses. The provision of residential units at this Downtown location would serve the needs of City residents, would expand the diversity within the designated Downtown Center, and provide housing in close proximity to the aforementioned commercial, retail, entertainment, and restaurant uses. The provision of the neighborhood serving commercial uses within the Project Site that would be accessible at ground-level would support the Project Site's residents as well as other off-site residents, tourists, and visitors in the area by proving commercial services in a walkable environment.

Objective 3.2: To provide for the spatial distribution of development that promotes an improved quality of life by facilitating a reduction of vehicle trips, vehicle miles traveled, and air pollution.

Policy 3.2.3: Provide for the development of land use patterns that emphasize pedestrian/bicycle access and use in appropriate locations.

The Project would contribute to the concentration of mixed-use development along a corridor with convenient access to the Metro Blue Line and Expo Line (less than 0.5 miles), Metro bus and Metro rapid bus lines, and the LADOT DASH and Commuter Express lines. The Project is located adjacent to multiple bus and shuttle lines within a ¼-mile walking distance, including multiple existing Metro bus service lines along Olive Street and Grand Avenue (14, 37, 70, 71, 76, 78, 79, 96, 378, and 770), the Los Angeles Department of Transportation (LADOT) Downtown Area Short Hop (DASH) Route D (Union Station, South Park) on Hill Street, and LADOT Commuter Express lines on (431 and 437) on Olive Street and Grand Avenue. The Project would also provide up to 886 bicycle spaces for on-site residents and the on-site commercial uses.

The new residential population would have access to commercial development on site as well as retail, restaurant, office, and entertainment activities within walking and biking distance and via bus and rail service. The Project would provide pedestrian access from various at-grade sidewalks and steps and would include a ground-level public Plaza with streetscaping,

landscaping and a public art display. At the pedestrian level, the Project would increase the sidewalk width and provide a 17-foot sidewalk along Olive Street and a 15-foot sidewalk (including a 3-foot sidewalk easement) along 11th Street to promote pedestrian activity.

The Project's location, design, and specific features, including its proximity to high-capacity and high-frequency transit, commercial uses easily accessible from the ground-level, and implementation of a TDM program that will reduce the use of single occupant vehicles and increase the number of trips by walking, bicycle, carpool, vanpool, and transit. The Project would be expected to result in VMT reductions of approximately 32 percent daily, including 31 percent during the morning peak hour and 32 percent during the afternoon peak hour.

Objective 3.16: Accommodate land uses, locate and design buildings, and implement streetscape amenities that enhance pedestrian activity.

The exterior boundaries of the Project Site along Olive Street and 11th Street would provide streetscape amenities for pedestrians, including public Plaza with streetscaping, landscaping and a public art display. At the pedestrian level, the Project would increase the sidewalk width and provide a 17-foot sidewalk along Olive Street and a 15-foot sidewalk (including a 3-foot sidewalk easement) along 11th Street to promote pedestrian activity. There are no trees located on the Project Site; however, five street trees are located along the street-side edge of Olive Street. The Project would include the addition of 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover to the Project Site and landscaping would be provided along the street edges and throughout all of the Project's open space and would be selected from a large pallet of native plants. The addition of trees, landscaping, and streetscaping would enhance the Project Site and make it more inviting for pedestrian activity. The Project would also include neighborhood serving commercial uses easily accessible from the ground-level along Olive Street and 11th Street, which would also enhance pedestrian activity.

Housing Element 2013-2021

The Project is consistent with goals, objectives and policies of the Housing Element 2013-2021, adopted by the Los Angeles City Council on December 3, 2013. The City of Los Angeles is committed to providing affordable housing and amenity-rich sustainable neighborhoods for its residents, answering the variety of housing needs of its growing population. The purpose of the General Plan Housing Element is to provide guidance for meeting the City's need for housing per the allocation defined in SCAG's Regional Housing Needs Assessment.

Goal 1: An adequate supply of ownership and rental housing that is safe, healthy and affordable to people of all income levels, races, ages, and suitable for their various needs.

Objective 1.1: Produce an adequate supply of rental and ownership housing in order to meet current and projected needs.

Policy 1.1.3: Facilitate new construction and preservation of a range of different housing types that address the particular needs of the city's households.

Policy 1.1.4: Expand opportunities for residential development, particularly in designated Centers, Transit Oriented Districts and along Mixed-Use Boulevards.

The 2013-2021 Housing Element identifies a need for 82,002 new housing units, of which 35,412 units, i.e. 43.2 percent of all units, would be marketed at above moderate income levels. The remaining 56.8 percent of the needed housing units consist of 13,728 moderate income units (16.8 percent), 12,435 low income units (15.2 percent), 10,213 very low income units (12.5 percent), and 10,213 extremely low income units (12.5 percent). The Project would provide 794 new multi-family residential units that would serve the growing population of the community in the designated Downtown Center. The Project would also include commercial uses, which would contribute to meeting the needs of Project residents, as well as off-site residents, tourists and visitors. The Project would remove the existing commercial uses and result in a net decrease of 23,147 square feet of commercial space. However, Downtown Los Angeles is jobs rich and the Project's inclusion of high-rise residential uses near transit, office, commercial, and entertainment uses results in increased land use diversity for the area. The 794 residential units would represent approximately 0.97 percent of the 82,002 needed units identified in the SCAG Regional Housing Needs Assessment (RHNA) for the 8-year (2014 to 2021) planning period. The Project would provide a range of housing types for all family types including studios, 1- and 2-bedroom units (with and without dens), and 3-bedroom units.

Objective 1.3: Forecast and plan for changing housing needs over time in relation to production and preservation needs.

Policy 1.3.5: Provide sufficient land use and density to accommodate an adequate supply of housing units by type and cost within the City to meet the projections of housing needs, according to the policies and objectives of the City's Framework Element of the General Plan.

The Project would concentrate new housing within the Downtown Center consistent with policies and objectives of the Framework Element. The Downtown Center is generally characterized by a floor area ratio up to 13:1 and high-rise buildings. As discussed previously, Development of the Project would support the intent of the Downtown Center designation by providing high-rise residential with neighborhood serving commercial uses that provide housing options near regional transportation facilities, including the Metro Blue Line and Expo Line station at Pico Boulevard, and near job and entertainment opportunities including professional, offices, corporate headquarters, financial institutions, museums, theaters, restaurant, shopping, and other commercial service uses. The provision of residential units at this Downtown location would serve the needs of City residents, would expand the diversity within the designated Downtown Center, and provide housing in close proximity to the aforementioned commercial, retail, entertainment, and restaurant uses. Furthermore, as stated above, the Project would assist the City in meeting its housing needs identified in SCAG's Regional Housing Needs Assessment.

Goal 2: Safe, Livable, and Sustainable Neighborhoods

Objective 2.1: Promote safety and health within neighborhoods.

Policy 2.1.1: Establish development standards and policing practices that reduce the likelihood of crime

Policy 2.1.2: Establish development standards and other measures that promote and implement positive health outcomes.

The Project would promote safety and health within the neighborhood by providing landscaping, streetscaping, new sidewalks, and appropriate lighting along Olive Street and 11th Street. The Project would include neighborhood serving commercial uses easily accessible from the ground-level on Olive Street and 11th Street. The Project would incorporate a security program to ensure the safety of residents and visitors, including controlled access, video surveillance, and security personnel.

The Project would implement Project Design Features to promote positive health outcomes, including compliance with the Los Angeles Green Building Code and 2016 California Green Building Standards (CALGreen) Code, and compliance with USGBC LEED Gold Certification standards. To obtain LEED credits, the Project would use adhesives, sealants, paints, finishes, carpet, and other materials that emit low quantities of VOCs and/or other air quality pollutants. The Project would also minimize transportation-related emissions by being located within walking distance of major transit centers including the Metro Blue Line and Expo Line station on Pico Boulevard, as well as other off-site office, commercial, and entertainment uses. The Project would enhance the pedestrian space to encourage walking and other non-automotive forms of transportation. In addition, the project would provide up to 886 short-term and long-term bicycle parking spaces to promote bicycling. The Project would place residential uses approximately 0.6 miles north of the Santa Monica Freeway (I-10) and 0.6 miles east of the Harbor Freeway (I-110), which would serve as an adequate buffer distance from these freeways so that potential exposure to freeway-generated air pollutant emissions would not pose an elevated health risk.

Objective 2.3: Promote sustainable buildings, which minimize adverse effects on the environment and minimize the use of non-renewable resources.

Policy 2.3.2: Promote and facilitate the reduction of water consumption in new and existing housing.

Policy 2.3.3: Promote and facilitate reduction of energy consumption in new and existing housing.

Policy 2.3.4: Promote and facilitate reduction of waste in construction and building operations.

The Project would ensure sustainable building design through compliance with the 2016 CALGreen Code, Los Angeles Green Building Code, Los Angeles Building Code, Planning and Zoning Code, and compliance with USGBC LEED Gold Certification standards. Design features of the project would include implementation of heat island reduction strategies, optimization of building energy performance to achieve greater than the minimum 5 percent reduction from the LEED baseline as specified in the LEED required prerequisites, and water efficiency features to reduce water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline. The Project would provide on-site recycling containers to promote the recycling of paper, metal, glass, and other recyclable materials and adequate storage areas for such containers during construction and after the building is occupied. Additionally, a

construction and demolition waste management plan will maximize the recycling or salvage of nonhazardous construction debris.

Objective 2.4: Promote livable neighborhoods with a mix of housing types, quality design and a scale and character that respects unique residential neighborhoods in the City.

Policy 2.4.1: Promote preservation of neighborhood character in balance with facilitating new development.

Policy 2.4.2: Develop and implement design standards that promote quality residential development.

As discussed previously, the Project would provide 794 multi-family residential units that would serve a broad section of the housing market, including singles, small families, and empty-nesters as well as larger units that could accommodate a larger family. The unit mix would include: studios, 1- and 2-bedroom units (with and without dens), and 3-bedroom units. The Project would be consistent with the character of the Downtown Center, which is targeted for high-rise residential towers, and major cultural and entertainment facilities, hotels, professional offices, corporate headquarters, financial institutions, regional transportation facilities, and other urban uses. The Project would also be designed consistent with the City's Downtown Design Guide. The provision of the neighborhood serving commercial uses within the Project Site that would be accessible at ground-level would support the Project Site's residents as well as other off-site residents, tourists, and visitors in the area by proving commercial services in a walkable environment. The Project would also include the addition of 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover to the Project Site and landscaping would be provided along the street edges and throughout all of the Project's open space and would be selected from a large pallet of native plants. The addition of trees, landscaping, and streetscaping would enhance the Project Site and make it more inviting for pedestrian activity.

City Planning Commission – Do Real Planning

Promoting the ideals of inspired, principles land use planning concepts at a citywide level, the Los Angeles City Planning Commission has fostered new visions with its "Do Real Planning." The proposed project fulfills several of these important objectives and goals:

Demand a Walkable City: This concept poses the question of whether a project actively welcomes its own users, its neighbors and its passerby. The Project proposes a walkable concept within the Downtown Center by orienting commercial spaces towards the street frontages along Olive Street and 11th Street. The Project would provide and enhance the street frontages with and landscaping, streetscaping, and new and wider sidewalks along Olive Street and 11th Street, as well as providing 137 canopy trees and just over approximately 0.2 acres of planting area of native plants, shrubs, perennials, and ground-cover on the Project Site. In addition, a public Plaza with streetscaping, landscaping and a public art display. These features would enliven the pedestrian environment and improve the visual character of the Project Site and the Downtown Center area.

Offer Basic Design Standards: The Project would be consistent with the character of the Downtown Center, which is targeted for high-rise residential towers and other major commercial, entertainment, office, financial, and transportation centers. The Project would also be designed consistent with the City's Downtown Design Guide. The provision of the neighborhood serving commercial uses within the Project Site that would be accessible at ground-level would support the Project Site's residents as well as other off-site residents, tourists, and visitors in the area by proving commercial services in a walkable environment. The parking areas within the Podium would be covered with mesh screening. Residential liner units in the upper Podium levels (5 through 9) would offer a variation in the building appearance that is defined by the horizontal lines of the residential balconies. The design of the Project would be consistent with the overall character of the Downtown Center while also providing an appealing Project Site.

Locate Jobs Near Housing: The Commission observes that "the time for segregating jobs from housing in Los Angeles has passed." The Commission observes that the City has "several stale business boulevards and districts that are ripe for renovation; in these traditionally commercial-only locations, we must include both jobs and housing in the mix." The Project Site is primed for renovation proposed by the Commission insofar as the project would bring needed housing units into the jobs-rich Downtown Center area, along with neighborhood serving commercial uses.

Produce Green Buildings: The Project would comply with the applicable requirements of the 2016 CALGreen Code, the Los Angeles Green Building Code, and compliance with the USGBC LEED Gold Certification standards. Some of the Project's key design features that would contribute to energy efficiency include optimizing building energy performance to achieve greater than the minimum 5 percent reduction from the LEED baseline specified in the LEED required prerequisites and water consumption by 40 percent for indoor water and 50 percent for outdoor water from the LEED usage baseline. The Project would include other specific design features that would be incorporated into the Project design to enhance energy efficiency and sustainability. Wraparound-cantilevered balconies would be provided on every residential level that would provide shade and minimize solar gain throughout the building. Further considerations regarding energy efficiency and sustainability include native plants and drip/subsurface irrigation systems, individual metering or sub metering for water use, leak detection systems, rainwater harvesting and provisions for electric vehicle charging (wiring for 5 percent of all parking spaces and pre-wiring for 20 percent of all parking spaces).

Identify Smart Parking Requirements: The Project would provide parking within 6 subterranean parking levels and in 8 levels of parking above grade within the Podium. The parking areas within the Podium would be covered with mesh screening, while residential liner units in the upper Podium levels (5 through 9) would offer a variation in the building appearance that is defined by the horizontal lines of the residential balconies. The Project would provide 886 bicycle parking spaces for residents and the commercial uses, with short-term bicycle parking located along the streets.