

Appendix D

GHG Report



Thatcher Yard Residential

GREENHOUSE GAS ANALYSIS

CITY OF LOS ANGELES

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com
(949) 336-5987

Alyssa Tamase
atamase@urbanxroads.com
(949) 336-5988

MARCH 1, 2019

TABLE OF CONTENTS

TABLE OF CONTENTS	I
APPENDICES	II
LIST OF EXHIBITS	II
LIST OF TABLES	II
LIST OF ABBREVIATED TERMS	I
EXECUTIVE SUMMARY	1
1 INTRODUCTION	5
1.1 Site Location.....	5
1.2 Project Description.....	5
1.3 Regulatory Requirements	5
1.4 Construction and Operational-Source Mitigation Measures.....	8
2 CLIMATE CHANGE SETTING	10
2.1 Introduction to Global Climate Change	10
2.2 Global Climate Change Defined	10
2.3 Global Climate Change Defined	11
2.4 Greenhouse Gases	12
2.5 Effects of Climate Change in California	15
2.6 Human Health Effects	17
2.7 Regulatory Setting.....	19
2.8 Discussion on Establishment of Significance Thresholds.....	34
3 PROJECT GREENHOUSE GAS IMPACT	37
3.1 Introduction	37
3.2 Project Related Greenhouse Gas Emissions	37
3.3 Construction and Operational Life-Cycle Analysis Not Required.....	37
3.4 Project Related greenhouse Gas Emissions	37
3.5 Operational Emissions	38
3.6 Emissions Summary	39
4 REFERENCES	47
5 CERTIFICATION	50

APPENDICES

APPENDIX 3.1: CALEEMOD ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

APPENDIX 3.2: CALEEMOD ANNUAL OPERATIONAL EMISSIONS MODEL OUTPUTS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP.....6
EXHIBIT 1-B: SITE PLAN.....7
EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT18

LIST OF TABLES

TABLE ES-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL).....1
TABLE ES-2: SUMMARY OF CEQA SIGNIFICANCE FINDINGS3
TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION11
TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS15
TABLE 3-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)40
TABLE 3-2: SCOPING PLAN CONSISTENCY SUMMARY42

LIST OF ABBREVIATED TERMS

(1)	Reference
APS	Alternative Planning Organizations
ARB	California Air Resources Board
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMTCO ₂ e	Million Metric Ton of Carbon Dioxide Equivalent
MPOs	Metropolitan Planning Organizations
MTCO ₂ e	Metric Ton of Carbon Dioxide Equivalent
N ₂ O	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NO _x	Oxides of Nitrogen
PFC	Perfluorocarbons
PM ₁₀	Particulate Matter 10 microns in diameter or less
PM _{2.5}	Particulate Matter 2.5 microns in diameter or less

PPM	Parts Per Million
Project	Thatcher Yard Residential
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategies
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

EXECUTIVE SUMMARY

Threshold 1: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The City of Los Angeles has not adopted its own numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions. A screening threshold of 3,000 MTCO₂e per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the City of Los Angeles and numerous cities in the South Coast Air Basin (SCAB) and is based on the South Coast Air Quality Management District (SCAQMD) staff’s proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD’s *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* (“SCAQMD Interim GHG Threshold”). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (1).

As shown on Table ES-1, the Project will result in approximately 995.88 MTCO₂e per year; the proposed Project would not exceed the SCAQMD/City’s screening threshold of 3,000 MTCO₂e per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

TABLE ES-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Annual construction-related emissions amortized over 30 years	25.53	0.00	0.00	25.63
Area	25.19	2.05E-03	4.30E-04	25.37
Energy	467.76	0.01	3.33E-03	469.02
Mobile Sources	346.43	0.02	0.00	346.88
Waste	19.75	1.17	0.00	48.94
Water Usage	73.24	0.21	5.26E-03	80.05
Total CO₂E (All Sources)	995.88			
Screening Threshold (CO₂e)	3,000			
Threshold Exceeded?	NO			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.

Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.

Table results include scientific notation. e is used to represent *times ten raised to the power of* (which would be written as x 10ⁿⁿ) and is followed by the value of the exponent

Threshold 2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Applicable plans adopted for the purpose of reducing GHG emissions include the California Air Resources Board’s (CARB) Scoping Plan (2008 and 2017 Scoping Plans) and the City of Los

Angeles Sustainable City pLAn. The Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases and a less than significant impact would occur with respect to this threshold.

Consistency with AB 32

Assembly Bill 32 (AB 32) requires California to reduce its GHG emissions by approximately 28.5% when compared to GHG emissions produced under a Business as Usual scenario (2). CARB identified reduction measures to achieve this goal as set forth in the CARB Scoping Plan. Projects that are consistent with the CARB Scoping Plan are also consistent with the 28.5% reduction below business as usual required by AB 32.

The CARB Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32. The CARB Scoping Plan recommendations serve as statewide measures to reduce GHG emissions levels. The Project would be consistent with the applicable measures established in the Scoping Plan, as detailed in Section 3.7.

Consistency with SB 32 and Supporting Plans and Policies

Senate Bill 32 (SB 32) establishes a target reduction in statewide greenhouse gas emissions of 40% below 1990 levels by 2030. The new legislation builds upon the AB 32 goal to achieve 1990 GHG emissions levels by 2020, and provides an intermediate goal established under S-3-05, which sets a statewide greenhouse gas reduction target of 80% below 1990 levels by 2050 (3) (4).

According to research conducted by the Lawrence Berkeley National Laboratory and supported by CARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and achieve the 2030 goals established under SB 32. (5) (6).

The Project reduces its GHG emissions to the maximum extent feasible as discussed in this document. Additionally, the Project does not propose facilities or operations that would substantively interfere with or impede any future city-mandated, county-mandated, state-mandated, or federally-mandated retrofit obligations enacted or promulgated to legally require development to assist in meeting state-adopted greenhouse gas emissions reduction targets, including those established under Executive Order S-3-05, Executive Order B-30-15, or SB 32. Nor would the Project interfere with implementation of GHG reduction plans described in the CARB's Updated Scoping Plan, including state measures to: provide 12,000 MW of renewable distributed generation by 2020; measures identified by the California Building Commission mandating net zero energy homes in the building code after 2020; or existing building retrofits under AB 758.

City of Los Angeles Sustainable City pLAN

The project would be required to comply with the Title 24 requirements and would be therefore be consistent with the goals and initiatives of set forth by the Sustainable City pLAN. As such, no significant impacts would result from the proposed project, and no mitigation is required.

SUMMARY OF FINDINGS

The results of this *Thatcher Yard Residential Greenhouse Gas Analysis* are summarized below based on the GHG Impact Criteria 1 and 2. Table ES-2 shows the findings of significance for potential greenhouse gas impacts under CEQA before and after any required mitigation measures described below.

TABLE ES-2: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.	3.6	<i>Less Than Significant</i>	<i>n/a</i>
GHG Impact #2: The Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	3.6	<i>Less Than Significant</i>	<i>n/a</i>

This page intentionally left blank

1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the Thatcher Yard Residential Project (referred to as “Project”). The purpose of this GHGA is to evaluate project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Thatcher Yard Residential Project is located at 3233 S. Thatcher Avenue in the City of Los Angeles, as shown on Exhibit 1-A. Existing land uses in the Project study area include residential uses to the north, south, east, and west.

1.2 PROJECT DESCRIPTION

The Project proposes the construction of 68 affordable senior housing dwelling units and 30 affordable family housing dwelling units, as shown on Exhibit 1-B. For the purposes of this GHGA, it is assumed that the Project will be constructed and at full occupancy in 2022.

1.3 REGULATORY REQUIREMENTS

The Project would be required to comply with all mandates imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air quality emissions. The following mandates are applicable to the Project and would assist in the reduction of greenhouse gas emissions:

- Global Warming Solutions Act of 2006 (AB32) (2)
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375) (7)
- Pavley Fuel Efficiency Standards (AB1493). Establishes fuel efficiency ratings for new vehicles (8).
- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (9).
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards). Establishes energy efficiency requirements for appliances (10).
- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (11).
- California Water Conservation in Landscaping Act of 2006 (AB1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (12).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (13).

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



- Renewable Portfolio Standards (SB 1078). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20 percent by 2010 and 33 percent by 2020 (14).
- Senate Bill 32 (SB 32). Requires the state to reduce statewide greenhouse gas emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (3).

Promulgated regulations that will affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, the Pavley Standards, Low Carbon Fuel Standards, and Renewable Portfolio Standards (RPS) will be in effect for the AB 32 target year of 2020, and therefore are accounted for in the Project's emission calculations.

1.4 CONSTRUCTION AND OPERATIONAL-SOURCE MITIGATION MEASURES

No significant impacts were identified; therefore, no mitigation measures are required.

This page intentionally left blank

2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gases combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GLOBAL CLIMATE CHANGE DEFINED

Global

Worldwide anthropogenic (human) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2016. As shown in Table 2-1, for the Year 2016¹, the sum of these emissions totaled approximately 28,747,554 Gg CO₂e² (15) (16).

¹ The last inventory year for GHG emissions was taken in 2016.

² The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2016 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China were taken in 2012, while the most recent GHG emissions for India were taken in 2010.

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION³

Emitting Countries	GHG Emissions (Gg CO₂e)
China	11,895,765
United States	6,511,302
European Union (28 member countries)	4,291,252
India	2,643,817
Russian Federation	2,100,850
Japan	1,304,568
Total	28,747,554

United States

As noted in Table 2-1, the United States, as a single country, was the number two producer of GHG emissions in 2016. As per the *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017*, the primary greenhouse gas emitted by human activities in the United States was CO₂, representing approximately 81.6 percent of total greenhouse gas emissions in the US. Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 77 percent of the CO₂ emissions (17).

State of California

CARB compiles GHG inventories for the State of California. Based upon the 2018 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2016 greenhouse gas emissions inventory, California emitted 429.4 MMTCO₂e including emissions resulting from imported electrical power in 2015 (18).

2.3 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO₂ (carbon dioxide), N₂O (nitrous oxide), CH₄ (methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

³ Used <http://unfccc.int> data for Annex I countries. Consulted the CAIT Climate Data Explorer in <http://www.wri.org> site to reference Non-Annex I countries such as China and India.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of CO₂e greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls (19).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-1 later in this report) because these gasses are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

Water Vapor: Water vapor (H₂O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up).

There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO₂) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is

emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (20).

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO₂ concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (21).

Methane: Methane (CH₄) is an extremely effective absorber of radiation, although its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. Exposure to high levels of methane can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N₂O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (22).

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction.

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C₂H₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs are no longer being used; therefore, it is not likely that health

effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a ($\text{CF}_3\text{CH}_2\text{F}$), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt (23). No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The U.S. EPA estimates that concentrations of CF_4 in the atmosphere are over 70 ppt.

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential (GWP) of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Nitrogen Trifluoride: Nitrogen trifluoride (NF_3) is a colorless gas with a distinctly moldy odor. NF_3 is used in industrial processes and is produced in the manufacture of semiconductors and LCD (Liquid Crystal Display) panels, and types of solar panels and chemical lasers. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (24).

Long-term or repeated exposure may effect the liver and kidneys and may cause fluorosis (25).

Greenhouse gases have varying GWP values; GWP values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized at Table 2-2. As shown in the table below, GWP for the Second Assessment Report (SAR), the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride and GWP for the IPCC's 4th Assessment Report (AR4) range from 1 for carbon dioxide to 22,800 for sulfur hexafluoride.

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)	
		Second Assessment Report (SAR)	4 th Assessment Report (AR4)
Carbon Dioxide	50-200	1	1
Methane	12 ± 3	21	25
Nitrous Oxide	114	310	298
HFC-23	270	11,700	14,800
HFC-134a	14	1,300	1,430
HFC-152a	1.4	140	124
Sulfur Hexafluoride (SF ₆)	3,200	23,900	22,800

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

2.5 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range (3-5.5°F) to 75 to 85 percent under the medium warming range (5.5-8°F). In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario (8-10.5°F), there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected

if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO₂ levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone (O₃) pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

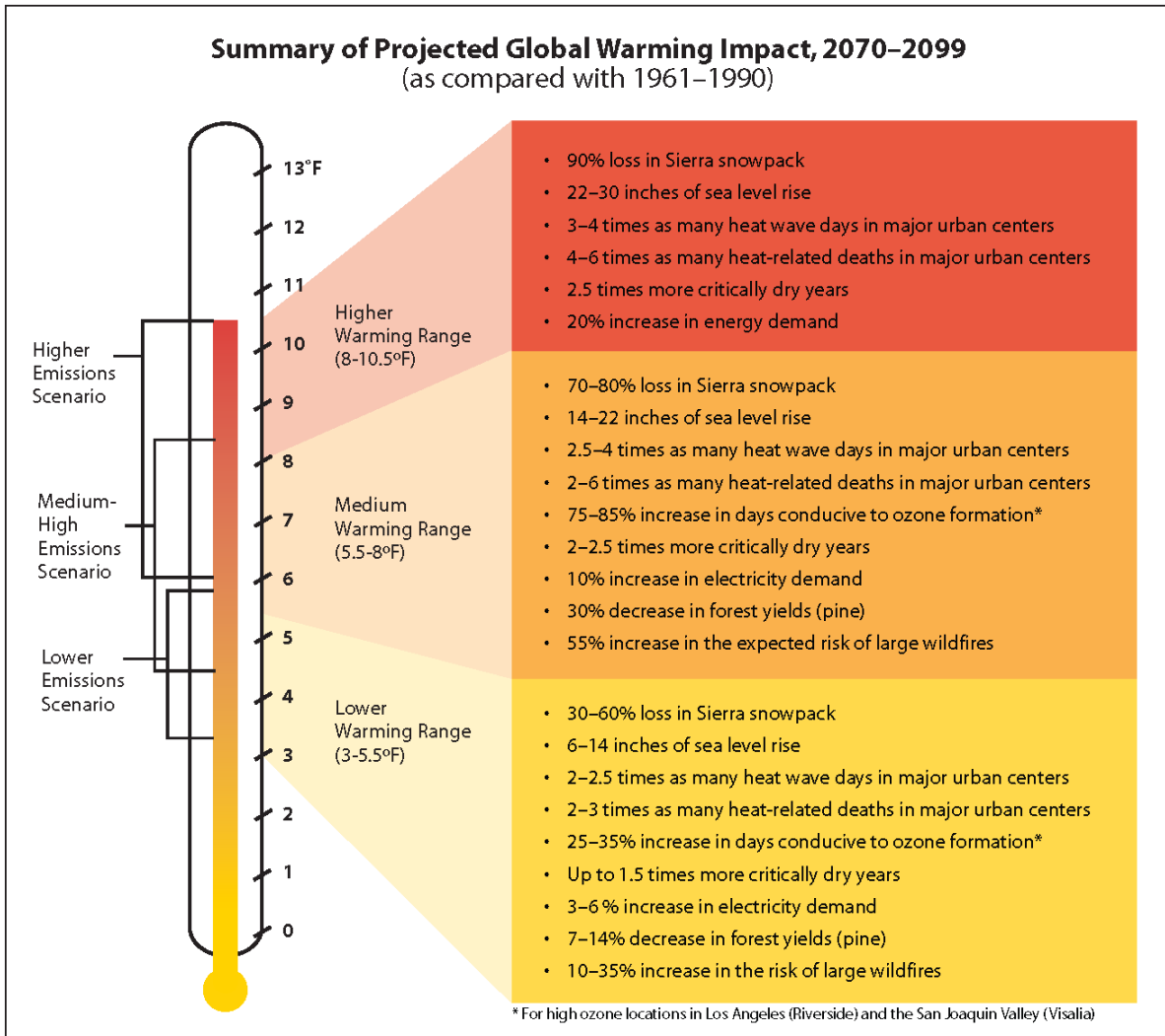
Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.6 HUMAN HEALTH EFFECTS

The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects, such as the proposed Project, are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (26). Exhibit 2-A presents the potential impacts of global warming.

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT



Source: Our Changing Climate: A Summary Report from the California Climate Change Center, July 2006

Specific health effects associated with directly emitted GHG emissions are as follows:

Water Vapor: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth’s atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour

workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (27).

Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of methane can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate (28).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (29).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (27).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus, aerosols can cause elevated respiratory and cardiovascular diseases, as well as increased mortality (30).

Nitrogen Trifluoride: Long-term or repeated exposure may effect the liver and kidneys and may cause fluorosis (25).

2.7 REGULATORY SETTING

INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

International Climate Change Treaties. The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of five percent against 1990 levels over the five-year period 2008–2012. The

Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.”

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make “nationally determined contributions” (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and “progress made in implementing and achieving” their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will “represent a progression” beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;

- Extend the current goal of mobilizing \$100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address “loss and damage” resulting from climate change, which explicitly will not “involve or provide a basis for any liability or compensation;”
- Require parties engaging in international emissions trading to avoid “double counting;” and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country’s NDC (C2ES 2015a) (31).

On June 2, 2017 President Donald Trump announced his intention to withdraw from the Paris Agreement. It should be noted that under the terms of the agreement, the United States cannot formally announce its resignation until November 4, 2019. Subsequently, withdrawal would be effective one year after notification in 2020.

NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG Endangerment. In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the Supreme Court found that four GHGs, including carbon dioxide, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act. The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section “Clean Vehicles” below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator’s findings (32).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the

Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012c). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO₂) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

CALIFORNIA

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark Assembly Bill (AB 32) California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include carbon dioxide, methane, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The California Air Resources Board (ARB) is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

ARB approved the 1990 GHG emissions level of 427 MMTCO₂e on December 6, 2007 (ARB 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO₂e. Emissions in 2020 in a “business as usual” (BAU) scenario were estimated to be 596 MMTCO₂e, which do not account for reductions from AB 32 regulations (ARB 2008). At that level, a 28.4 percent reduction was required to achieve the 427 million MTCO₂e 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 million MTCO₂e. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010).

PROGRESS IN ACHIEVING AB 32 TARGETS AND REMAINING REDUCTIONS REQUIRED

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 (ARB 2014a). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 million MTCO₂e (AB 32 2020 target)
- 2000: 463 million MTCO₂e (an average 8 percent reduction needed to achieve 1990 base)
- 2010: 450 million MTCO₂e (an average 5 percent reduction needed to achieve 1990 base)

ARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, ARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4 percent and the latest reduction from 2020 BAU is 21.7 percent.

- 2020: 545 million MTCO₂e BAU (an average 21.7 percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. ARB’s Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State’s emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;

- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long-term commitment to AB 32 implementation.

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California’s climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California’s climate change priorities and activities for the next several years. The Update does not set new targets for the State but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050 (ARB 2014).

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as “business-as-usual” or BAU. The ARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, ARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. ARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state’s average emissions from 2006–2008. The new BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 (Pavley I) motor vehicle GHG emission standards, and the Low Carbon Fuels Standard. In addition, ARB factored into the 2020 BAU inventory emissions reductions associated with 33 percent Renewable Energy Portfolio Standard (RPS) for electricity generation. The updated BAU estimate of 507 MMTCO_{2e} by 2020 requires a reduction of 80 MMTCO_{2e}, or a 16 percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 MMTCO_{2e}) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many climate action plans, the updated inventory without regulations was also included in the Supplemental FED. The ARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 MMTCO_{2e}. The updated ARB 2020 BAU projection in the Supplemental FED is 545 MMTCO_{2e}. Considering the updated BAU estimate of 545 MMTCO_{2e} by 2020, ARB estimates a 21.7 percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 MMTCO_{2e}) by 2020, instead

of the approximate 28.4 percent BAU reduction previously reported under the original Climate Change Scoping Plan (2008).

2017 Climate Change Scoping Plan Update

In November 2017, ARB released the final 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The 2017 Scoping Plan Update reflects the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32). Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce methane emissions from agricultural and other wastes.

The 2017 Scoping Plan establishes a new emissions limit of 260 MMTCO_{2e} for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing Zero Emission Vehicle (ZEV) buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Scoping Plan also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 MTCO_{2e} or less per capita by 2030 and 2 MTCO_{2e} or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a climate action plan or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory and supported by ARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 MTCO_{2e} per year, "indicating that existing state policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 MTCO_{2e} per year, indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40 percent below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State's 80 percent reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (5) (6).

Senate Bill 32. On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, Assembly Bill (AB) 197. SB 32 requires the state to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80 percent below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that ARB not only responds to the Governor, but also the Legislature (3) (4).

SB 375 - the Sustainable Communities and Climate Protection Act of 2008. Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns

planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 350— Clean Energy and Pollution Reduction Act of 2015. In October 2015, the legislature approved and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings,

initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly-owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 – Low Carbon Fuel Standard. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against ARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing ARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that Low Carbon Fuel Standards adopted by ARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of ARB approving Low Carbon Fuel Standards (LCFS) regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to its Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity (low-CI) fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing was held on September 24 and September 25, 2015, where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with Office of Administrative Law (OAL) on October 2, 2015. OAL had until November 16, 2015 to make a determination (ARB 2015d).

Executive Order S-13-08. Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the ". . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 and directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO₂ equivalent (MMCO₂e). The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate

change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Standards. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they establish a minimum 50 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).
- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
 - The installation of water-conserving fixtures (5.303.3) or
 - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
- Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2)..

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems;

- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Reporting requirements for local agencies.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states “(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a).” Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA guidelines were updated again in December 2018 (33), and while the CEQA Appendix G checklist questions did change (34), these were not changes to the GHG checklist questions. However, updates specific to GHG emissions were made in response to guideline clarifications Page 32 based on two recent greenhouse gas (GHG) court cases: Newhall (properly known as Center for Biodiversity vs. CDFW) and Cleveland National Forest Foundation.

Regional

The Project is within the Southern California Air Basin (SCAB), which is under the jurisdiction of the SCAQMD.

South Coast Air Quality Management District

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as

a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SoCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project’s construction emissions are averaged over 30 years and are added to the project’s operational emissions. If a project’s emissions are below one of the following screening thresholds, then the project is less than significant:
 - Residential and Commercial land use: 3,000 MTCO_{2e} per year
 - Based on land use type: residential: 3,500 MTCO_{2e} per year; commercial: 1,400 MTCO_{2e} per year; or mixed use: 3,000 MTCO_{2e} per year
- Tier 4 has the following options:
 - Option 1: Reduce BAU emissions by a certain percentage; this percentage is currently undefined.
 - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
 - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO_{2e}/SP/year for projects and 6.6 MTCO_{2e}/SP/year for plans;
 - Option 3, 2035 target: 3.0 MTCO_{2e}/SP/year for projects and 4.1 MTCO_{2e}/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD’s interim thresholds used the Executive Order S-3-05-year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order’s objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the Project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAG Regional Transportation Plan/Sustainable Communities Strategy

The 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the SCAG region was prepared to ensure that the Southern California region attains the per capita vehicle miles targets for passenger vehicles identified by CARB, as required by Senate Bill 375 (35) The Project would be consistent with the 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. The Project's consistency with the proposed RTP strategies would therefore not conflict with GHG reduction goals set forth in the SAG 2016 RTP/SCS.

City of Los Angeles Sustainable City pLAn

The City of Los Angeles adopted the Sustainable City pLAn (The pLAn) on April 8, 2015. The pLAn consists of short-term and long-term targets which identify strategies that would help achieve a cleaner environment and stronger economy. Such strategies include a wide range of measures potentially applicable to energy conservation, water use reduction, address global warming, improve pedestrian options, transportation management and solid waste recycling. The long-term goal of the pLAn is to reduce greenhouse gas emissions by 45% by 2025 (36).

2.8 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

The City of Los Angeles has not adopted its own numeric threshold of significance for determining impacts with respect to GHG emissions. A screening threshold of 3,000 MTCO_{2e} per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the City of Los Angeles and numerous cities in the SCAB. Additionally, for consistency purposes, this threshold has been used in the recently adopted *16966, 16970, and 16974 Sunset Boulevard Initial Study/Mitigated Negative Declaration*, the *Washington Boulevard/Los Angeles Street Mixed Use Project Draft Initial Study – Mitigated Negative Declaration*, and the *Summit View Apartments Veterans Housing Project Draft Initial Study and Mitigated Negative Declaration* (37) (38) (39).

The screening threshold is based on SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim*

CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans (“SCAQMD Interim GHG Threshold”). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (1). As noted by the SCAQMD:

“...the...screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects...the policy objective of [SCAQMD’s] recommended interim GHG significance threshold proposal is to achieve an emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that [SCAQMD] staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 [MMTCO₂e/yr]). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to [Best Available Control Technology] (BACT) for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.” (1)

Thus, and based on guidance from the SCAQMD, if a non-industrial project would emit GHGs less than 3,000 MTCO₂e per year, the project is not considered a substantial GHG emitter and the GHG impact is less than significant, requiring no additional analysis and no mitigation. On the other hand, if a non-industrial project would emit GHGs in excess of 3,000 MTCO₂e per year, then the project could be considered a substantial GHG emitter.

This page intentionally left blank

3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant greenhouse gas impact. The significance of these potential impacts is described in the following section.

3.2 PROJECT RELATED GREENHOUSE GAS EMISSIONS

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_x, SO_x, CO, PM₁₀, and PM_{2.5}) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (40). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine greenhouse gas emissions. Output from the model runs for operational activity are provided in Appendix 3.1 and 3.2. The CalEEMod model includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water.

3.3 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (41). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, an LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (42). Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.4 PROJECT RELATED GREENHOUSE GAS EMISSIONS

3.4.1 CONSTRUCTION EMISSIONS

Construction activities associated with the Project would result in emissions of CO₂ and CH₄ from construction activities. The report *Thatcher Yard Residential Air Quality Impact Analysis Report* (Urban Crossroads, Inc. 2018) contains detailed information regarding construction activity (43).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions (44). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO₂, CH₄, and N₂O from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Solid Waste
- Water Supply, Treatment and Distribution

3.5.1 AREA SOURCE EMISSIONS

Fireplaces

The Project is not proposing to install any fireplaces and therefore would not result in any emissions associated with hearts/fireplaces.

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. CalEEMod default parameters were used to estimate emissions associated with landscape maintenance equipment for the Project scenario.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO₂ and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. CalEEMod default parameters were used to estimate electricity and natural gas demand for the Project scenario.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

Project mobile source greenhouse gas impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations in the vicinity of the Project. The project-related greenhouse gas impacts are derived primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Thatcher Yard Residential Project Technical Memorandum* (Linscott Law Greenspan Engineers, 2019) were utilized in this analysis (45).

Per *Thatcher Yard Residential Project Technical Memorandum*, the Project is expected to generate a net total of approximately 239 trip-ends per day on a typical weekday with 23 AM peak hour trips and 20 PM peak hour trips (45).

3.5.4 SOLID WASTE

Residential land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. CalEEMod default parameters were used to estimate GHG emissions associated with the disposal of solid waste for the Project scenario.

3.5.5 WATER SUPPLY, TREATMENT AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. CalEEMod default parameters were used to estimate GHG emissions associated with water supply, treatment and distribution for the Project scenario.

3.6 EMISSIONS SUMMARY

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 995.88 MTCO₂e per year as summarized in Table 3-1. Direct and indirect operational emissions associated with the Project are compared with the SCAQMD threshold of significance for small land use projects, which is 3,000 MTCO₂e per year (46). As shown, the proposed Project would result in a less than significant impact with respect to GHG emissions.

TABLE 3-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Annual construction-related emissions amortized over 30 years	25.53	0.00	0.00	25.63
Area	25.19	2.05E-03	4.30E-04	25.37
Energy	467.76	0.01	3.33E-03	469.02
Mobile Sources	346.43	0.02	0.00	346.88
Waste	19.75	1.17	0.00	48.94
Water Usage	73.24	0.21	5.26E-03	80.05
Total CO₂E (All Sources)	995.88			
Screening Threshold (CO₂e)	3,000			
Threshold Exceeded?	NO			

GHG Impact 1: The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Los Angeles has not adopted its own numeric threshold of significance for determining impacts with respect to GHG emissions. A screening threshold of 3,000 MTCO₂e per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used by the City of Los Angeles and numerous cities in the SCAB and is based on the SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (1).

As shown on Table 3-1, the Project will result in approximately 995.88 MTCO₂e per year; the proposed Project would not exceed the SCAQMD/City's screening threshold of 3,000 MTCO₂e per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The Project's consistency with AB 32 and SB 32 are discussed below.

Scoping Plan

ARB's Scoping Plan identifies strategies to reduce California's greenhouse gas emissions in support of AB32 which requires the State to reduce its GHG emissions to 1990 levels by 2020. Many of the strategies identified in the Scoping Plan are not applicable at the project level, such as long-term technological improvements to reduce emissions from vehicles. Some measures are applicable and supported by the Project, such as energy efficiency. Finally, while some

measures are not directly applicable, the Project would not conflict with their implementation. Reduction measures are grouped into 18 action categories, as follows:

1. **California Cap-and-Trade Program Linked to Western Climate Initiative Partner Jurisdictions.** Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California.⁴ Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
2. **California Light-Duty Vehicle Greenhouse Gas Standards.** Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. **Energy Efficiency.** Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
4. **Renewables Portfolio Standards.** Achieve 33 percent renewable energy mix statewide.
5. **Low Carbon Fuel Standard.** Develop and adopt the Low Carbon Fuel Standard.
6. **Regional Transportation-Related Greenhouse Gas Targets.** Develop regional greenhouse gas emissions reduction targets for passenger vehicles.
7. **Vehicle Efficiency Measures.** Implement light-duty vehicle efficiency measures.
8. **Goods Movement.** Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. **Million Solar Roofs Program.** Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
10. **Medium- and Heavy-Duty Vehicles.** Adopt medium- (MD) and heavy-duty (HD) vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010.⁵ Future, yet to be determined improvements, includes hybridization of MD and HD trucks.
11. **Industrial Emissions.** Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. **High Speed Rail.** Support implementation of a high-speed rail system.
13. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. **High Global Warming Potential Gases.** Adopt measures to reduce high warming global potential gases.

⁴ California Air Resources Board. California GHG Emissions – Forecast (2002-2020). October 2010

⁵ California Air Resources Board. Scoping Plan Measures Implementation Timeline. October 2010

15. **Recycling and Waste.** Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
16. **Sustainable Forests.** Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The 2020 target for carbon sequestration is 5 million MTCO₂e/yr.
17. **Water.** Continue efficiency programs and use cleaner energy sources to move and treat water.
18. **Agriculture.** In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

Table 3-2 summarizes the Project’s consistency with the State Scoping Plan. As summarized, the Project will not conflict with any of the provisions of the Scoping Plan and in fact supports seven of the action categories through energy efficiency, water conservation, recycling, and landscaping.

TABLE 3-2: SCOPING PLAN CONSISTENCY SUMMARY

Action	Supporting Measures ⁶	Consistency
Cap-and-Trade Program	--	Not Applicable. These programs involve capping emissions from electricity generation, industrial facilities, and broad scoped fuels. Caps do not directly affect residential projects.
Light-Duty Vehicle Standards	T-1	Not Applicable. This is a statewide measure establishing vehicle emissions standards.
Energy Efficiency	E-1	Consistent. The Project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGREEN requirements.
	E-2	
	CR-1	
	CR-2	
Renewables Portfolio Standard	E-3	Not Applicable. Establishes the minimum statewide renewable energy mix.
Low Carbon Fuel Standard	T-2	Not Applicable. Establishes reduced carbon intensity of transportation fuels.
Regional Transportation-Related Greenhouse Gas Targets	T-3	Not Applicable. This is a statewide measure and is not within the purview of this Project.
Vehicle Efficiency Measures	T-4	Not Applicable. Identifies measures such as minimum tire-fuel efficiency, lower friction oil, and reduction in air conditioning use.
Goods Movement	T-5	Not Applicable. Identifies measures to improve goods movement efficiencies such as advanced combustion strategies, friction reduction, waste heat recovery, and electrification of accessories. While these measures are yet to be implemented and will be voluntary, the proposed Project

⁶ Supporting measures can be found at the following link: https://www.arb.ca.gov/cc/scopingplan/2013_update/appendix_b.pdf

Action	Supporting Measures ⁶	Consistency
	T-6	would not interfere with their implementation.
Million Solar Roofs (MSR) Program	E-4	Not Applicable. The MSR program sets a goal for use of solar systems throughout the state as a whole. The project currently does not include solar energy generation, and it is unknown if the building roof structure will be designed to support solar panels in the future.
Medium- & Heavy-Duty Vehicles	T-7	Not Applicable. MD and HD trucks and trailers accessing the Project will be subject to aerodynamic and hybridization requirements as established by ARB; no feature of the Project would interfere with implementation of these requirements and programs.
	T-8	
Industrial Emissions	I-1	Not Applicable. These measures are applicable to large industrial facilities (> 500,000 MTCO ₂ e/yr) and other intensive uses such as refineries.
	I-2	
	I-3	
	I-4	
	I-5	
High Speed Rail	T-9	Not Applicable. Supports increased mobility choice.
Green Building Strategy	GB-1	Consistent. The Project will include a variety of building, water, and solid waste efficiencies consistent with 2016 CALGREEN requirements.
High Global Warming Potential Gases	H-1	Not Applicable. The proposed Project is not substantial sources of high GWP emissions and will comply with any future changes in air conditioning, fire protection suppressant, and other requirements.
	H-2	
	H-3	
	H-4	
	H-5	
	H-6	
	H-7	
Recycling and Waste	RW-1	Consistent. The Project will recycle a minimum of 50 percent from construction activities and operations pursuant to AB 939 and AB 75 requirements.
	RW-2	
	RW-3	
Sustainable Forests	F-1	Consistent. The Project will increase carbon sequestration by increasing on-site trees per the Project landscaping plan.
Water	W-1	Consistent. The Project will include use of low-flow fixtures and efficient landscaping pursuant to 2016 CalGreen requirements.
	W-2	
	W-3	
	W-4	
	W-5	
	W-6	
Agriculture	A-1	Not Applicable. The Project is not an agricultural use.

SB 32

At the state level, Executive Orders S-3-05 and B-30-15 are orders from the State's Executive Branch for the purpose of reducing GHG emissions. The goal of Executive Order S-3-05, to reduce GHG emissions to 1990 levels by 2020 was codified by the Legislature as the 2006 Global Warming Solutions Act (AB 32). The Project, as analyzed above, is consistent with AB 32. Therefore, the Project does not conflict with this component of Executive Order S-3-05. The Executive Orders also establish goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. However, studies have shown that, in order to meet the 2030 and 2050 targets, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its Climate Change Scoping Plan, ARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update, however, ARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; largescale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately."

Unlike the 2020 and 2030 reduction targets of AB 32 and SB 32, respectively the 2050 target of Executive Order S-3-05 has not been codified, so the 2050 reduction target has not been the subject of any analysis by CARB. For example, CARB has not prepared an update to the aforementioned Scoping Plan that provides guidance to local agencies as to how they may seek to contribute to the achievement of the 2050 reduction target.

In 2017, the California Supreme Court examined the need to use the Executive Order S-3-05 2050 reduction target in *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497 (Cleveland National). The case arose from SANDAG's adoption of its 2050 Regional Transportation Plan, which included its Sustainable Communities Strategy, as required by SB 375 (discussed above). On review, the Supreme Court held that SANDAG did not violate CEQA by not considering the Executive Order S-3-05 2050 reduction target. Accordingly, since the Project is much smaller in size and scope in comparison to the Regional Transportation Plan examined in *Cleveland National*, assessing the Project's consistency with regard to the 2050 target of Executive Order S-3-05 is not necessary for determining compliance with CEQA.

The 2017 Scoping Plan builds on the 2008 Scoping Plan in order to achieve the 40 percent reduction from 1990 levels by 2030. Major elements of the 2017 Scoping Plan framework that will achieve the GHG reductions include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks. When adopted, this measure would apply to all trucks accessing the Project site; this may include existing trucks or new trucks purchased by the project proponent, which could be eligible for incentives that expedite the Project's implementation of ZEVs.

- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030). When adopted, this measure would apply to all fuel purchased and used by the Project in the state.
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030. When adopted, this measure would apply when electricity is provided to the Project by a utility company.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks. When adopted, this measure would apply to all trucks accessing the Project site, this may include existing trucks or new trucks that are part of the statewide goods movement sector.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030. When adopted, the Project would be required to comply with this measure and reduce SLPS accordingly.
- Continued implementation of SB 375. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.
- Post-2020 Cap-and-Trade Program that includes declining caps. When adopted, the Project would be required to comply with the Cap-and-Trade Program if it generates emissions from sectors covered by Cap-and-Trade.
- 20 percent reduction in GHG emissions from refineries by 2030. When adopted, the Project would be required to comply with this measure if it were to utilize any fuel from refineries.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink. This is a statewide measure that would not apply to the Project.

As shown above, the Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030 (5).

City of Los Angeles Sustainable City pLAn

The Project would be required to comply with the Title 24 requirements and would be therefore be consistent with the goals and initiatives of set forth by the Sustainable City pLAn. As such, no significant impacts would result from the proposed Project, and no mitigation is required.

This page intentionally left blank

4 REFERENCES

1. **South Coast Air Quality Management District.** Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. [Online] [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2).
2. **Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006. [Cited: November 13, 2013.] <http://www.arb.ca.gov/cc/ab32/ab32.htm>.
3. **California Legislative Information.** Senate Bill No. 32. [Online] September 8, 2016. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
4. **Policy Matters Journal: A Student Publication from the Goldman School of Public Policy.** New California Emissions Targets Spell Next Step in the State's Fight against Climate Change. [Online] September 1, 2016. <http://www.policymattersjournal.org/sb32.html>.
5. **Lawrence Berkeley National Laboratory.** California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. *Lawrence Berkeley National Laboratory*. [Online] January 22, 2015. <http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/>.
6. **Ernest Orlando Lawrence Berkeley National Laboratory.** Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. <https://eetd.lbl.gov/sites/all/files/lbnl-7008e.pdf>.
7. **Air Resources Board.** Sustainable Communities. [Online] 2008. [Cited: November 13, 2013.] <http://www.arb.ca.gov/cc/sb375/sb375.htm>.
8. —. Clean Car Standards - Pavley, Assembly Bill 1493. [Online] September 24, 2009. [Cited: November 13, 2013.] <http://www.arb.ca.gov/cc/ccms/ccms.htm>.
9. **Building Standards Commission.** California Building Standards Code (Title 24, California Code of Regulations). [Online] <http://www.bsc.ca.gov/codes.aspx>.
10. **California Energy Commission.** California Code of Regulations, TITLE 20, Division 2. [Online] September 3, 2013. [Cited: November 13, 2013.] <http://www.energy.ca.gov/reports/title20/index.html>.
11. **Air Resources Board.** Title 17 - California Code of Regulation. [Online] 2010. [Cited: November 13, 2013.] <http://www.arb.ca.gov/regs/regs-17.htm>.
12. **Department of Water Resources.** Updated Model Water Efficient Landscape Ordinance AB 1881. [Online] 2006. [Cited: November 13, 2013.] http://www.water.ca.gov/wateruseefficiency/landscapeordinance/updatedOrd_history.cfm.
13. **California Energy Commission.** SB 1368 Emission Performance Standards. [Online] September 29, 2006. [Cited: November 13, 2013.] http://www.energy.ca.gov/emission_standards/.
14. —. Renewables Portfolio Standard (RPS) . [Online] 2002. [Cited: November 13, 2013.] <http://www.energy.ca.gov/portfolio/>.
15. **United Nations.** GHG Profiles - Annex I. [Online] http://di.unfccc.int/ghg_profile_annex1.
16. —. GHG Profiles - Non-Annex I. [Online] http://di.unfccc.int/ghg_profile_non_annex1.
17. **Environmental Protection Agency.** Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017. [Online] 2019. <https://www.epa.gov/sites/production/files/2019-02/documents/us-ghg-inventory-2019-main-text.pdf>.

18. **Air Resources Board.** California Greenhouse Gas Emission Inventory 2000-2016 Edition. [Online] June 17, 2016. <http://www.arb.ca.gov/cc/inventory/data/data.htm>.
19. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] <http://cait.wri.org>.
20. *The Carbon Cycle and Climate Change.* **Bennington, Bret J.** 1, s.l. : Brooks/Cole. ISBN 1 3: 978-0-495-73855-8.
21. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report.* **International Panel on Climate Change.** 4, 2007.
22. *Occupational Safety and Health Guideline for Nitrous Oxide.* **U.S. Department of Labor.**
23. **Environmental Protection Agency.** Overview of Greenhouse Gases. [Online] [Cited: September 17, 2014.] <http://www.epa.gov/highgwp/scientific.html>.
24. **World Resources Institute.** Nitrogen Trifluoride Now Required in GHG Protocol Greenhouse Gas Emissions Inventory. [Online] May 22, 2013. <https://www.wri.org/blog/2013/05/nitrogen-trifluoride-now-required-ghg-protocol-greenhouse-gas-emissions-inventories>.
25. **Centers for Disease Control and Prevention.** Nitrogen Trifluoride. [Online] 2015. <https://www.cdc.gov/niosh/ipcsneng/neng1234.html>.
26. **American Lung Association.** Climate Change. [Online] 2013. [Cited: November 13, 2013.] <http://www.lung.org/associations/states/california/advocacy/climate-change/>.
27. **The National Institute for Occupational Safety and Health.** [Online] [Cited: November 13, 2013.] <http://www.cdc.gov/niosh/>.
28. **U.S. National Library of Medicine.** Methane. [Online] <https://toxtown.nlm.nih.gov/chemicals-and-contaminants/methane>.
29. **Occupational Health and Safety Administration.** [Online] [Cited: November 13, 2013.] <https://www.osha.gov/>.
30. **Hardin, Mary and Kahn, Ralph.** Aerosols & Climate Change. *Earth Observatory.* [Online] <http://earthobservatory.nasa.gov/Features/Aerosols/>.
31. **Center for Climate and Energy Solutions (C2ES).** Outcomes of the U.N. Climate Change Conference. *Center for Climate and Energy Solutions (C2ES).* [Online] 2015a. [Cited: April 19, 2016.] <http://www.c2es.org/international/negotiations/cop21-paris/summary>.
32. **Agency, United States Environmental Protection.** Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act. *United States Environmental Protection Agency.* [Online] <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean>.
33. **California Environmental Quality Act.** CEQA Guideline Updates. [Online] December 28, 2018. [Cited: September 17, 2019.] http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf.
34. —. CEQA Appendix G Checklist. [Online] [Cited: March 1, 2019.] <https://www.califaep.org/images/ceqa/statute-guidelines/2019/2019-Appendix-G-Checklist-Final.pdf>.
35. **Southern California Association of Governments.** 2016-2040 RTP SCS: The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. [Online] April 2016. <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>.

36. **City of Los Angeles.** MAYOR GARCETTI RELEASES THIRD ANNUAL SUSTAINABLE CITY PLAN PROGRESS REPORT. *City of Los Angeles*. [Online] April 20, 2018. <https://www.lamayor.org/mayor-garcetti-releases-third-annual-sustainable-city-plan-progress-report>.
37. **Terry A Hayes Associates, Inc.** 16966, 16970, and 16974 Sunset Boulevard Initial Study/ Mitigated Negative Declaration. [Online] December 2018. https://planning.lacity.org/staffrpt/mnd/Pub_122718/ENV-2017-3896.pdf.
38. **Rincon Consultants, Inc.** Washington Boulevard/Los Angeles Street Mixed-use Project Draft Initial Study - Mitigated Negative Declaration. [Online] November 2018. https://planning.lacity.org/staffrpt/mnd/Pub_111518/ENV-2018-1095.pdf.
39. **Envicom Corporation.** Summit View Apartments Veterans Housing Project Draft Initial Study and Mitigated Negative Declaration. [Online] August 2018. https://planning.lacity.org/staffrpt/mnd/Pub_083018/ENV-2018-2407.pdf.
40. **California Air Pollution Control Officers Association (CAPCOA).** California Emissions Estimator Model (CalEEMod). [Online] September 2016. www.caleemod.com.
41. **California Natural Resources Agency.** Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. [Online] December 2009.
42. *Minutes for the GHG CEQA Significance.* **South Coast Air Quality Management District.** 2008.
43. **Urban Crossroads, Inc.** *Thatcher Yard Residential Air Quality Impact Analysis Report.* 2018.
44. **South Coast Air Quality Management District.** *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #13.* [Powerpoint] Diamond Bar : s.n., 2009.
45. **Linscott Law Greenspan Engineers.** *Thatcher Yard Residential Project.* 2019.
46. **South Coast Air Quality Management District.** Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. [Online] [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-8/ghg-meeting-8-minutes.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-8/ghg-meeting-8-minutes.pdf?sfvrsn=2).
47. **Linscott Law Greenspan Engineers.** *Thatcher Yard Residential Project.* 2019.

5 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Thatcher Yard Residential. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

Haseeb Qureshi
Senior Associate
URBAN CROSSROADS, INC.
260 E. Baker St., Suite 200
Costa Mesa, CA 92626
(949) 336-5987
hqureshi@urbanxroads.com

EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

This page intentionally left blank

APPENDIX 3.1:

CALEEMOD ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

Thatcher Yard (Construction - Unmitigated)
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	30.00	Dwelling Unit	0.97	28,040.00	86
Congregate Care (Assisted Living)	68.00	Dwelling Unit	0.43	60,112.00	194
Enclosed Parking with Elevator	82.00	Space	0.74	32,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	11			Operational Year	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MW hr)	1227.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Total lot area based on Site Plan is 2.14 acres.

Construction Phase - Construction Scheduled adjusted as per information provided by the Project Applicant.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment -

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment -

Grading - Total Acres Graded is based on the Equipment List and Construction Schedule. For purposes of analysis, it is assumed that 1 acre per day is disturbed during Grading activities. As such, a total of 7 acres is graded during Grading activities.

Demolition -

Vehicle Trips - Construction Run Only.

Woodstoves - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation - Rule 403

Architectural Coating - Rule 1113

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	220.00	402.00
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	6.00	7.00
tblConstructionPhase	NumDays	10.00	11.00
tblConstructionPhase	PhaseEndDate	9/10/2021	5/31/2022

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

tblConstructionPhase	PhaseEndDate	8/13/2021	5/1/2022
tblConstructionPhase	PhaseEndDate	9/28/2020	9/30/2020
tblConstructionPhase	PhaseEndDate	10/9/2020	10/14/2020
tblConstructionPhase	PhaseEndDate	8/27/2021	6/15/2022
tblConstructionPhase	PhaseEndDate	10/1/2020	10/5/2020
tblConstructionPhase	PhaseStartDate	8/28/2021	5/2/2022
tblConstructionPhase	PhaseStartDate	10/10/2020	10/15/2020
tblConstructionPhase	PhaseStartDate	10/2/2020	10/6/2020
tblConstructionPhase	PhaseStartDate	8/14/2021	6/1/2022
tblConstructionPhase	PhaseStartDate	9/29/2020	10/1/2020
tblEnergyUse	LightingElect	741.44	0.00
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	3,054.10	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	4,831.00	0.00
tblEnergyUse	NT24NG	4,831.00	0.00
tblEnergyUse	T24E	164.54	0.00
tblEnergyUse	T24E	3.92	0.00
tblEnergyUse	T24E	210.90	0.00
tblEnergyUse	T24NG	4,385.94	0.00
tblEnergyUse	T24NG	22,665.25	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	57.80	0.00
tblFireplaces	NumberGas	25.50	0.00
tblFireplaces	NumberNoFireplace	6.80	0.00
tblFireplaces	NumberNoFireplace	3.00	0.00
tblFireplaces	NumberWood	3.40	0.00
tblFireplaces	NumberWood	1.50	0.00
tblGrading	AcresOfGrading	3.50	7.00
tblGrading	MaterialExported	0.00	7,200.00
tblLandUse	LandUseSquareFeet	54,000.00	28,040.00
tblLandUse	LandUseSquareFeet	68,000.00	60,112.00
tblLandUse	LotAcreage	9.74	0.97
tblLandUse	LotAcreage	4.25	0.43
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	62.05	0.00
tblSolidWaste	SolidWasteGenerationRate	35.26	0.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	8.70	0.00

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

tblVehicleTrips	HO_TL	8.70	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HO_TTP	40.60	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TL	5.90	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HS_TTP	19.20	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TL	14.70	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	HW_TTP	40.20	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	PR_TP	86.00	0.00
tblVehicleTrips	ST_TR	2.20	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	2.44	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	2.74	0.00
tblVehicleTrips	WD_TR	9.52	0.00
tblWater	IndoorWaterUseRate	4,430,473.74	0.00
tblWater	IndoorWaterUseRate	1,954,620.77	0.00
tblWater	OutdoorWaterUseRate	2,793,124.75	0.00
tblWater	OutdoorWaterUseRate	1,232,260.92	0.00
tblWoodstoves	NumberCatalytic	3.40	0.00
tblWoodstoves	NumberCatalytic	1.50	0.00

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

tblWoodstoves	NumberNoncatalytic	3.40	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1174	1.1088	0.8076	2.0200e-003	0.1172	0.0467	0.1639	0.0305	0.0442	0.0747	0.0000	180.8610	180.8610	0.0270	0.0000	181.5351
2021	0.3252	2.4303	2.4334	5.0000e-003	0.1190	0.1143	0.2333	0.0319	0.1093	0.1412	0.0000	431.2368	431.2368	0.0636	0.0000	432.8262
2022	0.3837	0.7957	0.8724	1.7800e-003	0.0415	0.0358	0.0773	0.0111	0.0342	0.0453	0.0000	153.8540	153.8540	0.0233	0.0000	154.4355
Maximum	0.3837	2.4303	2.4334	5.0000e-003	0.1190	0.1143	0.2333	0.0319	0.1093	0.1412	0.0000	431.2368	431.2368	0.0636	0.0000	432.8262

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1174	1.1088	0.8076	2.0200e-003	0.0697	0.0467	0.1164	0.0184	0.0442	0.0626	0.0000	180.8609	180.8609	0.0270	0.0000	181.5350
2021	0.3252	2.4303	2.4334	5.0000e-003	0.1190	0.1143	0.2333	0.0319	0.1093	0.1412	0.0000	431.2364	431.2364	0.0636	0.0000	432.8259
2022	0.3837	0.7957	0.8724	1.7800e-003	0.0415	0.0358	0.0773	0.0111	0.0342	0.0453	0.0000	153.8539	153.8539	0.0233	0.0000	154.4354
Maximum	0.3837	2.4303	2.4334	5.0000e-003	0.1190	0.1143	0.2333	0.0319	0.1093	0.1412	0.0000	431.2364	431.2364	0.0636	0.0000	432.8259

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	17.11	0.00	10.01	16.52	0.00	4.65	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	9-1-2020	11-30-2020	0.9428	0.9428
2	12-1-2020	2-28-2021	0.7003	0.7003
3	3-1-2021	5-31-2021	0.6925	0.6925
4	6-1-2021	8-31-2021	0.6919	0.6919
5	9-1-2021	11-30-2021	0.6856	0.6856
6	12-1-2021	2-28-2022	0.6401	0.6401
7	3-1-2022	5-31-2022	0.7213	0.7213
8	6-1-2022	8-31-2022	0.0556	0.0556
		Highest	0.9428	0.9428

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3794	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.3794	0.0117	1.0128	5.0000e-005	0.0000	5.5900e-003	5.5900e-003	0.0000	5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3794	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.3794	0.0117	1.0128	5.0000e-005	0.0000	5.5900e-003	5.5900e-003	0.0000	5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2020	9/30/2020	5	22	
2	Site Preparation	Site Preparation	10/1/2020	10/5/2020	5	3	
3	Grading	Grading	10/6/2020	10/14/2020	5	7	
4	Building Construction	Building Construction	10/15/2020	5/1/2022	5	402	
5	Architectural Coating	Architectural Coating	5/2/2022	5/31/2022	5	22	
6	Paving	Paving	6/1/2022	6/15/2022	5	11	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 7

Acres of Paving: 0.74

Residential Indoor: 178,508; Residential Outdoor: 59,503; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,968 (Architectural Coating – sqft)

OffRoad Equipment

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	465.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	900.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	74.00	16.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0503	0.0000	0.0503	7.6100e-003	0.0000	7.6100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0234	0.2304	0.1612	2.7000e-004		0.0127	0.0127		0.0118	0.0118	0.0000	23.1744	23.1744	5.9600e-003	0.0000	23.3234
Total	0.0234	0.2304	0.1612	2.7000e-004	0.0503	0.0127	0.0630	7.6100e-003	0.0118	0.0195	0.0000	23.1744	23.1744	5.9600e-003	0.0000	23.3234

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0500e-003	0.0691	0.0152	1.8000e-004	4.0000e-003	2.1000e-004	4.2100e-003	1.1000e-003	2.1000e-004	1.3000e-003	0.0000	17.9207	17.9207	1.2500e-003	0.0000	17.9519
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	5.3000e-004	5.8900e-003	2.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4605	1.4605	5.0000e-005	0.0000	1.4617
Total	2.7100e-003	0.0696	0.0211	2.0000e-004	5.5700e-003	2.2000e-004	5.7900e-003	1.5200e-003	2.2000e-004	1.7300e-003	0.0000	19.3812	19.3812	1.3000e-003	0.0000	19.4136

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0196	0.0000	0.0196	2.9700e-003	0.0000	2.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0234	0.2304	0.1612	2.7000e-004		0.0127	0.0127		0.0118	0.0118	0.0000	23.1744	23.1744	5.9600e-003	0.0000	23.3233
Total	0.0234	0.2304	0.1612	2.7000e-004	0.0196	0.0127	0.0323	2.9700e-003	0.0118	0.0148	0.0000	23.1744	23.1744	5.9600e-003	0.0000	23.3233

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0500e-003	0.0691	0.0152	1.8000e-004	4.0000e-003	2.1000e-004	4.2100e-003	1.1000e-003	2.1000e-004	1.3000e-003	0.0000	17.9207	17.9207	1.2500e-003	0.0000	17.9519
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	5.3000e-004	5.8900e-003	2.0000e-005	1.5700e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4605	1.4605	5.0000e-005	0.0000	1.4617
Total	2.7100e-003	0.0696	0.0211	2.0000e-004	5.5700e-003	2.2000e-004	5.7900e-003	1.5200e-003	2.2000e-004	1.7300e-003	0.0000	19.3812	19.3812	1.3000e-003	0.0000	19.4136

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5200e-003	0.0303	0.0173	4.0000e-005		1.1900e-003	1.1900e-003		1.1000e-003	1.1000e-003	0.0000	3.2802	3.2802	1.0600e-003	0.0000	3.3067
Total	2.5200e-003	0.0303	0.0173	4.0000e-005	2.3900e-003	1.1900e-003	3.5800e-003	2.6000e-004	1.1000e-003	1.3600e-003	0.0000	3.2802	3.2802	1.0600e-003	0.0000	3.3067

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1226	0.1226	0.0000	0.0000	0.1227
Total	6.0000e-005	4.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1226	0.1226	0.0000	0.0000	0.1227

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.3000e-004	0.0000	9.3000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5200e-003	0.0303	0.0173	4.0000e-005		1.1900e-003	1.1900e-003		1.1000e-003	1.1000e-003	0.0000	3.2802	3.2802	1.0600e-003	0.0000	3.3067
Total	2.5200e-003	0.0303	0.0173	4.0000e-005	9.3000e-004	1.1900e-003	2.1200e-003	1.0000e-004	1.1000e-003	1.2000e-003	0.0000	3.2802	3.2802	1.0600e-003	0.0000	3.3067

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1226	0.1226	0.0000	0.0000	0.1227
Total	6.0000e-005	4.0000e-005	4.9000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1226	0.1226	0.0000	0.0000	0.1227

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0252	0.0000	0.0252	0.0121	0.0000	0.0121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9100e-003	0.0765	0.0368	7.0000e-005		3.5800e-003	3.5800e-003		3.3000e-003	3.3000e-003	0.0000	6.5776	6.5776	2.1300e-003	0.0000	6.6308
Total	6.9100e-003	0.0765	0.0368	7.0000e-005	0.0252	3.5800e-003	0.0288	0.0121	3.3000e-003	0.0154	0.0000	6.5776	6.5776	2.1300e-003	0.0000	6.6308

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9700e-003	0.1336	0.0295	3.5000e-004	7.7300e-003	4.2000e-004	8.1500e-003	2.1200e-003	4.0000e-004	2.5200e-003	0.0000	34.6852	34.6852	2.4200e-003	0.0000	34.7456
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.4400e-003	0.0000	3.8000e-004	0.0000	3.9000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3575	0.3575	1.0000e-005	0.0000	0.3578
Total	4.1300e-003	0.1338	0.0309	3.5000e-004	8.1100e-003	4.2000e-004	8.5400e-003	2.2200e-003	4.0000e-004	2.6200e-003	0.0000	35.0427	35.0427	2.4300e-003	0.0000	35.1034

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	4.7000e-003	0.0000	4.7000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9100e-003	0.0765	0.0368	7.0000e-005		3.5800e-003	3.5800e-003		3.3000e-003	3.3000e-003	0.0000	6.5776	6.5776	2.1300e-003	0.0000	6.6308
Total	6.9100e-003	0.0765	0.0368	7.0000e-005	9.8300e-003	3.5800e-003	0.0134	4.7000e-003	3.3000e-003	8.0000e-003	0.0000	6.5776	6.5776	2.1300e-003	0.0000	6.6308

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9700e-003	0.1336	0.0295	3.5000e-004	7.7300e-003	4.2000e-004	8.1500e-003	2.1200e-003	4.0000e-004	2.5200e-003	0.0000	34.6852	34.6852	2.4200e-003	0.0000	34.7456
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.3000e-004	1.4400e-003	0.0000	3.8000e-004	0.0000	3.9000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3575	0.3575	1.0000e-005	0.0000	0.3578
Total	4.1300e-003	0.1338	0.0309	3.5000e-004	8.1100e-003	4.2000e-004	8.5400e-003	2.2200e-003	4.0000e-004	2.6200e-003	0.0000	35.0427	35.0427	2.4300e-003	0.0000	35.1034

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0665	0.5120	0.4413	7.3000e-004		0.0282	0.0282		0.0269	0.0269	0.0000	60.9904	60.9904	0.0127	0.0000	61.3085
Total	0.0665	0.5120	0.4413	7.3000e-004		0.0282	0.0282		0.0269	0.0269	0.0000	60.9904	60.9904	0.0127	0.0000	61.3085

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6200e-003	0.0486	0.0131	1.1000e-004	2.8200e-003	2.3000e-004	3.0500e-003	8.1000e-004	2.2000e-004	1.0300e-003	0.0000	11.1295	11.1295	7.1000e-004	0.0000	11.1472
Worker	9.5600e-003	7.7100e-003	0.0853	2.3000e-004	0.0227	1.9000e-004	0.0229	6.0300e-003	1.8000e-004	6.2100e-003	0.0000	21.1624	21.1624	6.7000e-004	0.0000	21.1791
Total	0.0112	0.0563	0.0984	3.4000e-004	0.0255	4.2000e-004	0.0260	6.8400e-003	4.0000e-004	7.2400e-003	0.0000	32.2919	32.2919	1.3800e-003	0.0000	32.3262

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0665	0.5120	0.4413	7.3000e-004		0.0282	0.0282		0.0269	0.0269	0.0000	60.9904	60.9904	0.0127	0.0000	61.3084
Total	0.0665	0.5120	0.4413	7.3000e-004		0.0282	0.0282		0.0269	0.0269	0.0000	60.9904	60.9904	0.0127	0.0000	61.3084

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6200e-003	0.0486	0.0131	1.1000e-004	2.8200e-003	2.3000e-004	3.0500e-003	8.1000e-004	2.2000e-004	1.0300e-003	0.0000	11.1295	11.1295	7.1000e-004	0.0000	11.1472
Worker	9.5600e-003	7.7100e-003	0.0853	2.3000e-004	0.0227	1.9000e-004	0.0229	6.0300e-003	1.8000e-004	6.2100e-003	0.0000	21.1624	21.1624	6.7000e-004	0.0000	21.1791
Total	0.0112	0.0563	0.0984	3.4000e-004	0.0255	4.2000e-004	0.0260	6.8400e-003	4.0000e-004	7.2400e-003	0.0000	32.2919	32.2919	1.3800e-003	0.0000	32.3262

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2772	2.1919	2.0123	3.4200e-003		0.1130	0.1130		0.1081	0.1081	0.0000	284.2686	284.2686	0.0576	0.0000	285.7088
Total	0.2772	2.1919	2.0123	3.4200e-003		0.1130	0.1130		0.1081	0.1081	0.0000	284.2686	284.2686	0.0576	0.0000	285.7088

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4800e-003	0.2061	0.0559	5.3000e-004	0.0132	4.2000e-004	0.0136	3.8000e-003	4.0000e-004	4.2000e-003	0.0000	51.4685	51.4685	3.1600e-003	0.0000	51.5474
Worker	0.0416	0.0324	0.3652	1.0600e-003	0.1058	8.7000e-004	0.1067	0.0281	8.0000e-004	0.0289	0.0000	95.4997	95.4997	2.8100e-003	0.0000	95.5700
Total	0.0480	0.2384	0.4211	1.5900e-003	0.1190	1.2900e-003	0.1203	0.0319	1.2000e-003	0.0331	0.0000	146.9682	146.9682	5.9700e-003	0.0000	147.1174

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2772	2.1919	2.0123	3.4200e-003		0.1130	0.1130		0.1081	0.1081	0.0000	284.2682	284.2682	0.0576	0.0000	285.7085
Total	0.2772	2.1919	2.0123	3.4200e-003		0.1130	0.1130		0.1081	0.1081	0.0000	284.2682	284.2682	0.0576	0.0000	285.7085

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4800e-003	0.2061	0.0559	5.3000e-004	0.0132	4.2000e-004	0.0136	3.8000e-003	4.0000e-004	4.2000e-003	0.0000	51.4685	51.4685	3.1600e-003	0.0000	51.5474
Worker	0.0416	0.0324	0.3652	1.0600e-003	0.1058	8.7000e-004	0.1067	0.0281	8.0000e-004	0.0289	0.0000	95.4997	95.4997	2.8100e-003	0.0000	95.5700
Total	0.0480	0.2384	0.4211	1.5900e-003	0.1190	1.2900e-003	0.1203	0.0319	1.2000e-003	0.0331	0.0000	146.9682	146.9682	5.9700e-003	0.0000	147.1174

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0818	0.6497	0.6461	1.1100e-003		0.0315	0.0315		0.0302	0.0302	0.0000	92.5945	92.5945	0.0184	0.0000	93.0552
Total	0.0818	0.6497	0.6461	1.1100e-003		0.0315	0.0315		0.0302	0.0302	0.0000	92.5945	92.5945	0.0184	0.0000	93.0552

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9800e-003	0.0638	0.0172	1.7000e-004	4.2800e-003	1.2000e-004	4.4000e-003	1.2400e-003	1.1000e-004	1.3500e-003	0.0000	16.6145	16.6145	9.9000e-004	0.0000	16.6394
Worker	0.0127	9.5200e-003	0.1096	3.3000e-004	0.0345	2.8000e-004	0.0347	9.1500e-003	2.5000e-004	9.4100e-003	0.0000	30.0082	30.0082	8.3000e-004	0.0000	30.0288
Total	0.0147	0.0733	0.1268	5.0000e-004	0.0387	4.0000e-004	0.0391	0.0104	3.6000e-004	0.0108	0.0000	46.6227	46.6227	1.8200e-003	0.0000	46.6682

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0818	0.6497	0.6461	1.1100e-003		0.0315	0.0315		0.0302	0.0302	0.0000	92.5944	92.5944	0.0184	0.0000	93.0551
Total	0.0818	0.6497	0.6461	1.1100e-003		0.0315	0.0315		0.0302	0.0302	0.0000	92.5944	92.5944	0.0184	0.0000	93.0551

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9800e-003	0.0638	0.0172	1.7000e-004	4.2800e-003	1.2000e-004	4.4000e-003	1.2400e-003	1.1000e-004	1.3500e-003	0.0000	16.6145	16.6145	9.9000e-004	0.0000	16.6394
Worker	0.0127	9.5200e-003	0.1096	3.3000e-004	0.0345	2.8000e-004	0.0347	9.1500e-003	2.5000e-004	9.4100e-003	0.0000	30.0082	30.0082	8.3000e-004	0.0000	30.0288
Total	0.0147	0.0733	0.1268	5.0000e-004	0.0387	4.0000e-004	0.0391	0.0104	3.6000e-004	0.0108	0.0000	46.6227	46.6227	1.8200e-003	0.0000	46.6682

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2781					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-003	0.0207	0.0266	4.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	3.7448	3.7448	2.4000e-004	0.0000	3.7509
Total	0.2811	0.0207	0.0266	4.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	3.7448	3.7448	2.4000e-004	0.0000	3.7509

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.0000e-004	5.7500e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5744	1.5744	4.0000e-005	0.0000	1.5754
Total	6.7000e-004	5.0000e-004	5.7500e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5744	1.5744	4.0000e-005	0.0000	1.5754

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2781					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-003	0.0207	0.0266	4.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	3.7448	3.7448	2.4000e-004	0.0000	3.7509
Total	0.2811	0.0207	0.0266	4.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	3.7448	3.7448	2.4000e-004	0.0000	3.7509

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.0000e-004	5.7500e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5744	1.5744	4.0000e-005	0.0000	1.5754
Total	6.7000e-004	5.0000e-004	5.7500e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5744	1.5744	4.0000e-005	0.0000	1.5754

3.7 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1800e-003	0.0513	0.0643	1.0000e-004		2.6800e-003	2.6800e-003		2.4700e-003	2.4700e-003	0.0000	8.5305	8.5305	2.7000e-003	0.0000	8.5981
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.1800e-003	0.0513	0.0643	1.0000e-004		2.6800e-003	2.6800e-003		2.4700e-003	2.4700e-003	0.0000	8.5305	8.5305	2.7000e-003	0.0000	8.5981

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.7 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.8700e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7872	0.7872	2.0000e-005	0.0000	0.7877
Total	3.3000e-004	2.5000e-004	2.8700e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7872	0.7872	2.0000e-005	0.0000	0.7877

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.1800e-003	0.0513	0.0643	1.0000e-004		2.6800e-003	2.6800e-003		2.4700e-003	2.4700e-003	0.0000	8.5305	8.5305	2.7000e-003	0.0000	8.5981
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.1800e-003	0.0513	0.0643	1.0000e-004		2.6800e-003	2.6800e-003		2.4700e-003	2.4700e-003	0.0000	8.5305	8.5305	2.7000e-003	0.0000	8.5981

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

3.7 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.8700e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7872	0.7872	2.0000e-005	0.0000	0.7877
Total	3.3000e-004	2.5000e-004	2.8700e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7872	0.7872	2.0000e-005	0.0000	0.7877

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Congregate Care (Assisted)	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3794	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Unmitigated	0.3794	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0307	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Total	0.3794	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0307	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Total	0.3794	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929

7.0 Water Detail

7.1 Mitigation Measures Water

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0 / 0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0 / 0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

Thatcher Yard (Construction - Unmitigated) - Los Angeles-South Coast County, Annual

11.0 Vegetation

This page intentionally left blank

APPENDIX 3.2:

CALEEMOD ANNUAL OPERATIONAL EMISSIONS MODEL OUTPUTS

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

Thatcher Yard (Operations)
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	30.00	Dwelling Unit	0.97	28,040.00	86
Congregate Care (Assisted Living)	68.00	Dwelling Unit	0.43	60,112.00	194
Enclosed Parking with Elevator	82.00	Space	0.74	32,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	11			Operational Year	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MW hr)	1227.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total lot area based on Site Plan is 2.14 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on TIA by Linscott, Law & Greenspan, Engineers.

Woodstoves - Rule 445

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	9/28/2020	9/1/2020
tblFireplaces	NumberGas	57.80	68.00
tblFireplaces	NumberGas	25.50	30.00
tblFireplaces	NumberNoFireplace	6.80	0.00
tblFireplaces	NumberNoFireplace	3.00	0.00
tblFireplaces	NumberWood	3.40	0.00
tblFireplaces	NumberWood	1.50	0.00
tblLandUse	LandUseSquareFeet	54,000.00	28,040.00
tblLandUse	LandUseSquareFeet	68,000.00	60,112.00
tblLandUse	LotAcreage	9.74	0.97
tblLandUse	LotAcreage	4.25	0.43
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblVehicleTrips	ST_TR	2.20	1.72
tblVehicleTrips	ST_TR	9.91	4.07
tblVehicleTrips	SU_TR	2.44	1.72
tblVehicleTrips	SU_TR	8.62	4.07
tblVehicleTrips	WD_TR	2.74	1.72
tblVehicleTrips	WD_TR	9.52	4.07
tblWoodstoves	NumberCatalytic	3.40	0.00
tblWoodstoves	NumberCatalytic	1.50	0.00
tblWoodstoves	NumberNoncatalytic	3.40	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3817	0.0320	1.0214	1.8000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	25.1863	25.1863	2.0500e-003	4.3000e-004	25.3661
Energy	7.8300e-003	0.0669	0.0285	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	467.7640	467.7640	0.0107	3.3300e-003	469.0231
Mobile	0.0744	0.3920	1.0273	3.7500e-003	0.3101	3.1400e-003	0.3132	0.0831	2.9300e-003	0.0860	0.0000	346.4312	346.4312	0.0178	0.0000	346.8765
Waste						0.0000	0.0000		0.0000	0.0000	19.7531	0.0000	19.7531	1.1674	0.0000	48.9374
Water						0.0000	0.0000		0.0000	0.0000	2.0257	71.2144	73.2401	0.2097	5.2600e-003	80.0513
Total	0.4640	0.4909	2.0772	4.3600e-003	0.3101	0.0158	0.3258	0.0831	0.0156	0.0987	21.7788	910.5960	932.3747	1.4077	9.0200e-003	970.2544

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3817	0.0320	1.0214	1.8000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	25.1863	25.1863	2.0500e-003	4.3000e-004	25.3661
Energy	7.8300e-003	0.0669	0.0285	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	467.7640	467.7640	0.0107	3.3300e-003	469.0231
Mobile	0.0744	0.3920	1.0273	3.7500e-003	0.3101	3.1400e-003	0.3132	0.0831	2.9300e-003	0.0860	0.0000	346.4312	346.4312	0.0178	0.0000	346.8765
Waste						0.0000	0.0000		0.0000	0.0000	19.7531	0.0000	19.7531	1.1674	0.0000	48.9374
Water						0.0000	0.0000		0.0000	0.0000	2.0257	71.2144	73.2401	0.2097	5.2600e-003	80.0513
Total	0.4640	0.4909	2.0772	4.3600e-003	0.3101	0.0158	0.3258	0.0831	0.0156	0.0987	21.7788	910.5960	932.3747	1.4077	9.0200e-003	970.2544

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2020	9/1/2020	5	1	

Acres of Grading (Site Preparation Phase): 0

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.74

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0744	0.3920	1.0273	3.7500e-003	0.3101	3.1400e-003	0.3132	0.0831	2.9300e-003	0.0860	0.0000	346.4312	346.4312	0.0178	0.0000	346.8765
Unmitigated	0.0744	0.3920	1.0273	3.7500e-003	0.3101	3.1400e-003	0.3132	0.0831	2.9300e-003	0.0860	0.0000	346.4312	346.4312	0.0178	0.0000	346.8765

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	116.96	116.96	116.96	399,670	399,670
Enclosed Parking with Elevator	0.00	0.00	0.00		
Single Family Housing	122.10	122.10	122.10	417,234	417,234
Total	239.06	239.06	239.06	816,904	816,904

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Congregate Care (Assisted)	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking with Elevator	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876
Enclosed Parking with Elevator	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876
Single Family Housing	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	390.2990	390.2990	9.2200e-003	1.9100e-003	391.0978
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	390.2990	390.2990	9.2200e-003	1.9100e-003	391.0978
NaturalGas Mitigated	7.8300e-003	0.0669	0.0285	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	77.4650	77.4650	1.4800e-003	1.4200e-003	77.9253
NaturalGas Unmitigated	7.8300e-003	0.0669	0.0285	4.3000e-004		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	77.4650	77.4650	1.4800e-003	1.4200e-003	77.9253

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	626752	3.3800e-003	0.0289	0.0123	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.4459	33.4459	6.4000e-004	6.1000e-004	33.6446
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	824888	4.4500e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	44.0191	44.0191	8.4000e-004	8.1000e-004	44.2807
Total		7.8300e-003	0.0669	0.0285	4.2000e-004		5.4000e-003	5.4000e-003		5.4000e-003	5.4000e-003	0.0000	77.4650	77.4650	1.4800e-003	1.4200e-003	77.9253

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	626752	3.3800e-003	0.0289	0.0123	1.8000e-004		2.3300e-003	2.3300e-003		2.3300e-003	2.3300e-003	0.0000	33.4459	33.4459	6.4000e-004	6.1000e-004	33.6446
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	824888	4.4500e-003	0.0380	0.0162	2.4000e-004		3.0700e-003	3.0700e-003		3.0700e-003	3.0700e-003	0.0000	44.0191	44.0191	8.4000e-004	8.1000e-004	44.2807
Total		7.8300e-003	0.0669	0.0285	4.2000e-004		5.4000e-003	5.4000e-003		5.4000e-003	5.4000e-003	0.0000	77.4650	77.4650	1.4800e-003	1.4200e-003	77.9253

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	269285	149.9816	3.5400e-003	7.3000e-004	150.2886
Enclosed Parking with Elevator	192208	107.0525	2.5300e-003	5.2000e-004	107.2716
Single Family Housing	239271	133.2649	3.1500e-003	6.5000e-004	133.5377
Total		390.2990	9.2200e-003	1.9000e-003	391.0978

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	269285	149.9816	3.5400e-003	7.3000e-004	150.2886
Enclosed Parking with Elevator	192208	107.0525	2.5300e-003	5.2000e-004	107.2716
Single Family Housing	239271	133.2649	3.1500e-003	6.5000e-004	133.5377
Total		390.2990	9.2200e-003	1.9000e-003	391.0978

6.0 Area Detail

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3817	0.0320	1.0214	1.8000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	25.1863	25.1863	2.0500e-003	4.3000e-004	25.3661
Unmitigated	0.3817	0.0320	1.0214	1.8000e-004		7.2400e-003	7.2400e-003		7.2400e-003	7.2400e-003	0.0000	25.1863	25.1863	2.0500e-003	4.3000e-004	25.3661

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.3800e-003	0.0203	8.6500e-003	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	23.5334	23.5334	4.5000e-004	4.3000e-004	23.6733
Landscaping	0.0307	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Total	0.3817	0.0320	1.0214	1.8000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	25.1863	25.1863	2.0500e-003	4.3000e-004	25.3661

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.3800e-003	0.0203	8.6500e-003	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	23.5334	23.5334	4.5000e-004	4.3000e-004	23.6733
Landscaping	0.0307	0.0117	1.0128	5.0000e-005		5.5900e-003	5.5900e-003		5.5900e-003	5.5900e-003	0.0000	1.6529	1.6529	1.6000e-003	0.0000	1.6929
Total	0.3817	0.0320	1.0214	1.8000e-004		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	25.1863	25.1863	2.0500e-003	4.3000e-004	25.3661

7.0 Water Detail

7.1 Mitigation Measures Water

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	73.2401	0.2097	5.2600e-003	80.0513
Unmitigated	73.2401	0.2097	5.2600e-003	80.0513

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	4.43047 / 2.79312	50.8197	0.1455	3.6500e-003	55.5458
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.95462 / 1.23226	22.4204	0.0642	1.6100e-003	24.5055
Total		73.2401	0.2097	5.2600e-003	80.0513

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	4.43047 / 2.79312	50.8197	0.1455	3.6500e-003	55.5458
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.95462 / 1.23226	22.4204	0.0642	1.6100e-003	24.5055
Total		73.2401	0.2097	5.2600e-003	80.0513

8.0 Waste Detail

8.1 Mitigation Measures Waste

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	19.7531	1.1674	0.0000	48.9374
Unmitigated	19.7531	1.1674	0.0000	48.9374

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	62.05	12.5956	0.7444	0.0000	31.2050
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	35.26	7.1575	0.4230	0.0000	17.7323
Total		19.7531	1.1674	0.0000	48.9374

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	62.05	12.5956	0.7444	0.0000	31.2050
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	35.26	7.1575	0.4230	0.0000	17.7323
Total		19.7531	1.1674	0.0000	48.9374

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

Thatcher Yard (Operations) - Los Angeles-South Coast County, Annual

11.0 Vegetation

This page intentionally left blank