Technical Appendix F

Greenhouse Gas Analysis

Modular Logistics Center

GREENHOUSE GAS ANALYSIS

CITY OF MORENO VALLEY

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LIST OF ABBREVIATED TERMS

(1)	Reference
ARB	California Air Resources Board
AQIA	Air Quality Impact Analysis
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
CH4	Methane
CO	Carbon Monoxide
CO2	Carbon Dioxide
CO2e	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
MMs	Mitigation Measures
MMTCO2e	Million Metric Ton of Carbon Dioxide Equivalent
MTCO2e	Metric Ton of Carbon Dioxide Equivalent
N20	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NOx	Oxides of Nitrogen
PFC	Perfluorocarbons
PM10	Particulate Matter 10 microns in diameter or less
PM2.5	Particulate Matter 2.5 microns in diameter or less

PPM	Parts Per Million
Project	Modular Logistics Center
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

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1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Modular Logistics Center ("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. This GHGA quantifies the GHG emissions associated with the Project for two scenarios: first, as if no actions to reduce emissions were taken as compared to the assumptions used in preparing the baseline 2020 emissions for the California Air Resources Board Scoping Plan (referred to herein as "Business as Usual") to implement Assembly Bill (AB) 32, and second as designed with applicable design features.

1.1 SITE LOCATION

The proposed Modular Logistics Center is located east of Perris Boulevard and north Modular Way in the City of Moreno Valley as shown on Exhibit 1-A. The Project site is currently occupied by Eldorado Stone.

1.2 STUDY AREA

The Project site is located within area developed mostly with commercial and industrial land uses. However, the study area includes several residential homes scattered throughout the project study area. The March Air Reserve Base / Inland Port Airport is located west of the Project site. Existing surrounding land uses are graphically presented at Exhibit 1-B.

1.3 PROJECT DESCRIPTION

The Project is proposed to consist of the development of approximately 1,109,378 square feet of high-cube distribution warehouse/distribution facility on the northeast corner of Perris Boulevard and Modular way. It is assumed that the Project will be constructed and occupied by 2015. Exhibit 1-C illustrates a preliminary conceptual site plan.

1.4 SUMMARY OF FINDINGS

To date, the South Coast Air Quality Management District (SCAQMD) and CARB have not established significance thresholds for GHG emissions under the California Environmental Quality Act (CEQA)[1]. To evaluate the Project's GHG impacts the proposed Project's emissions are compared with a "Business as Usual" (BAU) scenario to determine if the development is likely to be consistent with the Scoping Plan designed to implement AB 32 in California which calls for an approximate 28.5% reduction from BAU (1).

1 SCAQMD has adopted interim significance thresholds for industrial sources of 10,000 metric tons of carbon dioxide equivalent per year. The Board adopted these thresholds December 5, 2008. This threshold however was adopted by SCAQMD only for projects where it is the lead agency.

As shown in Table 1-1, the Project's GHG emissions result in an emissions reduction of 21.12% when compared to the BAU scenario. This reduction does not meet the target reduction percentage of 28.5% based on CARB's analysis supporting AB 32.

TABLE 1-1: SUMMARY OF GHG EMISSIONS FOR BAU VS PROJECT

Category	CO2e Emissions	
	BAU	Project (With regulatory requirements and applicable mitigation measures)
	Metric Tons per Year	
Construction	100.15	100.15
Area	0.04	0.04
Energy Use	1,227.22	830.59
Mobile Sources (Trucks)	14,471.04	11,802.51
Mobile Sources (Passenger Cars)	1,814.39	1,058.42
On-Site Equipment	184.80	153.70
Waste Disposed	474.40	474.40
Water Use	50.67	33.66
Total	**18,322.72**	**14,453.47**
Project Improvement over BAU	**21.12%**	

EXHIBIT 1-A: LOCATION MAP

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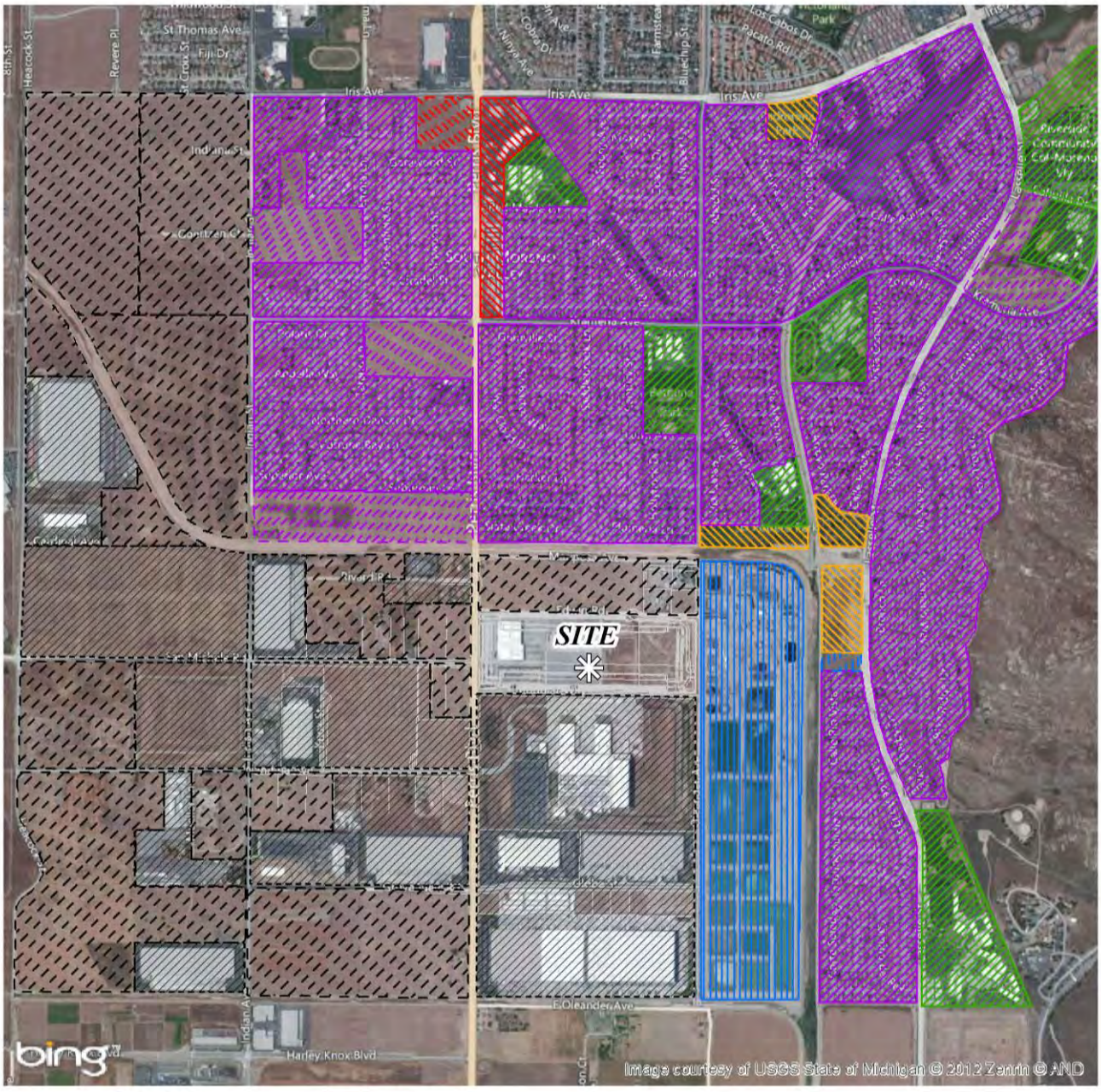
EXHIBIT 1-B: EXISTING LAND USES

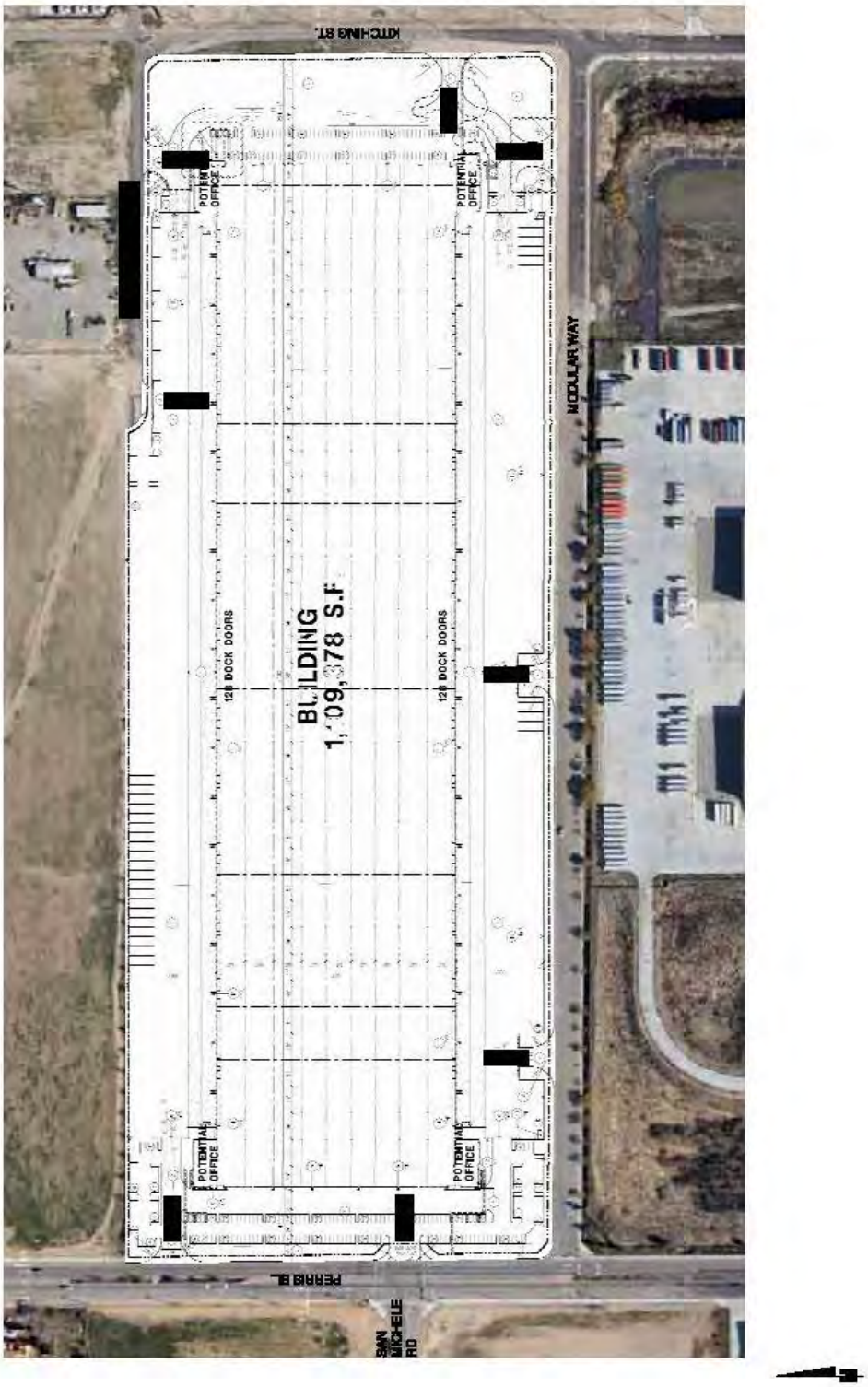


LEGEND:

- RESIDENTIAL
- ZONED RESIDENTIAL
- COMMERCIAL
- ZONED COMMERCIAL
- SCHOOL
- COMMUNITY FACILITY
- ZONED COMMUNITY FACILITY
- INDUSTRIAL
- ZONED INDUSTRIAL
- ZONED NATURAL OPEN SPACE

N

EXHIBIT 1-B: PRELIMINARY SITE PLAN



1.4 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. Those that are applicable to the Project and that would assist in the reduction of greenhouse gas emissions are:

- Global Warming Solutions Act of 2006 (AB32)(2)
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375)(3)
- Pavley Fuel Efficiency Standards (AB1493). Establishes fuel efficiency ratings for new vehicles (4).
- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (5).
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards). Establishes energy efficiency requirements for appliances (6).
- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (7).
- 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 (8).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (9).
- 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 (10).

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. The BAU scenario emissions do not include regulations designed to meet AB 32 standards; therefore these regulations were not included in the GHG emissions calculations for the BAU scenario.

1.5 OPERATIONAL-SOURCE MITIGATION MEASURES

MM AQ-2

Prior to the issuance of building permits, the Project applicant shall ensure that the Project is designed to achieve efficiency equal to or exceeding then incumbent (2013 or later) California Building Code Title 24 requirements.

MM AQ-3

To reduce water consumption and the associated energy-usage, the Project will be designed to comply with the mandatory reductions in indoor water usage contained in the incumbent

CalGreen Code (11) and any mandated reduction in outdoor water usage contained in the City's water efficient landscape requirements. Additionally, the Project shall implement the following:

- Landscaping palette emphasizing drought tolerant plants;
- Use of water-efficient irrigation techniques;
- U.S. EPA Certified WaterSense labeled or equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads.

MM AQ-4

The Project will reduce vehicle miles traveled and emissions associated with by implementing the following measures:

- Pedestrian and bicycle connections shall be provided to surrounding areas consistent with the City's General Plan.
- Implement a voluntary trip reduction program, for which all employees shall be eligible to participate.

MM AQ-5:

The truck access gates and loading docks within the truck court on the Project site shall be posted with signs which state:

a) Truck drivers shall turn off engines when not in use;

b) Diesel delivery trucks servicing the Project shall not idle for more than five (5) minutes[1]; and

c) Telephone numbers of the building facilities manager and the CARB to report violations.

MM AQ-6:

- Site design shall allow for trucks to check-in within the facility area to prevent queuing of trucks outside the facility.[2]
- down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park", and the parking brake is engaged (12).

[1] While restricted idling is required per MM HRA-1, the analysis presented here takes no quantified credit or reduction in emissions for restricted idling, and reflects an assumed 15-minute "worst case" idling condition.
[2] As above, no quantified credit or reduction in emissions is taken for site design requirements reflected in MM HRA-2

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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 effect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gasses 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 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (man-made) 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). Man-made GHG emissions data for Annex I nations are available through 2011. For the Year 2011 the sum of these emissions totaled approximately 25,285,543 Gg $CO2e$[2](13) (14). The GHG emissions in more recent years may differ from the inventories presented in Table 2-1; however, the data is representative of currently available inventory data.

[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 2005 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,"

United States

As noted in Table 2-1, the United States, as a single country, was the number two producer of GHG emissions in 2011. The primary greenhouse gas emitted by human activities in the United States was CO2, representing approximately 83 percent of total greenhouse gas emissions (15). Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 78 percent of the GHG emissions.

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION [3]

Emitting Countries	GHG Emissions (Gg CO2e)
China	8,715,307
United States	6,665,700
European Union (27 member countries)	4,550,212
Russian Federation	2,320,834
India	1,725,762
Japan	1,307,728
Total	**25,285,543**

State of California

CARB compiles GHG inventories for the State of California. Based upon the GHG inventory data released in May 2014 (i.e., the latest year for which data are available) for the 2000-2012 greenhouse gas emissions inventory, California emitted 459 MMTCO2e including emissions resulting from imported electrical power in 2012 (16). Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute (17), California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 415 MMTCO2e excluding emissions related to imported power.

2.3 GLOBAL CLIMATE CHANGE DEFINED

Global Climate Change (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. According to the California Air Resources Board (CARB), the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude (18).

[3] Used http://unfccc.int data for Annex I countries. Consulted the http://www.eia.gov site to reference Non-Annex I countries such as China and India.

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.

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 carbon dioxide equivalent (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(17).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-4 later in this report) because these gasses are the primary contributors to GCC from development projects. Although other substances such as fluorinated gases also contribute to GCC, sources of fluorinated gases are not well-defined and no accepted emissions factors or methodology exist to accurately calculate these gases.

Greenhouse gases have varying global warming potential (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 range from 1 for carbon dioxide to 23,900 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)
Carbon Dioxide	50-200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140

PFC: Tetrafluoromethane (CH4)	50,000	6,500
PFC: Hexafluoroethane (C2F6)	10,000	9,200
Sulfur Hexafluoride (SF6)	3,200	23,900
Source: EPA 2006 (URL: http://www.epa.gov/nonco2/econ-inv/table.html)		

Water Vapor: Water vapor (H20) 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 also 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 (19).

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(20).

Methane: Methane (CH4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. No health effects are known to occur from exposure to methane.

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) (21).

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 (CHF3), HFC-134a (CF3CH2F), and HFC-152a (CH3CHF2). 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 (22). 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 (CF4) and hexafluoroethane (C2F6). The U.S. EPA estimates that concentrations of CF4 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 (SF6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest 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.

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 to 75 to 85 percent under the medium warming range. 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, there could be up to 100 more days per year with temperatures above 90oF in Los Angeles and 95oF 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 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 (23). Exhibit 2-A presents the potential impacts of global warming.

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 (24).

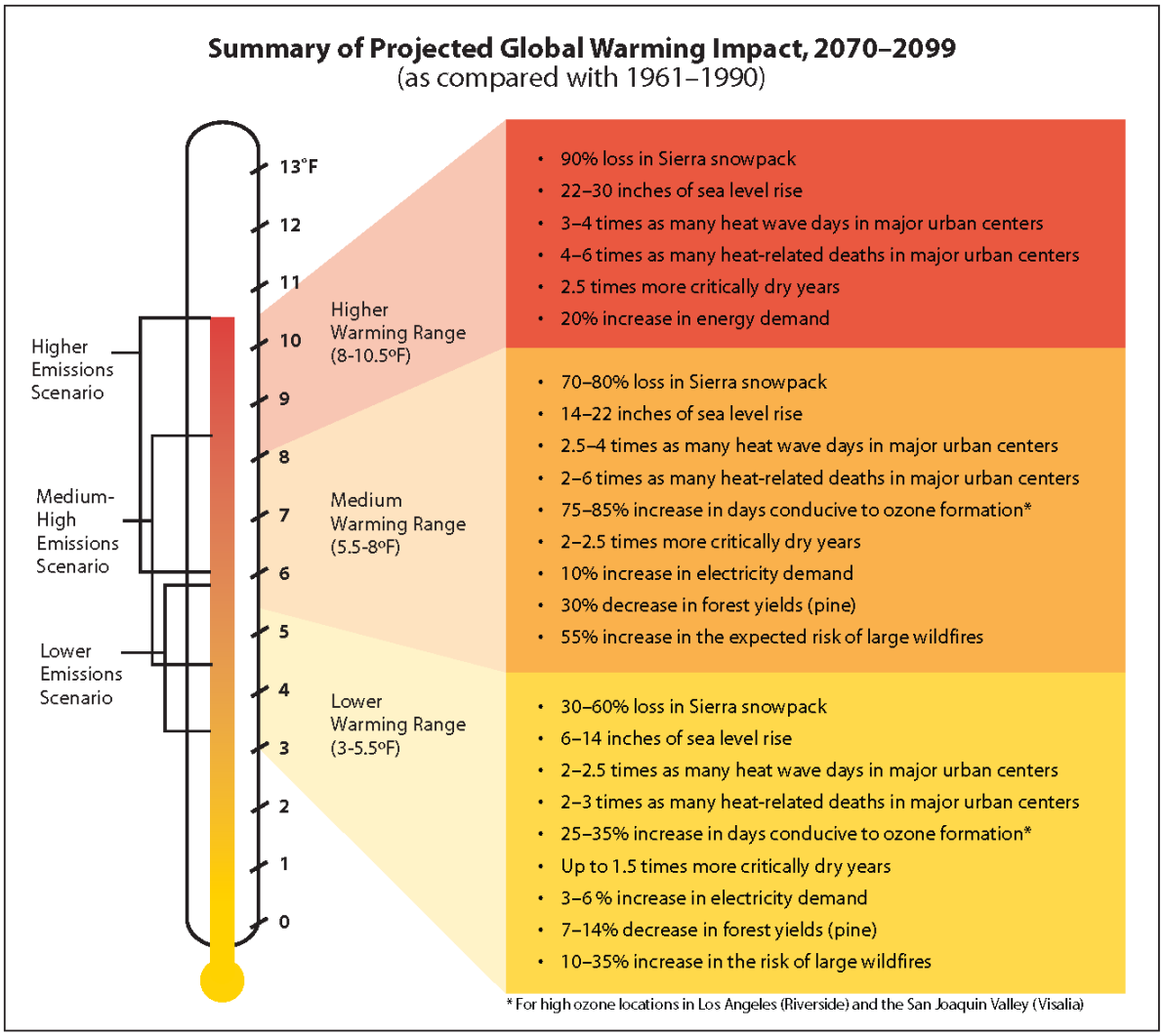
Specific health effects associated with directly emitted GHG emissions are as follows:

Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (25).

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(25).

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 (24).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT



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 (26).

2.7 REGULATORY SETTING

International Regulation and the Kyoto Protocol:

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC)

agreement with the goal of controlling greenhouse gas emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The Plan currently consists of more than 50 voluntary programs for member nations to adopt.

The Kyoto protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. Some have estimated that if the commitments outlined in the Kyoto protocol are met, global GHG emissions could be reduced an estimated five percent from 1990 levels during the first commitment period of 2008-2012. Notably, while the United States is a signatory to the Kyoto protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments. In December 2009, international leaders from 192 nations met in Copenhagen to address the future of international climate change commitments post-Kyoto.

Federal Regulation and the Clean Air Act:

Coinciding 2009 meeting in Copenhagen, on December 7, 2009, the U.S. Environmental Protection Agency (EPA) issued an Endangerment Finding under Section 202(a) of the Clean Air Act, opening the door to federal regulation of GHGs. The Endangerment Finding notes that GHGs threaten public health and welfare and are subject to regulation under the Clean Air Act. To date, the EPA has not promulgated regulations on GHG emissions, but it has already begun to develop them.

Previously the EPA had not regulated GHGs under the Clean Air Act (27) because it asserted that the Act did not authorize it to issue mandatory regulations to address global climate change and that such regulation would be unwise without an unequivocally established causal link between GHGs and the increase in global surface air temperatures. In Massachusetts v. Environmental Protection Agency et al. (127 S. Ct. 1438 (2007), however, the U.S. Supreme Court held that GHGs are pollutants under the Clean Air Act and directed the EPA to decide whether the gases endangered public health or welfare. The EPA had also not moved aggressively to regulate GHGs because it expected Congress to make progress on GHG legislation, primarily from the standpoint of a cap-and-trade system. However, proposals circulated in both the House of Representative and Senate have been controversial and it may be some time before the U.S. Congress adopts major climate change legislation. The EPA's Endangerment Finding paves the way for federal regulation of GHGs with or without Congress.

Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the unintended reduction of greenhouse gas emissions. In order to manage the state's energy needs and promote energy efficiency, AB 1575 created the California Energy Commission (CEC) in 1975.

Title 24 Energy Standards:

The California Energy Commission (CEC) first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (5) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG

emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The Energy Commission's most recent standard, 2013 Building Energy Efficiency Standard, is 25 percent more efficient than previous standards for residential construction and 30 percent better for nonresidential construction. The Standards, which took effect on January 1, 2014, offer builders better windows, insulation, lighting, ventilation systems and other features that reduce energy consumption in homes and businesses. Some improved measures in the Standards include:

Residential:

- Solar-ready roofs to allow homeowners to add solar photovoltaic panels at a future date
- More efficient windows to allow increased sunlight, while decreasing heat gain
- Insulated hot water pipes, to save water and energy and reduce the time it takes to deliver hot water
- Whole house fans to cool homes and attics with evening air reducing the need for air conditioning load
- Air conditioner installation verification to insure efficient operation

Nonresidential:

- High performance windows, sensors and controls that allow buildings to use "daylighting"
- Efficient process equipment in supermarkets, computer data centers, commercial kitchens, laboratories, and parking garages
- Advanced lighting controls to synchronize light levels with daylight and building occupancy, and provide demand response capability
- Solar-ready roofs to allow businesses to add solar photovoltaic panels at a future date
- Cool roof technologies

CALGreen

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code) (11). The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality.” The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). The CBSC has released the 2010 California Green Building Standards Code on its Web site. Unless otherwise noted in the regulation, all newly constructed buildings in California are subject of the requirements of the CALGreen Code.

CALGreen contains both mandatory and voluntary measures, for Non-Residential land uses there are 39 mandatory measures including, but not limited to: exterior light pollution reduction, wastewater reduction by 20%, and commissioning of projects over 10,000 sf. There are two tiers of voluntary measures for Non-Residential land uses for a total of 36 additional elective measures.

The 2013 CALGreen includes additions and amendments to the water efficiency standards for non residential buildings in order to comply with the reduced flow rate table. The 2013 CALGreen has also been rewritten to clarify and definitively identify the requirements and applicability for residential and nonresidential buildings.

California Assembly Bill No. 1493 (AB 1493):

AB 1493 requires CARB to develop and adopt the nation's first greenhouse gas emission standards for automobiles. The Legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in California (4). Further, the legislature stated that technological solutions to reduce greenhouse gas emissions would stimulate the California economy and provide jobs.

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards in 2004. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961) and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016.

In December 2004 a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of CCR 13 1900 and CCR 13 1961 as amended by AB 1493 and CCR 13 1961.1 (Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in her official capacity as Executive Director of the California Air Resources Board, et al.). The suit, heard in the U.S. District Court for the Eastern District of California, contended that California's implementation of regulations that in effect regulate vehicle fuel economy violates various federal laws, regulations, and policies. In January 2007, the judge hearing the case accepted a request from the State Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court Case, Massachusetts vs. EPA, the primary issue in question is whether the federal CAA provides authority for USEPA to regulate CO2 emissions. In April 2007, the U.S. Supreme Court ruled in Massachusetts' favor, holding that GHGs are air pollutants under the CAA. On December 11, 2007, the judge in the Central Valley Chrysler-Jeep case rejected each plaintiff's arguments and ruled in California's favor. On December 19, 2007, the USEPA denied California's waiver request. California filed a petition with the Ninth Circuit Court of Appeals challenging USEPA's denial on January 2, 2008.

The Obama administration subsequently directed the USEPA to re-examine their decision. On May 19, 2009, challenging parties, automakers, the State of California, and the federal government reached an agreement on a series of actions that would resolve these current and potential future disputes over the standards through model year 2016. In summary, the USEPA and the U.S. Department of Transportation agreed to adopt a federal program to reduce GHGs and improve fuel economy, respectively, from passenger vehicles in order to achieve equivalent or greater greenhouse gas benefits as the AB 1493 regulations for the 2012–2016 model years. Manufacturers agreed to ultimately drop current and forego similar future legal challenges, including challenging a waiver grant, which occurred on June 30, 2009. The State of California committed to (1) revise its standards to allow manufacturers to demonstrate compliance with the fleet-average GHG emission standard by "pooling" California and specified State vehicle sales; (2) revise its standards for 2012–2016 model year vehicles so that compliance with USEPA-adopted GHG standards would also comply with California's standards; and (3) revise its standards, as necessary, to allow manufacturers to use emissions data from the federal CAFE program to demonstrate compliance with the AB 1493 regulations (CARB 2009, http://www.arb.ca.gov/regact/2009/ghgpv09/ghgpvisor.pdf) both of these programs are aimed at light-duty auto and light-duty trucks.

Executive Order S-3-05:

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change (28). It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 1990 level by 2020, and to 80% below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary also is required to submit biannual reports to the Governor and state Legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created a Climate Action Team (CAT) made up of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

California Assembly Bill 32 (AB 32):

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Climate Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020 (2). This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language

stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

In November 2007, CARB completed its estimates of 1990 GHG levels. Net emission 1990 levels were estimated at 427 MMTs (emission sources by sector were: transportation – 35 percent; electricity generation – 26 percent; industrial – 24 percent; residential – 7 percent; agriculture – 5 percent; and commercial – 3 percent). Accordingly, 427 MMTs of CO2 equivalent was established as the emissions limit for 2020. For comparison, CARB's estimate for baseline GHG emissions was 473 MMT for 2000 and 532 MMT for 2010. "Business as usual" conditions (without the 28.4 percent reduction to be implemented by CARB regulations) for 2020 were projected to be 596 MMTs.

In December 2007, CARB approved a regulation for mandatory reporting and verification of GHG emissions for major sources. This regulation covered major stationary sources such as cement plants, oil refineries, electric generating facilities/providers, and co-generation facilities, which comprise 94 percent of the point source CO2 emissions in the State.

On December 11, 2008, CARB adopted a scoping plan to reduce GHG emissions to 1990 levels. The Scoping Plan's recommendations for reducing GHG emissions to 1990 levels by 2020 include emission reduction measures, including a cap-and-trade program linked to Western Climate Initiative partner jurisdictions, green building strategies, recycling and waste-related measures, as well as Voluntary Early Actions and Reductions. Implementation of individual measures must begin no later than January 1, 2012, so that the emissions reduction target can be fully achieved by 2020.

Table 2-3 shows the proposed reductions from regulations and programs outlined in the Scoping Plan. While local government operations were not accounted for in achieving the 2020 emissions reduction, local land use changes are estimated to result in a reduction of 5 MMTons of CO2e, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments will play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2006 levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 MMTons tons of CO2e (or approximately 1.2 percent of the GHG reduction target).

TABLE 2-3: SCOPING PLAN GHG REDUCTION MEASURES TOWARDS 2020 TARGET

Recommended Reduction Measures	*Reductions Counted toward 2020 Target of 169 MMT CO2e*	*Percentage of Statewide 2020 Target*
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets[1]	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	146.7	87%
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	27.3	16%
Total Reductions Counted toward 2020 Target	174	100%
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations	To Be Determined[2]	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	42.8	NA

Source: CARB. 2008, MMTons CO2e: million metric tons of CO2e

[1]Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.

[2]According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO2e (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 Target

Overall, CARB determined that achieving the 1990 emission level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent in the absence of new laws and regulations (referred to as "Business-As-Usual" [BAU]). The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and California Climate Action Team early actions and additional GHG reduction measures, identifies additional measures to be pursued as regulations, and outlines the role of the cap-and-trade program.

In connection with its preparation of the August 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB released revised estimates of the 2020 emissions level projection in light of the economic recession and the availability of updated information from development of measure-specific regulations. Based on the new economic data, CARB determined the 2020 emissions level projection in the BAU condition would be reduced from 596 metric tons of CO2 equivalent (MTCO2e) to 545 MTCO2e. (30) Under this scenario, achieving the 1990 emissions level in 2020 would require a reduction of GHG emissions of 118 MTCO2e, or 21.7 percent (down from 28.5 percent), from the BAU condition.

When the 2020 emissions level projection also was updated to account for implemented regulatory measures, including Pavley (vehicle model-years 2009 - 2016) and the renewable portfolio standard (12% - 20%), the 2020 projection in the BAU condition was reduced further to 507 MTCO2e. As a result, based on the updated economic and regulatory data, CARB determined that achieving the 1990 emissions level in 2020 would now only require a reduction of GHG emissions of 80 MTCO2e, or approximately 16 percent (down from 28.5 percent), from the BAU condition. (30) (31)

On February 10, 2014, CARB released a Draft Proposed First Update of the Scoping Plan. The draft recalculates 1990 GHG emissions using new global warming potentials identified in the IPCC Fourth Assessment Report released in 2007. Using those GWPs, the 427 MTCO2e 1990 emissions level and 2020 GHG emissions limit identified in the 2008 Scoping Plan would be slightly higher, at 431 MTCO2e. (32) Based on the revised 2020 emissions level projection identified in the 2011 Final Supplement and the updated 1990 emissions levels identified in the discussion draft of the First Update, achieving the 1990 emissions level in 2020 would require a reduction of 78 MTCO2e (down from 509 MTCO2e), or approximately 15.3 percent (down from 28.5 percent), from the BAU condition. (30) (31) (32)

Although CARB has released an update to the Scoping Plan and reduction targets from BAU, it is still appropriate to utilize the previous 28.5% reduction from BAU since the modeling tools available are not able to easily segregate the inclusion of the renewable portfolio standards, and Pavley requirements that are now included in the revised BAU scenario.

California Senate Bill No. 1368 (SB 1368):

In 2006, the State Legislature adopted Senate Bill 1368 ("SB 1368"), which was subsequently signed into law by the Governor (9). SB 1368 directs the California Public Utilities Commission ("CPUC") to adopt a greenhouse gas emission performance standard ("EPS") for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy

longer than five years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Due to the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants.

Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower greenhouse gas emissions associated with California energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out of state producers that cannot satisfy the EPS standard required by SB 1368.

CEQA Guidelines

CEQA Guideline § 15064.4(a)"A lead agency shall have discretion to determine, in the context of a particular project, whether to: 1. Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use . . .; or 2. Rely on a qualitative analysis or performance based standards."

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze greenhouse gas emissions in an EIR when a Project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emission are cumulatively considerable.

Section 15183.5 permits programmatic greenhouse gas analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support determination that a Project's cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

CEQA emphasizes that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. (See CEQA Guidelines Section 15130(f)).

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of greenhouse gas emissions:

1. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the

relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Executive Order S-01-07:

On January 18, 2007 California Governor Arnold Schwarzenegger, through Executive Order S-01-07, mandated a statewide goal to reduce the carbon intensity of California's transportation fuel by at least ten percent by 2020 (29). The order also requires that a California specific Low Carbon Fuel Standard be established for transportation fuels.

Senate Bills 1078 and 107 and Executive Order S-14-08:

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017 (30). SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010 (29). In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020 (31).

Senate Bill 375:

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035.

These reduction targets will be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

The Southern California Association of Governments (SCAG) is required by law to update the Southern California Regional Transportation Plan (RTP) every four years. The 2012 draft plan

has been released, this draft plan differs from past plans because it includes development of a SCS. The RTP/SCS incorporates land use and housing policies to meet the greenhouse gas emissions targets established by the California Air Resource Board (CARB) for 2020 (8% reduction) and 2035 (13% reduction). On April 4, 2012, the Regional Council of the Southern California Association of Governments (SCAG) adopted the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): Towards a Sustainable Future.

CARB's Preliminary Draft Staff Proposal for Interim Significance Thresholds:

Separate from its Scoping Plan approved in December of 2008 (32), CARB issued a Staff Proposal in October 2008, as its first step toward developing recommended statewide interim thresholds of significance for GHGs that may be adopted by local agencies for their own use. CARB staff's objective in this proposal is to develop a threshold of significance that will result in the vast majority (approximately 90 percent statewide) of GHG emissions from new industrial projects being subject to CEQA's requirement to impose feasible mitigation. The proposal does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that, collectively, are responsible for substantial GHG emissions – specifically, industrial, residential, and commercial projects. CARB is developing these thresholds in these sectors to advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state. These draft thresholds are under revision in response to comments. There is currently no timetable for finalized thresholds at this time.

As currently proposed by CARB, a quantitative threshold of 7,000 metric tons (MT) of CO2e per year for operational emissions (excluding transportation), and performance standards yet to be defined for construction and transportation emissions are under consideration. However, CARB's proposal is not yet final, and thus cannot be applied to the Project.

South Coast Air Quality Management District Recommendations for Significance Thresholds:

In April 2008, the South Coast Air Quality Management District (SCAQMD), in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a "GHG CEQA Significance Threshold Working Group." The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until CARB (or some other state agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential; non-residential; industrial; etc (33). However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent (MTCO2e) as a screening numerical threshold for stationary sources. More importantly it should be noted that when setting the 10,000 MTCO2e threshold, the SCAQMD did not consider mobile sources (vehicular travel), rather the threshold

is based mainly on stationary source generators such as boilers, refineries, power plants, etc. Therefore it would be misleading to apply a threshold that was developed without consideration for mobile sources to a Project where the majority of emissions are related to mobile sources. Thus there is no SCAQMD threshold that can be applied to this Project.

In September 2010(34), the Working Group released additional revisions that consist of the following recommended tiered approach:

- Tier 1 consists of evaluating whether or not the Project qualifies for applicable CEQA exemptions.
- Tier 2 consists of determining whether or not a Project is consistent with a greenhouse gas reduction plan. If a Project is consistent with a greenhouse gas reduction plan, it would not have a significant impact.
- Tier 3 consists of screening values at the discretion of the lead agency; however they should be consistent for all projects within its jurisdiction. Project-related construction emissions should be amortized over 30 years and should be added back the Project's operational emissions. The following thresholds are proposed for consideration:
    - 3,000 MTCO2e per year for all land use types

      or
    - 3,500 MTCO2e per year for residential; 1,400 MTCO2e per year for commercial; or 3,000 MTCO2e per year for mixed-use projects
- Tier 4 has the following options:
    - Option 1: Reduce emissions from business as usual by a certain percentage (currently undefined)
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
    - Option 3: A project-level efficiency target of 4.8 MTCO2e per service population as a 2020 target and 3.0 MTCO2e per service population as a 2035 target. The recommended plan-level target for 2020 is 6.6 MTCO2e and the plan level target for 2035 is 4.1 MTCO2e
- Tier 5 involves mitigation offsets to achieve target significance thresholds

The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions. However, these rules address boilers and process heater, forestry, and manure management projects, none of which are required by the Project

For Analysis Purposes, the Tier 4 Option 1 approach was conducted within this greenhouse gas analysis in order to determine the significance of the Project GHG emissions. An emissions reduction of 28.5% below a business as usual scenario was used as the determining threshold which is consistent with AB 32 reduction target.

2.8 SCAG REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

The 2012 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 2012 RTP/SCS.

2.9 CITY OF MORENO VALLEY GENERAL PLAN MEASURES

Although the City of Moreno Valley General Plan does not identify specific GHG or climate change policies or goal, a number of the measures identified in the General Plan's Air Quality Element act to reduce or control criteria pollutant emissions and peripherally reduce GHG emissions. The proposed Project has been evaluated for consistency with the City's General Plan Air Quality Element, as shown on Table 2-4.

TABLE 2-4: CITY OF MORENO VALLEY GENERAL PLAN CONSISTENCY

Objective 6.6: Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	**Consistent.** *The Project site is providing employment opportunities to Moreno Valley and the surrounding area.*
Objective 6.7: Reduce mobile and stationary source air pollutant emissions.	**Consistent.** *The Project site is located proximate to existing and proposed major roadways, acting to generally reduce vehicle trip lengths, thereby reducing mobile source emissions. The Project will further reduce mobile source emissions by creating local employment opportunities, reducing commuter vehicle miles traveled (VMT) within the region. Additionally, the Project will implement energy efficient designs and operational programs meeting or surpassing California Code of Regulations (CCR) Title 24 Building Standards, including but not limited to compliance with or betterment of, energy conservation requirements identified at CCR Title 24, Part 6, Energy Code. Energy efficient designs and programs implemented by the Project reduce resources consumption with correlating reductions in stationary-source emissions.*
Policy 6.7.5: Require grading activities to comply with South Coast Air Quality Management District's Rule 403 regarding the control of fugitive dust.	**Consistent.** *The Project will be required to implement fugitive dust control measures consistent with SCAQMD Rule 403.*
Policy 6.7.6: Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code [California Code of Regulations].	**Consistent.** *Pursuant to City and State Building Code requirements, the Project will meet or surpass applicable CCR Title 24 energy conservation requirements.*

Source: City of Moreno Valley General Plan, Safety Element

2.10 CITY OF MORENO VALLEY ENERGY EFFICIENCY AND CLIMATE ACTION STRATEGY

The City of Moreno Valley released an Energy Efficiency and Climate Action Strategy (CAS) as well as a Greenhouse Gas Analysis for public review on May 8, 2012. The documents were approved on October 9, 2012. The CAS identifies ways that the City can reduce energy and water consumption and greenhouse gas emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and greenhouse gas emissions. The policies in the document are to reduce greenhouse gas emissions in 2010 by 15 percent by 2020. The following consists of an analysis of project consistency with the policies in the CAS.

- R2-T1: Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.

  Project consistency: Not applicable.

- R2-T3: Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.

  Project consistency: Consistent with implementation of MM AQ-4.

- R2-E1: New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards. (Reach Code)

  Project consistency: Not applicable; this measure applies to residential projects.

- R2-E2: New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.

  Project consistency: Not applicable; this measure applies to residential projects.

- R2-E5: New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards. (Reach Code)

  Project consistency: Consistent; Current 2013 Title 24 requirements would achieve greater reduction than envisioned by the City's Climate Action Strategy. As such the Project would be consistent with R2-E5

- R3-E1: Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.

- Project consistency: Not applicable.

- R3-L2: Heat Island Plan. Develop measures that address "heat islands." Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.

  Project consistency: Consistent; the Project will comply with the City of Moreno Valley's landscaping requirements.

- R2-W1: Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal, which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.

  Project consistency: Consistent. California Green Building Standards Code, Chapter 5, Division 5.3, Section 5.303.2 requires that indoor water use be reduced by 20 percent. Section 5.304.3 requires irrigation controllers and sensors. MM AQ-3 also requires water conservation.

- R3-W1: Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.

  Project consistency: Not applicable.

- R2-S1: City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

Project consistency: Consistent; the Project will comply with the City of Moreno Valley's citywide goal of solid waste reduction. Additionally the Project will be compliant with the City of Moreno Valley's Municipal Code 8.80.030 by implementing a Waste Management Plan.

As shown above and in Appendix 3.2, Project Consistency with Moreno Valley Energy Efficiency and Climate Action Strategy, of this report, many of the measures are not applicable to the project. The project is consistent with the applicable measures in the Strategy, with the exception of R2-E5, New Construction Commercial Energy Efficiency Requirements. Therefore, the project is partially consistent with the CAS.

2.11 CONSISTENCY WITH CARB SCOPING PLAN

Table 3-5 below, presents the 39 Recommended Actions (qualitative measures) identified to date by CARB in its Climate Change Proposed Scoping Plan. Of the 39 measures identified, those that would be considered to be applicable to the Project would primarily be those actions related to transportation, electricity and natural gas use, green building design and industrial uses. Consistency of the Project with these measures is evaluated by each source-type measure below. Table 3-5 identifies which CARB Recommended Actions apply to the Project, and of those, whether the Project is consistent therewith. A discussion of how the Project is consistent with each applicable CARB Recommended Action is set forth after Table 3-5.

TABLE 2-5: RECOMMENDED ACTIONS FOR CLIMATE CHANGED PROPOSED SCOPING PLAN

ID #	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards	NO	NO
T-2	Transportation	Low Carbon Fuel Standard (Discrete Early Action)	NO	NO
T-3	Transportation	Regional Transportation-Related GHG Targets	NO	NO
T-4	Transportation	Vehicle Efficiency Measures	NO	NO
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)	NO	NO
T-6	Transportation	Goods-movement Efficiency Measures	NO	NO
T-7	Transportation	Heavy Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	NO	NO
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization	NO	NO
T-9	Transportation	High Speed Rail	NO	NO
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs More stringent Building and Appliance Standards	YES	NO
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000GWh	NO	NO
E-3	Electricity and Natural Gas	Renewable Portfolio Standard	NO	NO
E-4	Electricity and Natural Gas	Million Solar Roofs	YES	NO
CR-1	Electricity and Natural Gas	Energy Efficiency	YES	NO
CR-2	Electricity and Natural Gas	Solar Water Heating	NO	NO
GB-1	Green Buildings	Green Buildings	YES	NO
W-1	Water	Water Use Efficiency	YES	NO
W-2	Water	Water Recycling	NO	NO
W-3	Water	Water System Energy Efficiency	YES	NO
W-4	Water	Reuse Urban Runoff	NO	NO
W-5	Water	Increase Renewable Energy Production	NO	NO
W-6	Water	Public Goods Charge (Water)	NO	NO
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources	YES	NO
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction	NO	NO
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission	NO	NO
I-4	Industry	Refinery Flare Recovery Process Improvements	NO	NO
I-5	Industry	Removal of Methane Exemption from Existing Refinery Regulations	NO	NO
RW-1	Recycling and Waste Management	Landfill Methane Control (Discrete Early Action)	NO	NO
RW-2	Recycling and Waste Management	Additional Reductions in Landfill Methane – Capture Improvements	NO	NO
RW-3	Recycling and Waste Management	High Recycling/Zero Waste	NO	NO
F-1	Forestry	Sustainable Forest Target	NO	NO
H-1	High Global Warming Potential Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)	NO	NO
H-2	High Global Warming Potential Gases	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	NO	NO
H-3	High Global Warming Potential Gases	Reduction in Perflourocarbons in Semiconductor Manufacturing (Discrete Early Action)	NO	NO
H-4	High Global Warming Potential Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)	NO	NO
H-5	High Global Warming Potential Gases	High GWP Reductions from Mobile Sources	NO	NO
H-6	High Global Warming Potential Gases	High GWP Reductions from Stationary Sources	NO	NO
H-7	High Global Warming Potential Gases	Mitigation Fee on High GWP Gases	NO	NO
A-1	Agriculture	Methane Capture at Large Dairies	NO	NO

SOURCE: CARB, 2008.

Discussion of the applicability of each measure and Project consistency with or support of its implementation follows. It also noted that certain measures and enforcement actions listed below are beyond the scope of control of the Project. Notwithstanding implementation and enforcement of these measures by the State or other responsible entity will act to reduce areawide GHG emissions.

Transportation

CARB's Scoping Plan identifies nine transportation-related recommended actions. Action T-1 concerns improvements to light-duty vehicle technology for the purposes of reducing GHG emissions. This action focuses on legislating improved controls for vehicle manufacturers and would not generally be considered applicable to the proposed Project. Implementation of the Pavley standards is dependent on implementation by the State on vehicle fuel economy standards.

Implementation of such a standard is not within the purview of this Project. Therefore, the proposed Project would not conflict with measures concerning the Pavley standards.

Action T-2 concerns implementation of a low carbon fuel standard. To reduce the carbon intensity of transportation fuels, CARB is developing a Low Carbon Fuel Standard (LCFS), which would reduce the carbon intensity of California's transportation fuels by at least ten percent by 2020 as called for by Governor Schwarzenegger in Executive Order S-01-07. LCFS will incorporate compliance mechanisms that provide flexibility to fuel providers in how they meet the requirements to reduce greenhouse gas emissions.

Implementation of such a standard is not within the purview of a this Project. Therefore, the proposed Project would not conflict with measures concerning the use of low carbon fuels.

Action T-3 addressees regional transportation targets for reducing GHG emissions. SB 375 requires CARB to develop, in consultation with metropolitan planning organizations (MPOs), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035. It sets forth a collaborative process to establish these targets, including the appointment by CARB of a Regional Targets Advisory Committee to recommend factors to be considered and methodologies for setting greenhouse gas emissions reduction targets. SB 375 also provides incentives – relief from certain California Environmental Quality Act (CEQA) requirements for development projects that are consistent with regional plans that achieve the targets.

Implementation of such a standard is not within the purview of this Project. Therefore, the proposed Project would not conflict with measures concerning SB375.

Action T-4 is concerned with vehicle efficiency measures. The California Integrated Waste Management Board (CIWMB) with various partners continues to conduct a public awareness campaign to promote sustainable tire practices. CARB is pursuing a regulation to ensure that tires are properly inflated when vehicles are serviced. In addition, CEC in consultation with CIWMB is developing an efficient tire program focusing first on data gathering and outreach, then on potential adoption of minimum fuel-efficient tire standards, and lastly on the development of consumer information requirements for replacing tires. CARB is also pursuing

ways to reduce engine load via lower friction oil and reducing the need for air conditioner use. ARB is actively engaged in the regulatory development process for the tire inflation component of this measure.

Implementation of such a standard is not within the purview of this Project. Therefore, the proposed Project would not conflict with applicable measures.

Action T-5 addresses electrification of ships at ports and is not applicable to the proposed Project.

Action T-6 also primarily addresses port operations and is not applicable to the proposed Project.

Action T-7 requires existing trucks/trailers to be retrofitted with the best available technology and/or CARB-approved technology.

Implementation of such a standard is not within the purview of the proposed Project since various trucks fleets from numerous commercial entities may access the site. Therefore, the proposed Project would not conflict with this measure.

Action T-8 focuses on hybridization of medium- and heavy-duty vehicles. The implementation approach to Action T-8 is to adopt a regulation and/or incentive program that reduces GHG emissions by encouraging hybrid technology as applied to vocational applications that have significant urban, stop-and-go driving, idling, and power take-off operations in their duty cycle. Such applications include parcel delivery trucks and vans.

Implementation of such a standard is not within the purview of the proposed Project since various trucks fleets from numerous commercial entities may access the site. Therefore, the proposed Project would not conflict with this measure.

Action T-9 concerns implementation of a high speed rail system. This measure is not applicable to the Project.

Electricity and Natural Gas

Action E-1/CR-1, together with Action GB-1 (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards.

The Project will comply with or surpass incumbent Title 24 Energy Efficiency Standards.. Therefore, the proposed Project would not conflict with this measure.

Action E-2 encourages an increase in the use of combined heat and power (CHP) use, or co-generation, facilities. California has supported CHP for many years, but market and other barriers continue to keep CHP from reaching its full market potential. Increasing the deployment of efficient CHP will require a multi-pronged approach that includes addressing significant barriers and instituting incentives or mandates where appropriate.

Implementation of such a standard is not within the purview of the proposed Project; therefore, the proposed Project would not conflict with this measure.

Action E-3 concerns Renewable Portfolio Standards for utilities and does not apply to development projects.

Action E-4 strives to promote solar generated electricity.

Project building designs will accommodate renewable energy sources, such as photovoltaic solar electricity systems, appropriate to their architectural design(s). The Project would therefore not conflict with the recommended measure.

Action CR-2 strives to promote solar water heaters (SWH). The ARB recommends that California pursue approaches with the goal of developing a viable SWH industry for 2020 and beyond.

Implementation of such a standard is not within the purview of the Project; therefore, the proposed Project would not conflict with this measure.

Water Use

Implementation of all but two of the Recommended Actions related to water use are not within the purview of the proposed Project. The two measures that apply are measures W-1 (Water Use Efficiency) and W-3 (Water System Energy Efficiency). However, since the proposed Project would not exceed the audit threshold of 25,000 MT CO_2 (36) from on-site combustion and related activities, the proposed Project is consistent with and would not obstruct the recommended actions.

Industrial Use

All but one of the Recommended Actions related to industrial use are specific to oil and gas extraction, refining and transmission and are not applicable to the proposed Project. The one other Action I-1 targets large emitters of GHGs (in excess of 0.5 million metric tons (MMT)/year of CO_2E (equivalent)) for auditing[4] (37). Because the proposed Project would not exceed the audit threshold, as set forth in Section 3.0, the proposed Project is consistent with and would not obstruct the recommended actions.

Consistency with GHG Emission Reduction Strategies set forth in the 2006 CAT Report

2.12 CONSISTENCY WITH GHG EMISSION REDUCTION STRATEGIES SET FORTH IN THE 2006 CAT REPORT

Table 2-6 sets forth the emission reduction strategies set forth in the 2006 CAT Report along with an explanation as to how the Project is consistent therewith. Table 3-6 also notes whether the strategy is applicable to the Project:

Although implementation of the CAT strategies would reduce GHG emissions to the extent possible, it is not possible to specifically quantify the reduction in GHG that will result from implementation of CAT strategies and programs. However, a project that is consistent with CAT

[4] Certain "covered sectors" of activities in California account for 85% of GHG emissions. Each source in these sectors will be subject to a system of declining GHG emissions allowances issued by CARB under a total emissions cap, as well as an allowance trading system. The Plan's lynch-pin is a cap-and-trade program that would apply to the electricity sector, the transportation sector, the commercial and residential sector, and large industrial sources (those emitting more than 0.5 million metric tons per year of carbon dioxide ("CO2") equivalents).

strategies is consistent with the strategies suggested to reduce California's emissions to the levels proposed by Executive Order S-3-05 and AB 32, and therefore the Project will result in a less than significant impact on GCC.

TABLE 2-6: PROJECT COMPLIANCE W/ APPLICABLE 2006 CAT REPORT GHG REDUCTION STRATEGIES

Strategy	Remarks
California Air Resource Board	
Vehicle Climate Change Standards AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Other Light Duty Vehicle Technology New standards would be adopted to phase in beginning in the 2017 model.	
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	
Diesel Anti-Idling In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Compliant. Heavy-duty diesel trucks that access the project site will be required to limit idling to no more than five minutes.
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans; 2) Require that only low GWP refrigerants be used in new vehicular systems; 3) Adopt specifications for new commercial refrigeration; 4) Add refrigerant leak-tightness to the pass criteria for vehicular Inspection and Maintenance programs; 5) Enforce federal ban on releasing HFCs.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Transportation Refrigeration Units (TRUs), Off-Road Electrification, Port Electrification Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions. Further, no refrigerated truck units will access the Project site, nor does the Project proposed refrigerated warehousing.
Alternative Fuels: Biodiesel Blends CARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Reduced Venting and Leaks in Oil and Gas Systems Rule considered for adoption by the Air Pollution Control Districts for improved management practices.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Hydrogen Highway The California Hydrogen Highway Network (CA H_2 Net) is a State initiative to promote the use of hydrogen as a means of diversifying the sources of transportation energy.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Integrated Waste Management Board	
Achieve 50 percent Statewide Recycling Goal Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Compliant. The project is required to comply with the City's Source Reduction and Recycling Element (SRRE). To this end, the Project design includes provisions for tenants to recycle. In accordance with the California Solid Waste Reuse and Recycling Act of 1991 (Cal Pub Res. Code § 42911), the Project would provide adequate areas for collecting and loading recyclable materials where solid waste is collected. The collection areas are required to be shown on construction drawings and be in place before occupancy permits are issued.
Zero Waste - High Recycling Additional recycling beyond the State's 50 percent recycling goal.	
Department of Forestry	
Forest Management Strategies for storing more carbon through forest management activities can involve a range of management activities such as increasing either the growth of individual trees, the overall age of trees prior to harvest, or dedicating land to older age trees.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Forest Conservation	The noted measures are beyond the purview of the Project. Their

Conservation projects are designed to minimize/prevent the climate change emissions that are associated with the conversion of forestland to non-forest uses by adding incentives to maintain an undeveloped forest landscape.	implementation by the State and others will act to reduce areawide GHG emissions.
Fuels Management/Biomass Large, episodic, unnaturally hot fires are an increasing trend on California's wild lands because of decades of fire suppression activities, sustained drought, and increasing insect, disease, and invasive plans infestations. Actions taken to reduce wildfire severity through fuel reduction and biomass development would reduce climate change emissions from wildfire, increase carbon sequestration, replace fossil fuels, and provide significant economic development opportunities.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Urban Forestry A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	The Project does not involve or propose a formal urban forestry program. Nor has the City adopted or implemented an urban forestry program. Notwithstanding, the Project will construct landscaping improvements, including tree plantings, consistent with the City's landscape design guidelines.
Afforestation/Reforestation Projects Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Department of Water Resources	
Water Use Efficiency Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	Compliant. The Project shall implement U.S. EPA Certified WaterSense labeled or equivalent faucets and high-efficiency toilets (HETs), and implement water-conserving shower heads where applicable.
California Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	Compliant. Project will be compliant with incumbent California Code of Regulations, Title 24 (Energy Efficiency Standards for Residential and Nonresidential Buildings).
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	Compliant. Appliances purchased for use in the Project will be consistent with all applicable energy efficiency standards.
Fuel-Efficient Replacement Tires & Inflation Programs State legislation (Chapter 912, Statues of 2001) directed the Energy Commission to investigate and to recommend ways to improve fuel efficiency of vehicle tires. The bill established a statewide program to encourage the production and use of more fuel efficient tires.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Cement Manufacturing Cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Municipal Utility Strategies Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Alternative Fuels: non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended in the CEC=s 2003 and 2005 Integrated Energy Policy Reports.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Business Transportation and Housing	

Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. Governor Schwarzenegger is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity, and a quality environment.	Compliant. The Project is proximate to serving transportation corridors, thereby promoting operational efficiencies.
Measures to Improve Transportation Energy Efficiency Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.	Compliant. The Project promotes transportation efficiencies through its location proximate to serving transportation corridors. Moreover, distribution warehouse uses such as those proposed by the Project act to consolidate regional transport and delivery of goods, thereby reducing VMT within the region, further improving transportation efficiencies. trips
Department of Food and Agriculture	
Conservation tillage/cover crops Conservation tillage and cover crops practices are increasingly being used by California farmers for a variety of reasons, including improved soil tilth, improved water use efficiency, reduced tillage requirements, saving labor and fuel, and reduced fertilizer inputs.	The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
Enteric Fermentation Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
State and Consumer Services Agency	Not Applicable.
Green Buildings Initiative Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.	Compliant. The Project will meet or surpass Title 24 Energy Efficiency standards, acting to reduce area source GHG emissions. Further, State mandated programs (Pavely et al.) will act to substantively reduce mobile-source GHG emissions. Additionally, the Project is required to comply with the mandatory provisions of the California Green Building Standards Code (CALGreen) pursuant to the California Code of Regulations, Title 24, which became effective on January 1, 2011.
Public Utilities Commission (PUC)	
Accelerated Renewable Portfolio Standard The Governor has set a goal of achieving 33 percent renewables in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33 percent goal.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.
California Solar Initiative Installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	Compliant. Project buildings will be designed to accommodate renewable energy sources, such as photovoltaic solar energy systems as is economically and physically feasible.
Investor-Owned Utility This strategy includes energy efficiency programs, combined heat and power initiative, and electricity sector carbon policy for investor owned utility.	Not Applicable. The noted measures are beyond the purview of the Project. Their implementation by the State and others will act to reduce areawide GHG emissions.

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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 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related greenhouse gas impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

In order to assess the significance of a proposed Project's environmental impacts it is necessary to identify quantitative or qualitative thresholds which, if exceeded, would constitute a finding of significance. As discussed above, while Project-related GHG emissions can be estimated, the direct impacts of such emissions on climate change and global warming cannot be determined on the basis of available science. There is no evidence at this time that would indicate that the emissions from a project the size of the proposed Project would directly or indirectly affect global climate change.

AB 32 states, in part, that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California (2)." Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is considered to be a cumulative impact.

As previously discussed, CEQA guidelines indicate that a project would result in a significant impact on climate change if a project were to: a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Or b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Based on the above factors (and particularly the adopted addition of CEQA Guideline § 15064.4, subdivisions (b)(2) and (b)(3), the City of Moreno Valley (the lead agency for the proposed project) has determined it is appropriate to rely on AB 32 implementation guidance as one benchmark for purposes of this analysis (38). In adopting AB 32, the legislature determined the necessary GHG reductions for the state to make in order to sufficiently offset its contribution to the cumulative climate change problem. Accordingly, the project's GHG emission levels will be analyzed to determine whether project approval would impede compliance with the GHG emissions reduction mandate established by AB 32 which requires that California's GHG

emissions limit be reduced to 1990 levels by 2020. As noted in the scoping Plan (39), a reduction of 28.5 percent below the "business as usual" scenario is required to meet the goals of AB 32 (40).

Specifically, to understand what percentage reduction in emissions would be required to achieve AB 32's goals, CARB first determined that the 1990 baseline GHG emission level is 427 (MMT) CO2E. CARB then estimated the statewide emissions that would be generated in the 2020 assuming (see Appendix F of CARB 2008). CARB's prediction for 2020 emissions is 596 MMT CO2E, assuming "business as usual." The 2020 business-as-usual forecast does not take any credit for reductions from GHG measures included in the Scoping Plan, including those enacted before AB 32. Accordingly, AB 32's mandated decrease in GHG emissions from 596 to 427 MMT CO2E is equivalent to a 28.5% emissions reduction. Thus, this AB 32 mandate would require a 28.5% reduction in emissions relative to the 2020 business-as-usual scenario by 2020.

Further, Section 15064(h) (3) of the CEQA Guidelines authorizes lead agencies to conclude that a project's incremental contribution to a cumulative effect is not cumulatively considerable:

> [I]f the project will comply with the requirements in a previously approved plan or mitigation program ... that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency.

Pursuant to Guidelines Section 15064(h)(3) for a project consistent with AB 32's goal, which would require a 28.5 percent or greater reduction from BAU, project specific and cumulative climate change impacts would be less than significant. This approach is consistent with guidance released by SCAQMD, Riverside County, San Joaquin Air Pollution Control District (SJVAPCD) and Bay Area Air Quality Management District (BAAQMD). The AB 32 consistency threshold was also upheld in Citizens for Responsible Equitable Environmental Development v. City of Chula Vista (2011) 197 Cal.App.4th 327. Section 15064.7 of the CEQA Amendments states that "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significant previously adopted or recommended by other public agencies or recommended by experts."

3.3 PROJECT RELATED GREENHOUSE GAS EMISSIONS

CEQA Guidelines 15064.4 (b) (1) states that a lead agency may use a model or methodology to quantify greenhouse gas emissions associated with a project (41).

On October 2, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2.2. The purpose of this model is to more accurately calculate construction-source and operational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (42). Accordingly,

the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality impacts. Output from the model runs for both construction and operational activity are provided in Appendix 3.1

3.4 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS

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. 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 a 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 (43). 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.

3.5 CONSTRUCTION EMISSIONS

Construction activities associated with the proposed Project will result in emissions of CO2 and CH4 from construction activities.

The report Modular Logistics Center Air Quality Impact Analysis Report, Urban Crossroads, Inc. (2014) contains detailed information regarding construction activity (44).

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 the a 30 year project life then adding that number to the annual operational phase GHG emissions (45). As such, construction emissions were amortized over a 30 year period and added to the annual operational phase GHG emissions.

3.6 OPERATIONAL EMISSIONS

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

- Building Energy Use
- Water Supply, Treatment and Distribution
- Solid Waste
- On-Site Equipment
- Vehicles

3.6.1 BUILDING ENERGY USE

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 CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building, the building energy use emissions do not include street lighting[5]. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.6.2 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. The Water Supply Assessment Report for the Modular Logistics Center (Eastern Municipal Water District, 2014) was used to determine the Project's water demand (46).

3.6.3 SOLID WASTE

Industrial 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. GHG emissions associated with the disposal of solid waste associated with the proposed Project were calculated by the CalEEMod™ model using default parameters.

3.6.4 ON-SITE EQUIPMENT

It is common for an industrial warehouse project to require cargo handling equipment to move empty containers and empty chassis to and from the various pieces of cargo handling equipment that receive and distribute containers. The most common type of cargo handling equipment is the yard truck which is designed for moving cargo containers. Yard trucks are also known as yard goats, utility tractors (UTRs), hustlers, yard hostlers, and yard tractors. Yard trucks have a horsepower (hp) range of approximately 175 hp to 200 hp. Based on the latest available information from SCAQMD (47), high-cube warehouse projects typically have 3.1 yard trucks per million square feet of building space. For this particular Project, on-site modeled operational equipment includes four 200 hp yard tractors operating at 4 hours a day for 260 days of the year[6]. The emissions associated with on-site equipment were calculated using the CalEEMod model.

[5] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as the is insufficient information as to the number and type of street lighting that would occur.
[6] 4 hour daily on-site operation of the yard trucks is based on the Port of Long Beach Air Emissions Inventory document (June 2008)

3.6.5 VEHICLES

GHG emissions will also result from mobile sources associated with the Project. These mobile source emissions will result from the typical daily operation of motor vehicles by visitors, employees, and customers.

Project mobile source emissions are dependent on both overall daily vehicle trip generation. Trip characteristics available from the report, Modular Logistics Center Traffic Impact Analysis (Urban Crossroads, Inc., 2014) were utilized in this analysis (48).

It should be noted that many do not consider traffic associated with new commercial or retail and existing residences to be "new" trips. This traffic already exists from the existing residences, and the construction of new commercial or retail uses does not increase traffic; rather, it displaces the trips from another area. Similarly, one component of SB 375 recognizes that the current traffic models inaccurately assume that every trip associated with a development project is new. SB 375 requires the California Transportation Commission to develop guidelines for traffic models so that they more accurately account for emissions (Gov't. Code § 14522.1). With the goal of better recognizing trip "transfers," as opposed to trip "creation," the new traffic model must, for example, address relationships between a project and complementary land uses. Accordingly, while the current traffic models assume that all trips associated with the project are new, in fact, many of these trips will merely be transferred from other areas.

Project operational (vehicular) impacts are dependent on both overall daily vehicle trip generation and the effect of the Project on peak hour traffic volumes and traffic operations. Project-related operational air quality impacts derive predominantly from mobile sources [approximately 93.97 percent (by weight) of all Project operational-source emissions are generated by mobile sources (vehicles). It should be noted that the Project's traffic study presents the total Project vehicle trips in terms of Passenger Car Equivalents (PCEs) in an effort to recognize and acknowledge the effects of heavy vehicles at the study area intersections. Notwithstanding, for purposes of the air quality study, the PCE trips were not used. Rather, to more accurately estimate and model vehicular-source emissions, the actual number of vehicles, by vehicle classification (e.g., passenger cars (including light trucks), heavy trucks) were used in the analysis. The vehicle fleet mix, in terms of actual vehicles, as derived from the traffic study for the Project is comprised of approximately 76% passenger cars and approximately 24% total trucks. For analysis purposes 12.5% of all trucks are assumed to be Light-Heavy-Duty (LHD), 12.5% of all trucks are assumed to be Medium-Heavy-Duty (MHD), and 75% of all trucks are assumed to be Heavy-Heavy-Duty (HHD). The Project was input as a single category or type of land-use (Unrefrigerated Warehouse-No Rail) in the CalEEMod™ emissions inventory model.

The SCAQMD has recently commented on numerous warehouse projects calling for the use of an inflated trip generation rate based on the 95th percentile of all high-cube warehouses, which the SCAQMD asserts is most appropriate according to a meta-analysis prepared by the SCAQMD as part of the CalEEMod™ emissions inventory model release, use of this inflated rate would mean that the Project would have a trip rate equivalent to the busiest 5% of all warehouses in the study conducted by the SCAQMD, and thus, would significantly overestimate

total trips. The Project-generated daily passenger car and truck trips utilized in this analysis were obtained from the Project's traffic impact analysis report and are derived from trip generation rates specified in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition, 2012. Use of the ITE rates are standard industry practice for the calculation of projected traffic volumes in traffic studies supporting CEQA documents throughout the State of California.

Furthermore, it is important to note that six of the seven trip generation studies included in the SCAQMD meta-analysis were also included as part of the dataset for estimating the daily and peak hour trip generation rates for ITE Land Use: 152 (high-cube warehouse) in ITE's 8th Edition of the *Trip Generation* manual. In addition, ITE also includes data from three additional studies performed in Livermore, California, Manalapan, New Jersey and Tampa, Florida for the purposes of estimating peak hour trip rates, which further expands the number of buildings included in the sample.

The SCAQMD Study acknowledges that a lack historical photographic coverage and/or business history make it difficult to discern the degree of correlation between the variation in site specific observations and the conclusion that the ITE rates may be understated. In addition, the use of a 95th percentile trip generation rate is not standard traffic engineering practice nor required by CEQA, as this approach will tend to significantly overstate site specific vehicle trips estimates and associated emissions. Therefore, it was determined that the trip generation rates for high cube warehouse use (Land Use 152) as published in the 9th Edition of ITE's *Trip Generation* manual, and currently widely accepted throughout Riverside and San Bernardino Counties, are the most appropriate trip rates to be utilized to calculate vehicle trips for the Project.

Similarly, the City of Perris has provided a comprehensive response to the SCAQMD for a similar comment that was provided on the Stratford Ranch Environmental Impact Report (State Clearinghouse No. 2012011037), July 27, 2013. Appendix L-3 to the Stratford Ranch DEIR, includes a December 2011 study by Crain & Associates that identifies numerous technical flaws in the SCAQMD Study, essentially discrediting it as a viable reference for trip generation rates of high-cube warehouses. A copy of the Crain & Associates study is appended to this technical study for purposes of the administrative record (see Appendix 3.3).

The vehicle fleet mix utilized in the Traffic Study for the Project is based upon the actual vehicle classifications conducted at various high-cube warehouse locations in the City of Moreno Valley, which provides vehicle fleet mix for two, three, and four-axle trucks based on surveyed data. This same methodology is employed in analyses for similar projects in the City and other jurisdictions within the County, and is considered by the Lead Agency to be appropriate and accurate.

3.6.5.1 Trip Length

Background

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is related to the estimation of trip length and vehicle miles traveled (VMT). VMT for

a given project is calculated by the total number of vehicle trips to/from the Project x average trip length. This method of estimating VMT for use in calculating vehicle emissions likely results in the over-estimation and double-counting of emissions because, for a distribution warehouse center such as the Project, the land use is likely to attract (divert) existing vehicle trips that are already on the circulation system as opposed to generating new trips. In this regard, the Project would, to a large extent, redistribute existing mobile-source emissions rather than generate additional emissions within the Basin. As such, the estimation of the Modular Logistic Center's Project's vehicular-source emissions is likely overstated in that no credit for, or reduction in, emissions is assumed based on diversion of existing trips.

Provided below is a summary of the VMT recommendations of the SCAQMD and SCAG, followed by a description of the methodology used to calculate the VMT rates used in this AQIA.

SCAQMD Recommendation

In the last five years, the SCAQMD has provided numerous comments on the trip length for warehouse/distribution and industrial land use projects (49). The SCAQMD asserts that the model-default trip length in CalEEMod™ and the URBan EMISsions (URBEMIS) 2007 model (version 9.2.4) would underestimate emissions. The SCAQMD asserts that for warehouse, distribution center, and industrial land use projects, most of the heavy-duty trucks would be hauling consumer goods, often from the Ports of Long Beach and Los Angeles (POLA and POLB) and/or to destinations outside of California. The SCAQMD states that for this reason, the CalEEMod™ and the URBan EMISsions model default trip length (approximately 12.6 miles) would not be representative of activities at like facilities. The SCAQMD generally recommends the use of a 40-mile one-way trip length.

Southern California Association of Government (SCAG) Heavy Duty Truck Model

SCAG is comprised of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 190 cities in Southern California, and is the organization charged with addressing and resolving short- and long-term regional policy issues. The SCAG region also consists of 14 subregional entities recognized by the Regional Council as partners in the regional policy planning process. The SCAG region has more than 19 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

SCAG maintains a regional transportation model. In its most recent (2008) transportation validation for the 2003 Regional Model, SCAG indicates the average internal truck trip length for the SCAG region is 5.92 miles for Light Duty Trucks, 13.06 miles for Medium Duty Trucks, and 24.11 miles for Heavy Duty Trucks.

Approach for Analysis of the Project

Trip lengths and VMT estimates employed in this GHG report generate vehicular-source emissions that would represent a maximum impact scenario Other Environmental Impact Reports (EIRs) for similar land use projects within the City of Moreno Valley have utilized these

same or similar estimates (50)(51) (52). To maintain analytic consistency and establish the maximum impact scenario noted above, the following approach has been utilized in calculating emissions associated with vehicles accessing the Project.

For passenger car trips, the Riverside County CalEEMod default for a one-way trip length of 9.5 miles was assumed as contained in the CalEEMod User's Guide version 2013.2.2. For heavy duty trucks, an average trip length was derived from distances from the Project site to the far edges of the South Coast Air Basin (SCAB) as follows. It is appropriate to stop the VMT calculation at the boundary of the SCAB because any activity beyond that boundary would be speculative, this approach is also consistent with professional industry practice.

- Project site to the Port of Los Angeles/Long Beach: 80 miles;
- Project site to East on State Route 60: 30 miles;
- Project site to San Diego County line: 60 miles;
- Project site to Inland Empire: 50 miles;
- Project site to Perris destinations: 10 miles;
- Project site to Moreno Valley destinations: 10 miles;

Assuming that 50% of all delivery trips will travel to and from the Project and the Port of Los Angeles/Long Beach, 10% go East on the State Route 60, 20% go to San Diego, 10% go to the Inland Empire, 5% go to Perris destinations and the remainder as Moreno Valley destinations. The average truck trip length is calculated as 61 miles.

Two separate model runs were utilized in order to more accurately model emissions resulting from vehicle operations. The first run analyzed passenger car emissions, which incorporated a default trip length of 9.5 miles for passenger cars within Riverside County and a fleet mix of 100% Light-Duty-Auto vehicles (LDA). The second run analyzed truck emissions, which incorporated an average truck trip length of 61 miles and a fleet mix of 12.5% LHD, 12.5% MHD, and 75% HHD. Detailed emission calculations are provided in Appendix "3.1".

3.7 EMISSIONS SUMMARY

The total amount of Project-related GHG emissions for BAU without accounting for any project design features or regulatory developments that would reduce GHG emissions from direct and indirect sources combined would total 18,322.72 MMTCO2e as shown on Table 3-2.

The total amount of Project-related GHG emissions when accounting for applicable regulatory developments, project design features, and mitigation measures that would reduce GHG emissions from direct and indirect sources combined would total 14,453.47 MMTCO2e as shown on Table 3-3. This results in a 21.12% reduction from BAU, thus with implementation of the Project's design features and regulatory developments, the Project's GHG reduction would not meet the AB 32 reduction target of 28.5% (2).

Table 3-2 also provides a comparison of the Project's emissions as a function of Service Population and compares emissions to the 4.8 metric ton CO2e per service population-based threshold that has also been considered by the SCAQMD. As shown on Table 3-2, the Project

would result in an approximate 24.33 MTCO2e per service population and would exceed the 4.8 MTCO2e per service population threshold that the SCAQMD has considered.

TABLE 3-1: "BUSINESS AS USUAL" GREENHOUSE GAS EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	99.75	0.64	--	100.15
Area	0.03	1.60e-4	--	0.04
Energy	1,222.11	0.05	0.01	1,227.22
Mobile Sources (Trucks)	14,458.98	0.58	--	14,471.06
Mobile Sources (Passenger Cars)	1,811.08	0.16	--	1,814.39
On-Site Equipment	184.40	0.02	--	184.80
Waste	211.68	12.51	--	474.40
Water Usage	44.76	0.20	5.20e-3	50.67
Total CO_2E (All Sources)	**18,322.72**			

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 10^{b}") and is followed by the value of the exponent

TABLE 3-2: 2020 GREENHOUSE GAS EMISSIONS WITH APPLICABLE REGULATORY DEVELOPMENTS, DESIGN FEATURES AND MITIGATION MEASURES

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	99.75	0.64	--	100.15
Area	0.03	9.00e-5	--	0.04
Energy	826.15	0.05	0.01	830.59
Mobile Sources (Trucks)	11,800.93	0.08	--	11,802.51
Mobile Sources (Passenger Cars)	1,057.62	0.04	--	1,058.42
On-Site Equipment	152.67	0.05	--	153.70
Waste	211.68	12.51	--	474.40
Water Usage	28.92	0.16	4.18e-3	33.66
Total CO_2E (All Sources)	**14,453.47**			
SCAQMD Service Population (SP) Threshold	**4.8 MTCO2e/SP**			
Service Population	**594 employees**			
Metric Tons CO2e per Service Population	**24.33**			

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 10^{b}") and is followed by the value of the exponent

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5 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Modular Logistics Center Project. 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) 660-1994 ext. 217.

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Master of Science in Environmental Studies
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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
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APPENDIX 3.1:

CALEEMOD EMISSIONS MODEL OUTPUTS

Modular Logistics BAU (Trucks Only)

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,109.38	1000sqft	25.47	1,109,378.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2005
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - no construction emissions modeled

Off-road Equipment - no construction emissions modeled

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on default

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Energy Use -

Water And Wastewater - based on the water supply assessment report for the modular Logistics center (2014)

Operational Off-Road Equipment - based on CARB Cargo Handling Equipment Yard Truck Emission Testing Report. 3.1 yard tractors per millions SF. Operational hours based on the Port of Long Beach "Air Emissions Inventory" (June 208)

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblLandUse	LandUseSquareFeet	1,109,380.00	1,109,378.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.37	0.39
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	OperationalYear	2014	2005
tblVehicleEF	HHD	0.03	0.75
tblVehicleEF	HHD	0.03	0.75
tblVehicleEF	HHD	0.03	0.75
tblVehicleEF	LDA	0.44	0.00
tblVehicleEF	LDA	0.44	0.00

tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT2	0.23	0.00
tblVehicleEF	LDT2	0.23	0.00
tblVehicleEF	LDT2	0.23	0.00
tblVehicleEF	LHD1	0.03	0.13
tblVehicleEF	LHD1	0.03	0.13
tblVehicleEF	LHD1	0.03	0.13
tblVehicleEF	LHD2	7.6570e-003	0.00
tblVehicleEF	LHD2	7.6570e-003	0.00
tblVehicleEF	LHD2	7.6570e-003	0.00
tblVehicleEF	MCY	0.01	0.00
tblVehicleEF	MCY	0.01	0.00
tblVehicleEF	MCY	0.01	0.00
tblVehicleEF	MDV	0.13	0.00
tblVehicleEF	MDV	0.13	0.00
tblVehicleEF	MDV	0.13	0.00
tblVehicleEF	MH	3.6440e-003	0.00
tblVehicleEF	MH	3.6440e-003	0.00
tblVehicleEF	MH	3.6440e-003	0.00
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	OBUS	7.1000e-004	0.00
tblVehicleEF	OBUS	7.1000e-004	0.00
tblVehicleEF	OBUS	7.1000e-004	0.00
tblVehicleEF	SBUS	9.7400e-004	0.00

tblVehicleEF	SBUS	9.7400e-004	0.00
tblVehicleEF	SBUS	9.7400e-004	0.00
tblVehicleEF	UBUS	6.1800e-004	0.00
tblVehicleEF	UBUS	6.1800e-004	0.00
tblVehicleEF	UBUS	6.1800e-004	0.00
tblVehicleTrips	CNW_TL	6.90	61.00
tblVehicleTrips	CW_TL	16.60	61.00
tblVehicleTrips	ST_TR	2.59	0.40
tblVehicleTrips	SU_TR	2.59	0.40
tblVehicleTrips	WD_TR	2.59	0.40
tblWater	IndoorWaterUseRate	256,544,125.00	6,224,576.92
tblWater	OutdoorWaterUseRate	0.00	6,161,035.89

2.0 Emissions Summary

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					
2014	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**

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					
2014	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**

	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	N20	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**

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	6.2281	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Energy	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	1,222.4057	1,222.4057	0.0522	0.0129	1,227.5124
Mobile	12.3984	176.4519	70.3624	1.2162	3.4093	7.4276	10.8368	1.1616	7.4276	8.5892	0.0000	14,458.9893	14,458.9893	0.5751	0.0000	14,471.0670
Offroad	0.2357	2.5685	0.6345	0.0204		0.0916	0.0916		0.0916	0.0916	0.0000	184.4020	184.4020	0.0191	0.0000	184.8040
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.9748	42.7818	44.7565	0.2048	5.2000e-003	50.6680
Total	**18.8773**	**179.1572**	**71.1338**	**1.2374**	**3.4093**	**7.5296**	**10.9389**	**1.1616**	**7.5296**	**8.6912**	**213.6578**	**15,908.6126**	**16,122.2704**	**13.3615**	**0.0181**	**16,408.4839**

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	6.2281	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Energy	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	1,222.4057	1,222.4057	0.0522	0.0129	1,227.5124
Mobile	12.3984	176.4519	70.3624	1.2162	3.4093	7.4276	10.8368	1.1616	7.4276	8.5892	0.0000	14,458.9893	14,458.9893	0.5751	0.0000	14,471.0670
Offroad	0.2357	2.5685	0.6345	0.0204		0.0916	0.0916		0.0916	0.0916	0.0000	184.4020	184.4020	0.0191	0.0000	184.8040
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.9748	42.7818	44.7565	0.2048	5.1900e-003	50.6649
Total	**18.8773**	**179.1572**	**71.1338**	**1.2374**	**3.4093**	**7.5296**	**10.9389**	**1.1616**	**7.5296**	**8.6912**	**213.6578**	**15,908.6126**	**16,122.2704**	**13.3615**	**0.0181**	**16,408.4807**

	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	N20	CO2e
Percent Reduction	**1.25**	**1.43**	**0.89**	**1.65**	**0.00**	**1.22**	**0.84**	**0.00**	**1.22**	**1.05**	**0.00**	**1.16**	**1.14**	**0.14**	**0.06**	**1.13**

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	1/1/2014	1/1/2014	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 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	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

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

3.2 Demolition - 2014

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	0.0000	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**

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	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**

3.2 Demolition - 2014

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

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					
Unmitigated	12.3984	176.4519	70.3624	1.2162	3.4093	7.4276	10.8368	1.1616	7.4276	8.5892	0.0000	14,458.9893	14,458.9893	0.5751	0.0000	14,471.0670
Mitigated	12.3984	176.4519	70.3624	1.2162	3.4093	7.4276	10.8368	1.1616	7.4276	8.5892	0.0000	14,458.9893	14,458.9893	0.5751	0.0000	14,471.0670

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	443.75	443.75	443.75	9,188,472	9,188,472
Total	443.75	443.75	443.75	9,188,472	9,188,472

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	61.00	8.40	61.00	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.000000	0.000000	0.000000	0.000000	0.125000	0.000000	0.125000	0.750000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: Y

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					
NaturalGas Unmitigated	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5936	148.5936	2.8500e-003	2.7200e-003	149.4979
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,073.8121	1,073.8121	0.0494	0.0102	1,078.0145
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,073.8121	1,073.8121	0.0494	0.0102	1,078.0145
NaturalGas Mitigated	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5936	148.5936	2.8500e-003	2.7200e-003	149.4979

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas 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					
Unrefrigerated Warehouse-No Rail	2.78454e+006	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5936	148.5936	2.8500e-003	2.7200e-003	149.4979
Parking Lot	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
Total		**0.0150**	**0.1365**	**0.1147**	**8.2000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**148.5936**	**148.5936**	**2.8500e-003**	**2.7200e-003**	**149.4979**

Mitigated

	NaturalGas 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					
Parking Lot	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
Unrefrigerated Warehouse-No Rail	2.78454e+006	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5936	148.5936	2.8500e-003	2.7200e-003	149.4979
Total		**0.0150**	**0.1365**	**0.1147**	**8.2000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**148.5936**	**148.5936**	**2.8500e-003**	**2.7200e-003**	**149.4979**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	64.2662	2.9500e-003	6.1000e-004	64.5177
Unrefrigerated Warehouse-No Rail	3.52782e+006	1,009.5459	0.0464	9.6000e-003	1,013.4967
Total		**1,073.8121**	**0.0494**	**0.0102**	**1,078.0145**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	64.2662	2.9500e-003	6.1000e-004	64.5177
Unrefrigerated Warehouse-No Rail	3.52782e+006	1,009.5459	0.0464	9.6000e-003	1,013.4967
Total		**1,073.8121**	**0.0494**	**0.0102**	**1,078.0145**

6.0 Area Detail

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					
Unmitigated	6.2281	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Mitigated	6.2281	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372

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	1.2944					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8700e-003	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Total	**6.2281**	**2.6000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**1.6000e-004**	**0.0000**	**0.0372**

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	1.2944					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8700e-003	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Total	**6.2281**	**2.6000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**1.6000e-004**	**0.0000**	**0.0372**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	44.7565	0.2048	5.2000e-003	50.6680
Mitigated	44.7565	0.2048	5.1900e-003	50.6649

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.22458 / 6.16104	44.7565	0.2048	5.2000e-003	50.6680
Total		**44.7565**	**0.2048**	**5.2000e-003**	**50.6680**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.22458 / 6.16104	44.7565	0.2048	5.1900e-003	50.6649
Total		**44.7565**	**0.2048**	**5.1900e-003**	**50.6649**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	211.6830	12.5101	0.0000	474.3953
Unmitigated	211.6830	12.5101	0.0000	474.3953

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	4	4.00	260	200	0.39	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.2357	2.5685	0.6345	0.0204		0.0916	0.0916		0.0916	0.0916	0.0000	184.4020	184.4020	0.0191	0.0000	184.8040
Total	**0.2357**	**2.5685**	**0.6345**	**0.0204**		**0.0916**	**0.0916**		**0.0916**	**0.0916**	**0.0000**	**184.4020**	**184.4020**	**0.0191**	**0.0000**	**184.8040**

10.0 Vegetation

Modular Logistics BAU (Passenger Only)

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,109.38	1000sqft	25.47	1,109,380.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2005
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - construction emissions not modeled

Off-road Equipment - construction emissions not modeled

Demolition -

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on defaults

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Energy Use -

Water And Wastewater - based on the water supply assessment report for the modular Logistics center (2014)

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1675554	1670748
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2005
tblVehicleEF	HHD	0.03	0.00
tblVehicleEF	HHD	0.03	0.00
tblVehicleEF	HHD	0.03	0.00
tblVehicleEF	LDA	0.44	1.00
tblVehicleEF	LDA	0.44	1.00
tblVehicleEF	LDA	0.44	1.00
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT1	0.10	0.00
tblVehicleEF	LDT2	0.23	0.00

tblVehicleEF	LDT2	0.23	0.00
tblVehicleEF	LDT2	0.23	0.00
tblVehicleEF	LHD1	0.03	0.00
tblVehicleEF	LHD1	0.03	0.00
tblVehicleEF	LHD1	0.03	0.00
tblVehicleEF	LHD2	7.6570e-003	0.00
tblVehicleEF	LHD2	7.6570e-003	0.00
tblVehicleEF	LHD2	7.6570e-003	0.00
tblVehicleEF	MCY	0.01	0.00
tblVehicleEF	MCY	0.01	0.00
tblVehicleEF	MCY	0.01	0.00
tblVehicleEF	MDV	0.13	0.00
tblVehicleEF	MDV	0.13	0.00
tblVehicleEF	MDV	0.13	0.00
tblVehicleEF	MH	3.6440e-003	0.00
tblVehicleEF	MH	3.6440e-003	0.00
tblVehicleEF	MH	3.6440e-003	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	OBUS	7.1000e-004	0.00
tblVehicleEF	OBUS	7.1000e-004	0.00
tblVehicleEF	OBUS	7.1000e-004	0.00
tblVehicleEF	SBUS	9.7400e-004	0.00
tblVehicleEF	SBUS	9.7400e-004	0.00
tblVehicleEF	SBUS	9.7400e-004	0.00
tblVehicleEF	UBUS	6.1800e-004	0.00
tblVehicleEF	UBUS	6.1800e-004	0.00

tblVehicleEF	UBUS	6.1800e-004	0.00
tblVehicleTrips	CNW_TL	6.90	9.50
tblVehicleTrips	CW_TL	16.60	9.50
tblVehicleTrips	ST_TR	2.59	1.28
tblVehicleTrips	SU_TR	2.59	1.28
tblVehicleTrips	WD_TR	2.59	1.28
tblWater	IndoorWaterUseRate	256,544,125.00	6,224,576.92
tblWater	OutdoorWaterUseRate	0.00	6,161,035.89

2.0 Emissions Summary

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					
2014	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**

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					
2014	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**

	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	N20	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**

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	6.2254	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Energy	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	1,222.4078	1,222.4078	0.0522	0.0129	1,227.5145
Mobile	2.0443	2.1115	24.5593	0.0202	1.5758	0.0544	1.6302	0.4554	0.0544	0.5098	0.0000	1,811.0751	1,811.0751	0.1579	0.0000	1,814.3910
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.9748	42.7818	44.7565	0.2048	5.2000e-003	50.6680
Total	**8.2846**	**2.2482**	**24.6962**	**0.0210**	**1.5758**	**0.0649**	**1.6407**	**0.4554**	**0.0649**	**0.5202**	**213.6578**	**3,076.2985**	**3,289.9563**	**12.9252**	**0.0181**	**3,567.0060**

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	6.2254	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Energy	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	1,222.4078	1,222.4078	0.0522	0.0129	1,227.5145
Mobile	2.0443	2.1115	24.5593	0.0202	1.5758	0.0544	1.6302	0.4554	0.0544	0.5098	0.0000	1,811.0751	1,811.0751	0.1579	0.0000	1,814.3910
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.9748	42.7818	44.7565	0.2048	5.1900e-003	50.6649
Total	**8.2846**	**2.2482**	**24.6962**	**0.0210**	**1.5758**	**0.0649**	**1.6407**	**0.4554**	**0.0649**	**0.5202**	**213.6578**	**3,076.2985**	**3,289.9563**	**12.9251**	**0.0181**	**3,567.0028**

	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	N20	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**	**0.06**	**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	1/1/2014	2/11/2014	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 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	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

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

3.2 Demolition - 2014

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	0.0000	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**

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	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**

3.2 Demolition - 2014

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

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	2.0443	2.1115	24.5593	0.0202	1.5758	0.0544	1.6302	0.4554	0.0544	0.5098	0.0000	1,811.0751	1,811.0751	0.1579	0.0000	1,814.3910
Unmitigated	2.0443	2.1115	24.5593	0.0202	1.5758	0.0544	1.6302	0.4554	0.0544	0.5098	0.0000	1,811.0751	1,811.0751	0.1579	0.0000	1,814.3910

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	1,420.01	1,420.01	1420.01	4,580,482	4,580,482
Total	1,420.01	1,420.01	1,420.01	4,580,482	4,580,482

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	8.40	9.50	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: Y

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	1,073.8139	1,073.8139	0.0494	0.0102	1,078.0163
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,073.8139	1,073.8139	0.0494	0.0102	1,078.0163
NaturalGas Mitigated	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5939	148.5939	2.8500e-003	2.7200e-003	149.4982
NaturalGas Unmitigated	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5939	148.5939	2.8500e-003	2.7200e-003	149.4982

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas 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					
Parking Lot	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
Unrefrigerated Warehouse-No Rail	2.78454e+006	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5939	148.5939	2.8500e-003	2.7200e-003	149.4982
Total		**0.0150**	**0.1365**	**0.1147**	**8.2000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**148.5939**	**148.5939**	**2.8500e-003**	**2.7200e-003**	**149.4982**

Mitigated

	NaturalGas 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					
Parking Lot	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
Unrefrigerated Warehouse-No Rail	2.78454e+006	0.0150	0.1365	0.1147	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.5939	148.5939	2.8500e-003	2.7200e-003	149.4982
Total		**0.0150**	**0.1365**	**0.1147**	**8.2000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**148.5939**	**148.5939**	**2.8500e-003**	**2.7200e-003**	**149.4982**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	64.2662	2.9500e-003	6.1000e-004	64.5177
Unrefrigerated Warehouse-No Rail	3.52783e+006	1,009.5477	0.0464	9.6000e-003	1,013.4986
Total		**1,073.8139**	**0.0494**	**0.0102**	**1,078.0163**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	64.2662	2.9500e-003	6.1000e-004	64.5177
Unrefrigerated Warehouse-No Rail	3.52783e+006	1,009.5477	0.0464	9.6000e-003	1,013.4986
Total		**1,073.8139**	**0.0494**	**0.0102**	**1,078.0163**

6.0 Area Detail

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	6.2254	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Unmitigated	6.2254	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372

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	1.2916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8700e-003	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Total	**6.2254**	**2.6000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**1.6000e-004**	**0.0000**	**0.0372**

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	1.2916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8700e-003	2.6000e-004	0.0222	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	0.0339	0.0339	1.6000e-004	0.0000	0.0372
Total	**6.2254**	**2.6000e-004**	**0.0222**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**1.6000e-004**	**0.0000**	**0.0372**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	44.7565	0.2048	5.1900e-003	50.6649
Unmitigated	44.7565	0.2048	5.2000e-003	50.6680

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.22458 / 6.16104	44.7565	0.2048	5.2000e-003	50.6680
Total		**44.7565**	**0.2048**	**5.2000e-003**	**50.6680**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	6.22458 / 6.16104	44.7565	0.2048	5.1900e-003	50.6649
Total		**44.7565**	**0.2048**	**5.1900e-003**	**50.6649**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	211.6830	12.5101	0.0000	474.3953
Mitigated	211.6830	12.5101	0.0000	474.3953

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

9.0 Operational Offroad

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

10.0 Vegetation

Modular Logistics 2020 (Trucks Only)

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-Rail	1,109.38	1000sqft	25.47	1,109,380.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	466.91	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - based on information provided by the applicant

Construction Phase - no construction emissions modeled

Off-road Equipment - no construction emissions modeled

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on defaults

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Energy Use - based on a 2020 operational year

Water And Wastewater - based on the water supply assessment report for the modular Logistics center (2014)

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation - 150 g/L low VOC paint

Energy Mitigation -

Water Mitigation -

Operational Off-Road Equipment - based on CARB Cargo Handling Equipment Yard Truck Emission Testing Report. 3.1 yard tractors per millions SF. Operational hours based on the Port of Long Beach "Air Emissions Inventory" (June 208)

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1675554	1670748
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	150
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	150
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00

tblOperationalOffRoadEquipment	OperLoadFactor	0.37	0.39
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	466.91
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	HHD	0.04	0.75
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDA	0.46	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LHD1	0.05	0.13
tblVehicleEF	LHD1	0.05	0.13
tblVehicleEF	LHD1	0.05	0.13
tblVehicleEF	LHD2	7.4600e-003	0.00
tblVehicleEF	LHD2	7.4600e-003	0.00
tblVehicleEF	LHD2	7.4600e-003	0.00
tblVehicleEF	MCY	6.5150e-003	0.00
tblVehicleEF	MCY	6.5150e-003	0.00
tblVehicleEF	MCY	6.5150e-003	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00

tblVehicleEF	MH	3.2720e-003	0.00
tblVehicleEF	MH	3.2720e-003	0.00
tblVehicleEF	MH	3.2720e-003	0.00
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	MHD	0.01	0.13
tblVehicleEF	OBUS	9.0200e-004	0.00
tblVehicleEF	OBUS	9.0200e-004	0.00
tblVehicleEF	OBUS	9.0200e-004	0.00
tblVehicleEF	SBUS	8.2800e-004	0.00
tblVehicleEF	SBUS	8.2800e-004	0.00
tblVehicleEF	SBUS	8.2800e-004	0.00
tblVehicleEF	UBUS	1.0560e-003	0.00
tblVehicleEF	UBUS	1.0560e-003	0.00
tblVehicleEF	UBUS	1.0560e-003	0.00
tblVehicleTrips	CNW_TL	6.90	61.00
tblVehicleTrips	CW_TL	16.60	61.00
tblVehicleTrips	ST_TR	1.63	0.40
tblVehicleTrips	SU_TR	1.63	0.40
tblVehicleTrips	WD_TR	1.63	0.40
tblWater	IndoorWaterUseRate	256,544,125.00	6,224,576.92
tblWater	OutdoorWaterUseRate	0.00	6,161,035.89

2.0 Emissions Summary

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					
2014	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**

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					
2014	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**

	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	N20	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**

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	6.2241	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Energy	0.0128	0.1164	0.0978	7.0000e-004		8.8400e-003	8.8400e-003		8.8400e-003	8.8400e-003	0.0000	883.8070	883.8070	0.0495	0.0121	888.5817
Mobile	1.9493	35.4928	19.4062	0.1383	3.9428	0.8295	4.7723	1.0921	0.7631	1.8552	0.0000	11,800.9277	11,800.9277	0.0755	0.0000	11,802.5131
Offroad	0.0806	0.9793	0.4278	1.7400e-003		0.0321	0.0321		0.0296	0.0296	0.0000	152.6678	152.6678	0.0494	0.0000	153.7047
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.9748	31.6620	33.6368	0.2048	5.2000e-003	39.5482
Total	**8.2668**	**36.5886**	**19.9493**	**0.1408**	**3.9428**	**0.8705**	**4.8133**	**1.0921**	**0.8016**	**1.8936**	**213.6578**	**12,869.0983**	**13,082.7562**	**12.8893**	**0.0173**	**13,358.7787**

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	5.7075	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Energy	9.6500e-003	0.0877	0.0737	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	826.1465	826.1465	0.0472	0.0111	830.5913
Mobile	1.9493	35.4928	19.4062	0.1383	3.9428	0.8295	4.7723	1.0921	0.7631	1.8552	0.0000	11,800.9277	11,800.9277	0.0755	0.0000	11,802.5131
Offroad	0.0806	0.9793	0.4278	1.7400e-003		0.0321	0.0321		0.0296	0.0296	0.0000	152.6678	152.6678	0.0494	0.0000	153.7047
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.5798	27.3446	28.9244	0.1639	4.1800e-003	33.6617
Total	**7.7470**	**36.5599**	**19.9252**	**0.1406**	**3.9428**	**0.8683**	**4.8111**	**1.0921**	**0.7994**	**1.8914**	**213.2629**	**12,807.1205**	**13,020.3833**	**12.8462**	**0.0153**	**13,294.9019**

	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	N20	CO2e
Percent Reduction	**7.26**	**2.75**	**2.26**	**1.36**	**0.00**	**3.94**	**0.71**	**0.00**	**3.96**	**1.68**	**0.18**	**1.67**	**1.64**	**0.72**	**11.19**	**1.63**

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	1/1/2014	1/1/2014	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 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	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

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

3.2 Demolition - 2014

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	0.0000	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**

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	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**

3.2 Demolition - 2014

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

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					
Unmitigated	1.9493	35.4928	19.4062	0.1383	3.9428	0.8295	4.7723	1.0921	0.7631	1.8552	0.0000	11,800.9277	11,800.9277	0.0755	0.0000	11,802.5131
Mitigated	1.9493	35.4928	19.4062	0.1383	3.9428	0.8295	4.7723	1.0921	0.7631	1.8552	0.0000	11,800.9277	11,800.9277	0.0755	0.0000	11,802.5131

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	443.75	443.75	443.75	9,188,472	9,188,472
Total	443.75	443.75	443.75	9,188,472	9,188,472

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-Rail	61.00	8.40	61.00	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.000000	0.000000	0.000000	0.000000	0.125000	0.000000	0.125000	0.750000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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					
NaturalGas Unmitigated	0.0128	0.1164	0.0978	7.0000e-004		8.8400e-003	8.8400e-003		8.8400e-003	8.8400e-003	0.0000	126.6896	126.6896	2.4300e-003	2.3200e-003	127.4606
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	730.6853	730.6853	0.0454	9.3900e-003	734.5492
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	757.1174	757.1174	0.0470	9.7300e-003	761.1211
NaturalGas Mitigated	9.6500e-003	0.0877	0.0737	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	95.4612	95.4612	1.8300e-003	1.7500e-003	96.0422

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas 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					
Unrefrigerated Warehouse-Rail	2.37407e+006	0.0128	0.1164	0.0978	7.0000e-004		8.8400e-003	8.8400e-003		8.8400e-003	8.8400e-003	0.0000	126.6896	126.6896	2.4300e-003	2.3200e-003	127.4606
Parking Lot	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
Total		**0.0128**	**0.1164**	**0.0978**	**7.0000e-004**		**8.8400e-003**	**8.8400e-003**		**8.8400e-003**	**8.8400e-003**	**0.0000**	**126.6896**	**126.6896**	**2.4300e-003**	**2.3200e-003**	**127.4606**

Mitigated

	NaturalGas 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					
Parking Lot	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
Unrefrigerated Warehouse-Rail	1.78888e+006	9.6500e-003	0.0877	0.0737	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	95.4612	95.4612	1.8300e-003	1.7500e-003	96.0422
Total		**9.6500e-003**	**0.0877**	**0.0737**	**5.3000e-004**		**6.6600e-003**	**6.6600e-003**		**6.6600e-003**	**6.6600e-003**	**0.0000**	**95.4612**	**95.4612**	**1.8300e-003**	**1.7500e-003**	**96.0422**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	47.5622	2.9500e-003	6.1000e-004	47.8137
Unrefrigerated Warehouse-Rail	3.35033e+006	709.5552	0.0441	9.1200e-003	713.3073
Total		**757.1175**	**0.0470**	**9.7300e-003**	**761.1210**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	47.5622	2.9500e-003	6.1000e-004	47.8137
Unrefrigerated Warehouse-Rail	3.22552e+006	683.1231	0.0424	8.7800e-003	686.7354
Total		**730.6853**	**0.0454**	**9.3900e-003**	**734.5492**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	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					
Unmitigated	6.2241	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Mitigated	5.7075	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358

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	1.2916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6500e-003	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Total	**6.2241**	**1.6000e-004**	**0.0175**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**9.0000e-005**	**0.0000**	**0.0358**

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	0.7750					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6500e-003	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Total	**5.7075**	**1.6000e-004**	**0.0175**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**9.0000e-005**	**0.0000**	**0.0358**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	33.6368	0.2048	5.2000e-003	39.5482
Mitigated	28.9244	0.1639	4.1800e-003	33.6617

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	6.22458 / 6.16104	33.6368	0.2048	5.2000e-003	39.5482
Total		**33.6368**	**0.2048**	**5.2000e-003**	**39.5482**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	4.97966 / 5.78521	28.9244	0.1639	4.1800e-003	33.6617
Total		**28.9244**	**0.1639**	**4.1800e-003**	**33.6617**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	211.6830	12.5101	0.0000	474.3953
Unmitigated	211.6830	12.5101	0.0000	474.3953

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	4	4.00	260	200	0.39	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.0806	0.9793	0.4278	1.7400e-003		0.0321	0.0321		0.0296	0.0296	0.0000	152.6678	152.6678	0.0494	0.0000	153.7047
Total	**0.0806**	**0.9793**	**0.4278**	**1.7400e-003**		**0.0321**	**0.0321**		**0.0296**	**0.0296**	**0.0000**	**152.6678**	**152.6678**	**0.0494**	**0.0000**	**153.7047**

10.0 Vegetation

Modular Logistics 2020 (Passengers Only)

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-Rail	1,109.38	1000sqft	25.47	1,109,380.00	0
Parking Lot	255.20	1000sqft	5.86	255,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	466.91	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CPUC GHG Calculator version 3c

Land Use - based on information provided by the applicant

Construction Phase - no construction emissions modeled

Off-road Equipment - no construction emissions modeled

Vehicle Trips - trip rate based on the Modular logistics center TIA. TL based on defaults

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Vechicle Emission Factors - fleet mix based on the modular logistics center TIA

Energy Use - based on a 2020 operational year

Water And Wastewater - based on the water supply assessment report for the modular Logistics center (2014)

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation - 150 g/L low VOC paint

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Interior	1675554	1670748
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	150
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	150
tblConstructionPhase	NumDays	30.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	466.91
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	HHD	0.04	0.00

tblVehicleEF	HHD	0.04	0.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDA	0.46	1.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LDT2	0.18	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD2	7.4600e-003	0.00
tblVehicleEF	LHD2	7.4600e-003	0.00
tblVehicleEF	LHD2	7.4600e-003	0.00
tblVehicleEF	MCY	6.5150e-003	0.00
tblVehicleEF	MCY	6.5150e-003	0.00
tblVehicleEF	MCY	6.5150e-003	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2720e-003	0.00
tblVehicleEF	MH	3.2720e-003	0.00
tblVehicleEF	MH	3.2720e-003	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00
tblVehicleEF	MHD	0.01	0.00

tblVehicleEF	OBUS	9.0200e-004	0.00
tblVehicleEF	OBUS	9.0200e-004	0.00
tblVehicleEF	OBUS	9.0200e-004	0.00
tblVehicleEF	SBUS	8.2800e-004	0.00
tblVehicleEF	SBUS	8.2800e-004	0.00
tblVehicleEF	SBUS	8.2800e-004	0.00
tblVehicleEF	UBUS	1.0560e-003	0.00
tblVehicleEF	UBUS	1.0560e-003	0.00
tblVehicleEF	UBUS	1.0560e-003	0.00
tblVehicleTrips	CNW_TL	6.90	9.50
tblVehicleTrips	CW_TL	16.60	9.50
tblVehicleTrips	ST_TR	1.63	1.28
tblVehicleTrips	SU_TR	1.63	1.28
tblVehicleTrips	WD_TR	1.63	1.28
tblWater	IndoorWaterUseRate	256,544,125.00	6,224,576.92
tblWater	OutdoorWaterUseRate	0.00	6,161,035.89

2.0 Emissions Summary

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					
2014	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**

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					
2014	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**

	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	N20	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**

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	6.2241	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Energy	0.0128	0.1164	0.0978	7.0000e-004		8.8400e-003	8.8400e-003		8.8400e-003	8.8400e-003	0.0000	883.8070	883.8070	0.0495	0.0121	888.5817
Mobile	0.3127	0.3612	3.9858	0.0171	1.7109	9.5700e-003	1.7205	0.4541	8.8700e-003	0.4630	0.0000	1,057.6220	1,057.6220	0.0378	0.0000	1,058.4165
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.9748	31.6620	33.6368	0.2048	5.2000e-003	39.5482
Total	**6.5496**	**0.4778**	**4.1011**	**0.0178**	**1.7109**	**0.0185**	**1.7294**	**0.4541**	**0.0178**	**0.4719**	**213.6578**	**1,973.1249**	**2,186.7827**	**12.8023**	**0.0173**	**2,460.9775**

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	5.7075	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Energy	9.6500e-003	0.0877	0.0737	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	826.1465	826.1465	0.0472	0.0111	830.5913
Mobile	0.3104	0.3481	3.8501	0.0165	1.6398	9.2500e-003	1.6491	0.4352	8.5800e-003	0.4438	0.0000	1,014.8054	1,014.8054	0.0364	0.0000	1,015.5691
Waste						0.0000	0.0000		0.0000	0.0000	211.6830	0.0000	211.6830	12.5101	0.0000	474.3953
Water						0.0000	0.0000		0.0000	0.0000	1.5798	27.3446	28.9244	0.1639	4.1800e-003	33.6617
Total	**6.0275**	**0.4360**	**3.9413**	**0.0170**	**1.6398**	**0.0160**	**1.6558**	**0.4352**	**0.0153**	**0.4505**	**213.2629**	**1,868.3304**	**2,081.5933**	**12.7577**	**0.0153**	**2,354.2533**

	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	N20	CO2e
Percent Reduction	**7.97**	**8.75**	**3.90**	**4.82**	**4.15**	**13.54**	**4.25**	**4.16**	**13.90**	**4.52**	**0.18**	**5.31**	**4.81**	**0.35**	**11.19**	**4.34**

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	1/1/2014	1/1/2014	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 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	Excavators	0	8.00	162	0.38
Demolition	Rubber Tired Dozers	0	8.00	255	0.40

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

3.2 Demolition - 2014

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	0.0000	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**

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	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**

3.2 Demolition - 2014

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

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Implement Trip Reduction Program

	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	0.3104	0.3481	3.8501	0.0165	1.6398	9.2500e-003	1.6491	0.4352	8.5800e-003	0.4438	0.0000	1,014.8054	1,014.8054	0.0364	0.0000	1,015.5691
Unmitigated	0.3127	0.3612	3.9858	0.0171	1.7109	9.5700e-003	1.7205	0.4541	8.8700e-003	0.4630	0.0000	1,057.6220	1,057.6220	0.0378	0.0000	1,058.4165

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	1,420.01	1,420.01	1420.01	4,580,482	4,390,202
Total	1,420.01	1,420.01	1,420.01	4,580,482	4,390,202

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-Rail	9.50	8.40	9.50	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	730.6853	730.6853	0.0454	9.3900e-003	734.5492
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	757.1174	757.1174	0.0470	9.7300e-003	761.1211
NaturalGas Mitigated	9.6500e-003	0.0877	0.0737	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	95.4612	95.4612	1.8300e-003	1.7500e-003	96.0422
NaturalGas Unmitigated	0.0128	0.1164	0.0978	7.0000e-004		8.8400e-003	8.8400e-003		8.8400e-003	8.8400e-003	0.0000	126.6896	126.6896	2.4300e-003	2.3200e-003	127.4606

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas 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					
Parking Lot	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
Unrefrigerated Warehouse-Rail	2.37407e+006	0.0128	0.1164	0.0978	7.0000e-004		8.8400e-003	8.8400e-003		8.8400e-003	8.8400e-003	0.0000	126.6896	126.6896	2.4300e-003	2.3200e-003	127.4606
Total		**0.0128**	**0.1164**	**0.0978**	**7.0000e-004**		**8.8400e-003**	**8.8400e-003**		**8.8400e-003**	**8.8400e-003**	**0.0000**	**126.6896**	**126.6896**	**2.4300e-003**	**2.3200e-003**	**127.4606**

Mitigated

	NaturalGas 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					
Parking Lot	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
Unrefrigerated Warehouse-Rail	1.78888e+006	9.6500e-003	0.0877	0.0737	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	95.4612	95.4612	1.8300e-003	1.7500e-003	96.0422
Total		**9.6500e-003**	**0.0877**	**0.0737**	**5.3000e-004**		**6.6600e-003**	**6.6600e-003**		**6.6600e-003**	**6.6600e-003**	**0.0000**	**95.4612**	**95.4612**	**1.8300e-003**	**1.7500e-003**	**96.0422**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	47.5622	2.9500e-003	6.1000e-004	47.8137
Unrefrigerated Warehouse-Rail	3.35033e+006	709.5552	0.0441	9.1200e-003	713.3073
Total		**757.1175**	**0.0470**	**9.7300e-003**	**761.1210**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	224576	47.5622	2.9500e-003	6.1000e-004	47.8137
Unrefrigerated Warehouse-Rail	3.22552e+006	683.1231	0.0424	8.7800e-003	686.7354
Total		**730.6853**	**0.0454**	**9.3900e-003**	**734.5492**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	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	5.7075	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Unmitigated	6.2241	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358

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	1.2916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6500e-003	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Total	**6.2241**	**1.6000e-004**	**0.0175**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**9.0000e-005**	**0.0000**	**0.0358**

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	0.7750					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.9309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6500e-003	1.6000e-004	0.0175	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0339	0.0339	9.0000e-005	0.0000	0.0358
Total	**5.7075**	**1.6000e-004**	**0.0175**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0339**	**0.0339**	**9.0000e-005**	**0.0000**	**0.0358**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	28.9244	0.1639	4.1800e-003	33.6617
Unmitigated	33.6368	0.2048	5.2000e-003	39.5482

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	6.22458 / 6.16104	33.6368	0.2048	5.2000e-003	39.5482
Total		**33.6368**	**0.2048**	**5.2000e-003**	**39.5482**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	4.97966 / 5.78521	28.9244	0.1639	4.1800e-003	33.6617
Total		**28.9244**	**0.1639**	**4.1800e-003**	**33.6617**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	211.6830	12.5101	0.0000	474.3953
Mitigated	211.6830	12.5101	0.0000	474.3953

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	1042.82	211.6830	12.5101	0.0000	474.3953
Total		**211.6830**	**12.5101**	**0.0000**	**474.3953**

9.0 Operational Offroad

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

10.0 Vegetation

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APPENDIX 3.2:

PROJECT CONSISTENCY WITH CITY OF MORENO VALLEY CLIMATE ACTION STRATEGY

Table 3.2: ProjectConsistency with City of Moreno Valley Climate Action Strategy

No.	Moreno Valley Climate Action Strategy	Project Consistency
C1	Install Light Colored "cool " roofs and cool pavements. (Cool roofs are now a requirement per state Title 24 /CalGreen Building Standards).	Consistent with Title 24/CalGreen
C2	Require Energy Star equipment and appliances in new construction & renovations.	Not Applicable
C3	Specify no- or low- VOC (Volatile Organic Compound) materials)	Consistent with Mitigation Measure AQ-2
C4	Install photovoltaic or other solar technology for city owned facilities wherever feasible	Not Applicable
C5	Partner with the largest consumers of energy to encourage and promote their energy efficiency activities	Not Applicable
C6	Promote and implement programs to encourage load shifting to off-peak house and explore demand response solutions	Not Applicable
C7	Provide education on energy efficiency to resident, consumers, and/or tenants	Not Applicable
C8	Create new Partnership brand to integrate City and Utility marketing campaigns to customers. Develop Marketing Team to coordinate City and Utility marketing. Advertise routinely on local media: radio, TV, newspaper, City newsletter, and website.	Not Applicable
C9	Increase Marketing efforts in the City by organizing the following communtiy activities: - City sponsored ideas expo and participating at other energy events; - City presenting program to local businesses and Chamber of Commerce meetings; - City working with communtiy organizations, local service clubs, HOA's and chambers of commerce to educate and sign-up participants; - Contractors conducting face-to-face marketing to both residential and business customers; - City Council recognizing "energy champions" at televised meetings	Not Applicable
C10	Implement low impact development practices that maintain existing hydrology of the site to manage storm water and protect the environment. (Use of low impact development practices is required by the new regional water quality permit)	Not Applicable
C11	Require that developer recycle existing street material for use as a base for new streets	Not Applicable
C12	Work with Waste Management to utilize billing statements or MVTV-3 to encourage businesses and residents to enroll in a recycling program	Not Applicable
C13	Explore grants to pay for recycling collection devices and their maintenance to be placed with public trash bins	Not Applicable

C14	Increase recycling at public events	Not Applicable
C15	Install water-efficient irrigation systems and devices and use water-efficient irrigation methods	Consistent. The project has water conservation features as a project design feature and it will comply with existing water conservation requirements
C16	Promote use of the City's multi-use trail system	Consistent. As a project design feature, the project would connect the City's multi-use trail system
C17	Establish Energy Efficiency and Conservation baselines	Not Applicable; however, the project would comply with Title 24 requirements
C18	Maintain City's Community Partnership program with Southern California Edison, The Gas Company, and Moreno Valley Electric Utility through the Energy Coalition. This partnership allows for funding the City can use for energy conservation marketing, education, and outreach efforts	Not Applicable
C19	City act as a model of energy conservation stewardship. Build upon historical and current energy conservation efforts as the foundation for continued efforts and education of the community on the values of efficiency and conservation in cost savings and environmental benefits	Not Applicable
C20	Require new large developments (projects of regional significance) participate in the Savings by design program, funded by the Utility customers and administered by private utilities under the auspices of the State Public Utilities Commission. Program identifies ways to improve efficiency of proposed construction	The project would be incorporating several of these concepts through its project design
C21	Encourage community use of Southern California Edison, Moreno Valley Utility, Eastern Municipal Water District, and The Gas Company financial incentives/ rebate opportunities	Not applicable. If the applicant or tenants wish to obtain financial incentives or rebate opportunities, they can do so
C22	Adopt a dark sky ordinance and reduce unnecessary lighting	Not applicable
C23	Encourage passive solar design	Not applicable; the project consists of large warehouse buildings
C24	Provide customer financing to assist customers with purchasing energy efficiency equipment. WRCOG will take lead in developing a financing plan through property taxes based on the guidelines proposed in Assembly Bill 811	Not Applicable
C25	Encourage Point-of-Sale Rebates, since they are the simplest methods for customers to qualify for incentives. Pursue adding more retailer participants within community. Encourage Point-of-Sale Rebates, since they are the simplest methods for customers to qualify for incentives. Pursue adding more retailer participants within community.	Not Applicable
C26	Review and update the landscape ordinance to continue lowering use of potable water for landscape irrigation. (City updated landscape standards in 2009 to further encourage water conservation.)	Not Applicable

C27	Provide education about water conservation and available programs and incentives.	Not Applicable
C28	Protect existing trees and encourage the planting of new drought tolerant trees. Adopt a tree protection and replacement ordinance.	Consistent with mitigation measure AQ-4
C29	Work with developers to increase housing near transit through recently adopted mixed-use zones. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	Not Applicable
C30	Designate Transit-Oriented Development district(s). (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	Not Applicable
C31	Explore building footprint, setbacks, height, scale, hardscape requirements to create compact building design techniques.	Not Applicable
C32	Explore reduced parking minimums required for mixed-use developments to encourage transit and non-motorized transportation.	Not Applicable. The Project does not contain mixed use
C33	Apply urban planning principles that encourage high density, mixed-use, walkable/bike able neighborhoods, and coordinate land-use and transportation with open space systems and promote the efficient delivery of services and goods. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	Not Applicable
C34	Promote “Energy Efficiency” at City events or events that the City participates in such as 4th of July and the March Air Show.	Not Applicable
C35	Develop original programming on MVTV-3 that promotes energy efficiency, e.g. a program that follows a residential energy audit, to demonstrate how residents can make their homes more energy efficient.	Not Applicable
C36	Work with RTA to expand access to public transit by adding routes, and shelters and benches within 1/4 mile of as many residential areas, employment centers, commercial centers, schools, and parks as possible. Evaluate lighting at all shelters to improve safety.	Not Applicable
C37	Promote rideshare and trip reduction programs such as carpools/vanpools and preferential parking areas with City staff and other large employers.	Consistent with mitigation measure AQ-5
C38	Promote school rideshare programs to assist parents/students forming carpools.	Not Applicable

C39	Adopt a Non-Motorized Transportation Plan. With focuses on pedestrian and bicycle routes and Master Sidewalk Plan. (GHG Policy R2- T1 Land Use Based Trips and VMT Reduction Policies)	The project includes safe pedestrian and bicycle routes.
C40	Work with the school districts to improve pedestrian and bike access to schools and to restore or expand school bus service using loweremitting vehicles.	Not Applicable
C41	Set goals consistent with State's Long Term Strategic Plan: All new residential construction in California will be zero net energy by 2020. All new commercial construction in California will be zero net energy by 2030.	Not applicable, since the project will be constructed before 2030 and goals are for the City to meet. However, the project would comply with Title 24 requirements. In addition, the buildings will be constructed as solar ready.
C42	Encourage installation of solar and wind power systems and solar hot water heaters.	Consistent. The project will construct the buildings to be solar ready and will encourage alternative energy.
C43	Establish City guideline that identifies criteria for using rubberized asphalt concrete for public streets.	Not Applicable
C44	Establish City guideline that identifies criteria for using 'green concrete' that has been made with recycled aggregate for public improvements. Results in reduced CO2 emissions and reduces solid waste sent to landfills.	Not Applicable
C45	Prepare a Master Sidewalk Plan that identifies "missing links" where sidewalks are necessary and identifies streets for which no sidewalk is required.	The project would include pedestrian features and links to the outside community.
C46	Adopt and implement a policy to increase the use of renewable energy.	Not Applicable
C47	Promote residential surveys to educate residents on energy saving behaviors, and direct leads and data to appropriate marketing channels to encourage more extensive energy upgrades.	Not Applicable
C48	Encourage installation of solar panels on unused roof and ground space and over carports and parking areas.	Consistent. The project would encourage solar and would construct the buildings to be solar ready.
C49	Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.	Not Applicable
C50	Conduct gray water, rainfall runoff, and other system research and pilot study.	Not Applicable
C51	Actively explore new items to add to the list of accepted recycled materials with the City's franchised waste hauler.	Not Applicable
C52	Implement programs to encourage and increase participation of diverted waste from landfills to meet or exceed state regulation requirements.	Not Applicable
C53	Provide easy and convenient recycling opportunities for residents, the public, and businesses.	Not Applicable

C54	Provide education and publicity about reducing waste and available recycling services.	Not Applicable
C55	Require shaded and accessible pedestrian paths of travel between building entrances and parking lots, sidewalks, adjacent properties, and public transportation stops.	Consistent with mitigation measure AQ-5
C56	Increase housing density near transit. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies).	Not Applicable
C57	Steer development towards infill rather than greenfield areas. Consider differential impact fee system with lower fees for areas with infrastructure.	Not Applicable
C58	Revise municipal code to ensure solar access is maintained for future solar electric and solar hot water installations.	Not applicable, since the project would not revise the municipal code. However, the project would construct the buildings as solar ready and would encourage alternative forms of energy.
C59	Consider a shade tree ordinance and utility incentives for shading south and west faces of dwelling units.	Not Applicable
C60	Designate city staff person responsible for coordinating climate action by city departments.	Not Applicable
C61	Promote local demonstration gardens at Western Municipal Water District and the planned garden at the southeast corner of Cactus and Heacock, around the EMWD pump station.	Not Applicable
C62	Encourage harvestable landscape.	The project would integrate native drought tolerant landscaping. Harvestable landscape is not feasible.
C63	Promote free shuttle service connecting to Metrolink station.	Consistent with mitigation measure AQ-5
C64	Create travel routes that ensure destinations may be reached conveniently by public transit, bicycling and walking. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies).	Consistent with mitigation measure AQ-5
C65	Work with WRCOG to develop a new master plan to encourage use of neighborhood electric vehicles, which are environmentally friendly street legal vehicles.	Not applicable. However, the project would have electrical hookups.
C66	Coordinate with school districts to adopt the League of America Bicyclists' Cycling curriculum so students learn safest way to bike.	Not Applicable
C67	Implement "Smart Bus" technology - GPS with electronic displays at stops to provide actual time data to passengers.	Not Applicable
C68	Develop renewable fuel locations and electric plug-in stations including a map for drivers to find refueling locations.	Not Applicable
C69	Implement a regional transit program between educational facilities. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	Not Applicable
C70	Incorporate bicycle lanes, routes and facilities into street systems, new subdivisions, and large developments. (GHG Policy R2- T1 Land Use Based Trips and VMT Reduction Policies)	Consistent with mitigation measure AQ-5

C71	Explore developing a Smart Growth Development Impact Fee matrix. Fee based on trips generated by project. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	Not Applicable
C72	Evaluate and update existing General Plan street cross- sections to accommodate "complete streets" design standards.	Not Applicable
C73	Incorporate public transit into the project's design. (GHG Policy R2-T1 Land Use Based Trips and VMT Reduction Policies)	Not Applicable
C74	Accelerate implementation of solar energy-based technology through permitting process (e.g., reduced permit fees, streamlined permit approval process).	Not Applicable
C75	Where solar systems cannot feasibly be incorporated into the project at the outset, build "solar ready" structures.	Consistent. The project would construct the buildings to be solar ready.
C76	Consider changing existing and future illuminated streetlights to LED. The retrofit cost for LED lighting is not feasible at this point. SCE and MVU do not currently have a separate rate structure for LED.	Consistent. As a design feature, the project would implement either high-pressure sodium or LED streetlights.

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APPENDIX 3.3:

CRANE & ASSOCIATES STUDY

L-3: Response to the South Coast Air Quality Management District White Paper

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CRAIN & ASSOCIATES

VIA EMAIL

December 1, 2011

Mr. Robert Evans
Executive Director
NAIOP Inland Empire
25241 Paseo de Alicia, Suite 120
Laguna Hills, CA 92653

RE: Response to the South Coast Air Quality Management District White Paper

Dear Mr. Evans,

As requested, Crain & Associates has reviewed the South Coast Air Quality Management District (SCAQMD) white paper entitled *Large Warehouse and Distribution Center Trip Rates*. In the paper, large warehouse and distribution centers are defined as having floor areas greater than 100,000 square feet. The main thrust of the white paper is to question the use of industry-standard Institute of Transportation Engineers (ITE) Trip Generation (8th Edition, 2008) trip rates for large centers via Land Use Code (LUC) 152, High-Cube Warehouse, and present alternative trip rates based on a meta-analysis of seven trip generation studies of centers in California and Florida. As summarized below, it is our professional opinion that the SCAQMD's white paper contains technical flaws. The ITE Trip Generation manual is based on a more rigorous set of data and program of analysis. Accordingly, we recommend that in performing California Environmental Quality Act (CEQA) analyses for high cube warehouse uses, including traffic, air quality, noise, and greenhouse gas analyses, the ITE Trip Generation manual should continued to be used by lead agencies rather than the SCAQMD's rates.

ITE TRIP GENERATION MANUAL

The Institute of Transportation Engineers is a professional body which has collected studies for a large variety of land uses and calculated average trip generation results in the summary report entitled Trip Generation, 8th edition, 2008 (ITE), also known as the ITE manual. The report is based on the results of generation counts which were collected at representative sites located

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throughout the country. Accordingly, the ITE manual is the accepted source for trip generation rates relied upon by jurisdictions across the country. As described in the ITE manual, Land Use Code (LUC) 152, High-cube Warehouses have a typical ceiling height of 24 to 30 feet and are often characterized by "a small employment count due to high level of mechanization, truck activities frequently occurring outside the peak hour of the adjacent street system and good freeway access." All of the studies used to develop the ITE trip rates for LUC 152 surveyed high-cube warehouses had building areas greater than 100,000 gross square feet.

SCAQMD WHITE PAPER METHODOLOGY

The SCAQMD white paper challenges the accuracy of the ITE manual analysis. This paper reviews the validity of the concerns expressed in the SCAQMD white paper. Our conclusion is that the white paper is deficient as follows:

(i) Fails to understand the difference between High-Cube and traditional warehouses or that total trip generation and percentage trucks are inter-related and should be based on the same data base;

(ii) Provides no explanation how the 7 studies utilized were chosen or why the particular subset of sites is more representative of High Cube Warehouses than those in the ITE manual under LUC 152;

(iii) Advocates the use of 95th percentile trip rates for all environmental studies even though it overstates the expected trip generation, VMT and impacts for most analyses in the environmental studies;

(iv) By using post-facto (2010) aerial photographs of the 2005 study sites rather than timely data in order to question the occupancy of a study buildings, the white paper relies on speculation rather than scientific methods.

(v) Recommends the use of 40% truck trips based on a weighted average of only two studies selected from a set, some of which have very different results;

(vi) Dismisses the use of "average" trip generation. The emphasis should be on a cumulative analysis of a large number of sites over the long period of time. Projecting activity of a single site on a single day is not applicable to the type of analyses SCAQMD is recommending their rates be used for; and

(vii) Does not properly review the adequacy of the data to be subdivided into with and without rail service categories or if alternative subdivisions may be more appropriate.

The concerns expressed in the white paper, our conclusions, and the basis for those conclusions is detailed on the following pages.

VACANCIES

One factor cited in the SCAQMD white paper as leading to a lower-than-expected ITE trip generation rate relates to partial or full vacancies of centers surveyed for the LUC 152 trip rate studies. The SCAQMD white paper claims to have reviewed aerial photography of the sites included in six studies used in developing the ITE LUC 152 rates and the sites included in the *City of Fontana Truck Trip Generation Study* (August 2003). Across the seven total studies, 68 different warehouse and distribution centers in California and Florida were surveyed. Many of the problems associated with using an aerial photography method for determining vacancies are described within the white paper. The photographs provide only "circumstantial evidence," the vacancies are "difficult to verify," and the correlation between recent photographs and vacancy levels when the trip studies were conducted in previous years is "difficult to validate."

As an example of the inaccurate nature of this vacancy analysis, center occupancy levels were confirmed by our firm immediately prior to the counts at all 13 sites where counts were performed for the November and December 2006 for the *Western Riverside County Warehouse/Distribution Center Trip Generation Study* (Crain and Associates, September 2008). However, the SCAQMD concluded that at least one of these 13 sites may have been partially or fully vacant, based on the 2010 Google image included as Figure 2 of the white paper. This circumstantial screening of data performed ex post facto is inaccurate and can skew the results of a trip generation study. Attachment 1 contains supporting documentation that the "vacant" center depicted in the paper's Figure 2, (located at 11600 Iberia Street in Mira Loma, CA) was fully occupied at the time of trip counts on November 28 and 29, 2006.

Not all large warehouses and distribution centers will have the same trip generation rate. Instead centers will have a range of trip rates centered on an average rate. For centers on the lower end of this trip-rate range, lower trip activity would likely result in fewer passenger vehicles and heavy trucks appearing on-site at a given time. Centers on the lower end of the trip rate range may include warehouses that operate with materials/goods that require a longer storage time. The elimination of sites with assumed partial or full vacancies could, in fact, be the elimination of sites with lower trip rates, thereby leading to the estimation of an artificially inflated average trip rate.

Further one should consider that the degree of vacancy of each facility will likely vary over time. While care was taken in our counts (as it was for most if not all ITE counts) to ensure full occupancy, actual average generation of each facility will be lower than the ITE rates during these periods of full or partial vacancy. To be conservative, these periods of low trip generation are not accounted for in most current environmental analyses.

CHOICE OF STATISTIC

Another area of concern with the assumptions in the white paper is the recommended trip rates calculations. Table 1 of the white paper provides a summary of weekday daily trip rates for warehouse and distribution centers, based on the independent variables of "rail service? (yes, no, or some)" and "potential vacancy? (yes, no, or some)." Although average trip rates are calculated for different combinations of these independent variables, the white paper recommends the use of 95th percentile trip rates for use in project-specific California Environmental Quality Act (CEQA) air quality and corresponding environmental analyses. In line with comments provided by Fehr & Peers in their August 23, 2010 memorandum reviewing the white paper, the use of 95th percentile trip rates may be "overly conservative." It should be noted that these trip rates are used for a range of environmental analyses under CEQA, including traffic and noise impact analyses, and consistency in the use of trip rates between these analyses is recommended. The used rates should not vary between sections of an EIR.

Based on the 95th percentile assumption, the white paper recommends weekday daily rates of 2.59 and 1.63 trips per 1,000 square feet of gross floor area for centers without and with rail service, respectively. It should be noted that the average weekday daily trip rate for warehouse sites with no rail service (and some circumstantial "potential vacancy") was 1.79 trips per 1,000 square feet of gross floor area, which is much closer to the ITE LUC 152, High-Cube Warehouse, average trip rate of 1.44 trips per 1,000 square feet of gross floor area than the 2.59 rate SCAQMD purposes. Further, the ITE rates is based on a much larger and more representative sample. Rather the choice of statistic is crucial to the usefulness of the estimate.

From a traffic analysis perspective, average trip generation levels for land uses are typically used for both project and cumulative off-site impact analyses. Absent empirical data or preferred, locally developed rates, the ITE Trip Generation manual is heavily relied upon. In the manual, the ITE has developed average trip rates (and, in some cases, fitted curve equations) for each land use and time period. The ITE uses a weighted average in order to limit the effect of sites with trip rates that have a large variance from the mean. The use of 95th percentile trip rates for a specific land-use project and, by extension, the cumulative projects in an off-site traffic impact analysis would present an unrealistic traffic condition from which to determine project impacts.

It should also be noted that traffic analyses already account for variations in generation by focusing on project impacts during the peak hours (not average hours) of traffic within a study area. The results of traffic impact analyses during the peak hours of traffic, using the 95th percentile trip rates applied to both the project and cumulative development, would be overly conservative. Consequently, the traffic and/or other CEQA environmental analyses could be dismissed by decision makers for not reflecting conditions reliably.

The project traffic generation forecasts are direct inputs for a project's air quality analysis. It is worth noting that the white paper found that the ITE average weekday trip rate was considered acceptable for multiple (10+) centers, based on the assumption that across several centers some would operate at varying levels of vacancy. However, no such variation is assumed for individual centers and 95th percentile rates are recommended for them instead. The use of these rates for individual centers would, in the vast majority of cases, overstate the center's air quality impacts on an area-wide basis -- including, greenhouse gas emissions. Using the ITE average rate would, therefore, be more appropriate for area-wide impacts and should be included so that decision makers do not rely solely on speculative estimates that are more likely to be dismissed. However, a factor for variations between time periods may be applied, if appropriate, for certain localized environmental analyses. For example, the level of parking demand on an individual site is only influenced by a single use. Daily variations of all users are taken into account. However, there is no reason to expect all warehouses in the United States will generate at the 95th percentile level over extended periods, as the White Paper implies.

FLEET MIX

The fleet mix calculations provided in the white paper are also a cause for concern. In the analysis preceding the Fleet Mix section of the white paper, the SCAQMD argues that the use of the ITE trip rates may underestimate large warehouse and distribution center vehicle trips. However, it is not clear from the white paper if the alleged underestimation of trips is due to more passenger vehicle trips or more heavy truck trips. As cited above, the ITE Trip Generation manual description of high-cube warehouses (LUC 152) makes clear, (based on ITE's analysis of the empirical data) that this land-use type has a particular trip generation profile due, in large part, to lower employment numbers than are expected with smaller buildings. In the Fleet Mix section, the white paper uses truck trip percentage data from studies it found fault with in preceding sections to determine that 40 percent of the weekday daily trip generation of a center would be truck trips. This calculation is based on data culled from two studies: the San Bernardino/Riverside County Warehouse/Distribution Center Vehicle Trip Generation Study (Crain and Associates, January 2005) and the City of Fontana Truck Trip Generation Study

(August 2003). Based on the 95th percentile trip rates, the white paper recommends weekday daily truck trip rates of 1.04 and 0.65 trips per 1,000 square feet of gross floor area for centers without and with rail service, respectively. In contrast, the weekday daily truck trip rates from the two abovementioned studies were 0.53 and 0.72 trips per 1,000 square feet of gross floor area, irrespective of rail service. Applying a similar calculation to these rates as the one utilized in the white paper would yield a weighted truck trip rate of 0.58 trips per 1,000 square feet of gross floor area [((0.53*10)+(0.72*4))/(10+4)]. Additionally, the ITE manual recommends a weekday daily truck trip rate of 0.64 trips per 1,000 square feet of gross floor area based on five sites from three studies, all of which are different from the two used in the white paper analysis. The percentage of trucks and total vehicle generation must come from the same data source. The analysis should not apply the percentage from one set of sites to the total generation from a different set. Accordingly, the SCAQMD white paper overstates the percentage that trucks represent in the fleet mix in the databases used to establish the trip rates.

RAIL SERVICE

The white paper's point regarding the effect that rail service adjacent to the loading dock could have on the number of truck trips generated by such centers is not properly analyzed. In particular, there do not appear to be sufficient sites with data concerning rail availability to make a split. Further, merely the availability of rail service for the transport of materials/goods to and from a center does not necessarily equate active usage of the rail spur. Moreover, if rail is actively used and lower truck trip generation result, the air quality benefits would be offset by the emissions of the locomotive that moves the rail cars into place, as well by the idling vehicles at rail crossings waiting for the locomotive and boxcar(s) to clear the road. Similar traffic and noise off-sets would occur. Therefore, recommending that the High-Cube Warehouse land use be subdivided into categories of High-Cube Warehouse With Rail Service and High-Cube Warehouse Without Rail Service is inappropriate.

SUMMARY

A review of the white paper document raises a myriad of questions about the analysis therein. The white paper is brief. and the analysis lacks any documentation of valid statistical methods (unlike that for other sources such as the ITE manual). It would be useful to obtain clarification regarding the following information:

- The white paper sets forward that SCAQMD staff analyzed the trip rates at 68 warehouse and distribution centers, while the ITE Trip Generation weekday daily rates are based on

35 sites. The white paper does not describe the 33 other sites used to develop the rates that were set forward.

- The white paper does not explain how the active use at the time of the trip counts of the rail spurs running adjacent to the center loading docks was verified.
- The white paper does not justify how the *San Bernardino/Riverside County Warehouse/Distribution Center Vehicle Trip Generation Study* (Crain and Associates, January 2005) and the *City of Fontana Truck Trip Generation Study* (August 2003) were determined to be inappropriate for estimating vehicle trips, yet appropriate for estimating vehicle fleet mix.
- The comments provided by Fehr & Peers in their August 23, 2010 memorandum reviewing the white paper make reference to centers with building sizes as small as 64,000 square feet being included in the meta-analysis. However, this size would fall below the 100,000 square-foot threshold established for "large" warehouse and distribution centers. The fundamental distinction from ITE on the number and type of employees needed should be included in any distinction between warehouse types.
- At the bottom of the first page of the white paper there is mention of an attached spreadsheet, but no such spreadsheet has been circulated. Review of detailed data could point to additional issues.

In conclusion, although project occupancy/vacancy is always an important factor in determining project trip generation, the aerial photo based vacancy analysis included in the white paper is unsubstantiated. Beyond the unsupported vacancy conclusions, the white paper's average weekday trip rate calculated for centers without rail service is similar to the trip rate provided in the ITE Trip Generation manual. The white paper, however, recommends using 95th percentile trip rates for use in air quality and associated CEQA environmental analyses. We caution against the use of 95th percentile rates, given that it will result in overstating the impacts on both a project and cumulative development level. Instead, the application of safety factor for certain analyses when found warranted would be more appropriate. The fleet mix (heavy truck percentage) for high-cube warehouses may be different than standard warehouses, but developing that mix by selectively drawing percentages from studies while ignoring the actual truck trip rates from those sites would be inappropriate. It should also be noted that different truck percentages may be appropriate to use for peak and off-peak hours (ITE identified truck trips as accounting for only 9 to 29 percent of the peak-hour traffic at surveyed sites). ,

For all of these reasons, we recommend that in performing CEQA analyses, including traffic, air quality, noise, and greenhouse gas, for high cube warehouse uses, the ITE Trip Generation manual should continue to be used by lead agencies rather than the SCAQMD's ad hoc rates based on partial or unsupported data and inappropriate analyses assumptions.

Sincerely,

George Rhyner

George Rhyner
Senior Transportation Engineer

GR:rjk
C20187

Attachment

Attachment 1

TOYO TIRES®
driven to perform®

Toyo Tire Holdings of Americas, Inc.
Logistics Department
2151 S. Vintage Avenue
Ontario, CA 91761

April 19, 2011

Mr. Graham Tingler
Space Center Mira Loma, Inc.
Leasing Office
3401 Etiwanda Avenue
Mira Loma, CA 91752

RE: 11600 Iberia Street, Mira Loma, CA 91752

Mr. Tingler:

Per your request that we independently verify the terms of our lease and occupancy at the above referenced property, I am happy to supply the following factual information:

Toyo Tire subleased this approximately 408,806 SF building from Continental Tire Corporation from March 1, 2004 through February 11, 2011. As you know, the building lease required that this sublease was approved by the Landlord, your firm, which we did obtain. Toyo Tire is an importer and distributer of automobile, SUV, light truck and racing tires to the United States market and used this facility as a Distribution Center.

In 2009, Toyo Tire began consolidating its business to a single facility in Southern California. Toyo Tires commence downsizing their operations at the above referenced property in October 2009 and completely vacated the property in May 2010, which was prior to the end of the lease term.

During November 2006, the period when we understand that a traffic study analyzing the trip and traffic impacts, this Toyo Tire facility was operating at full capacity and occupied the entire 408,806 SF building.

I trust this information answers any questions about our occupancy at this property.

Sincerely,

Steve Morgan

Steve Morgan
Logistics Operations Manager
Toyo Tires Holdings of Americas Inc.

Large Warehouse and Distribution Center Trip Rates

Introduction

New large warehouse projects and distribution centers (>100,000 square feet) have become a more common project type in the past several years, especially in the western Riverside County and San Bernardino County area. As an example, at least 8 new EIRs for warehouse projects totaling 17.75 million square feet have been reviewed by SCAQMD staff since late 2008 just in the vicinity of the city of Perris in Riverside County. These warehouse projects are commonly associated with substantial diesel emissions due to the high volume of heavy duty trucks that serve them. Diesel Particulate Matter (DPM) from internal combustion engines has been classified as a carcinogen by the California Air Resources Board (CARB). This white paper has been prepared because the number of truck trips associated with warehousing projects is a key component in determining the potential impact of DPM emissions on surrounding communities. Due to concern about these emissions, the CARB in its *Air Quality and Land Use Handbook* recommended providing a 1,000 foot setback from any distribution center serving more than 100 trucks per day.

For CEQA purposes, the volume of truck traffic predicted to serve a new large warehouse project is typically derived using the Institute of Transportation Engineers Trip Generation manual. This is the same source of traffic data used in the URBEMIS air quality model. The trip rate value used in URBEMIS is 4.96 trips per 1,000 square feet (TSF) for warehouse projects (land use type 150). This value is from the 7th Edition of the Trip Generation manual, published in 2003. Several developers of high-cube warehouses in recent years have questioned the validity of this value for modern warehousing operations and have commissioned local studies to investigate these trip rates. As a result, in the most recent version of the Trip Generation manual (8th Edition, 2008), additional data has been included to provide a new high-cube warehouse (land use 152) trip rate of 1.44 trips/TSF.

SCAQMD staff and other interested parties have questioned lead agencies about this lower rate because of concern that industrial warehouse project analyses may be underestimating the number of trucks serving them. If this were true, air quality impacts may be underreported in the corresponding CEQA analyses. This memo and attached spreadsheet presents a meta-analysis of available traffic studies that have targeted high-cube warehouses.

Studies

The seven studies included in this meta-analysis are listed below. Studies marked with an (*) are included in the 8th Edition of the ITE Trip Generation manual.

1. **Westside Industrial Park, Warehouse Trip Generation Study– Twenty Five Buildings, Duval County Florida*, December 5, 2008. King Engineering Associates, Inc.
2. **Westside Industrial Park, Warehouse Trip Generation Study–Eight Buildings, Duval County Florida*, December 5, 2008. King Engineering Associates, Inc.
3. **Trip Generation Study. High-Cube Warehouse Buildings, Fresno California*, January 19, 2007. Peters Engineering Group
4. **Trip Generation Study. Existing High-Cube Warehouse Buildings, Visalia California*, October 1, 2008. Peters Engineering Group
5. **Western Riverside County Warehouse/Distribution Center Trip Generation Study*, May 2008. Crain and Associates
6. **San Bernardino/Riverside County Warehouse/Distribution Center Vehicle Trip Generation Study (Inland Empire Study)*, January 2005. Crain and Associates
7. *Truck Trip Generation Study, City of Fontana*, August 2003. Transportation Engineering and Planning, Inc.

Together these seven studies include traffic counts for 68 different warehouse buildings. 35 of those warehouses are in California, and 25 are in the South Coast Basin. As a comparison, a total of 35 individual buildings were included in the ITE Trip Generation 8th Edition.

Data Analysis

In the ITE 8th Edition manual the trip rates range from 0.20-2.88 trips/TSF with an average of 1.44 and a standard deviation of 1.39. In order to investigate the high standard deviation and range of rates, all 68 warehouses from the above mentioned studies were investigated using overhead and oblique aerial photography to determine site-specific characteristics. Table 1 and Chart 1 present a statistical summary of trip rates determined from all seven studies. Based on this aerial reconnaissance, two factors were identified that may lower the reported trip rate for individual warehouses including the presence of a rail line serving the facility, and the potential partial vacancy of a facility.

Statistical Measure	Rail Service?	Potential Vacancy?	Number of Buildings	Trips/TSF
Minimum trip rate	No	Yes	68	0.17
Maximum trip rate	No	No	68	5.25
Average of all trip rates	Some	Some	68	1.57
Standard Deviation of all trip rates	Some	Some	68	0.81
95th Percentile of all trip rates	Some	Some	68	2.57
Average for CA warehouses	Some	Some	35	1.44
Average for SCAB warehouses	Some	Some	25	1.57
Average for all warehouses	Yes	Yes	14	0.73
Average for all warehouses	Yes	No	8	0.81
Average for all warehouses	No	Some	58	1.79
Average for all warehouses	No	No	54	1.91
95th Percentile for SCAB warehouses	No	No	13	3.68
95th Percentile for all warehouses	No	No	54	2.59
95th Percentile for all warehouses	Yes	No	8	1.63
ITE High-Cube warehouses	Some	Some	35	1.44

Table 1 Statistical summary of trip rates *CA= California, SCAB=South Coast Air Basin*

Rail lines are expected to lower the truck trip rate by diverting the transportation of goods from trucks to trains that directly service the facility. Rail service must include spurs that are adjacent to loading docks at the facility (Figure 1). Vacancies or partial vacancies in the trip rate studies are difficult to verify, however analysis of aerial photographs provides circumstantial evidence that anomalously low trip rates are associated with facilities with virtually no trucks parked at the loading docks at the time that the photograph was taken (Figure 2). While this accounts for the majority of the anomalously low trip rates, the lack of adequate business histories or historical photographic coverage make this correlation difficult to validate. Trip rates were also investigated in comparison to building size; however no correlation was identified (Chart 2).

In order to avoid underestimating the number of trips associated with large warehouse / distribution center operations without rail service, AQMD staff recommends that lead agencies utilize a rate of 2.59 trips per TSF for large warehouse air quality analyses on a project specific basis. The value of 2.59 from the nationwide dataset is preferable instead of the SCAB rate of 3.68 due to the greater reliability of data based on the larger sample size. For warehouses with rail service, a rate of 1.63 trips per TSF may be used. These values provide reasonable worst case default rates for individual new warehouses in the absence of more project-specific data.

In the case that air quality is evaluated for multiple warehouses (>10), such as in an analysis for a general plan, the average rate of 1.44 trips per TSF from the ITE 8th Edition Trip Generation manual is acceptable. This lower value may be more appropriate as on average, a small portion

of warehouses can be expected to operate at varying levels of service, including some warehouses experiencing temporary partial or complete vacancy.

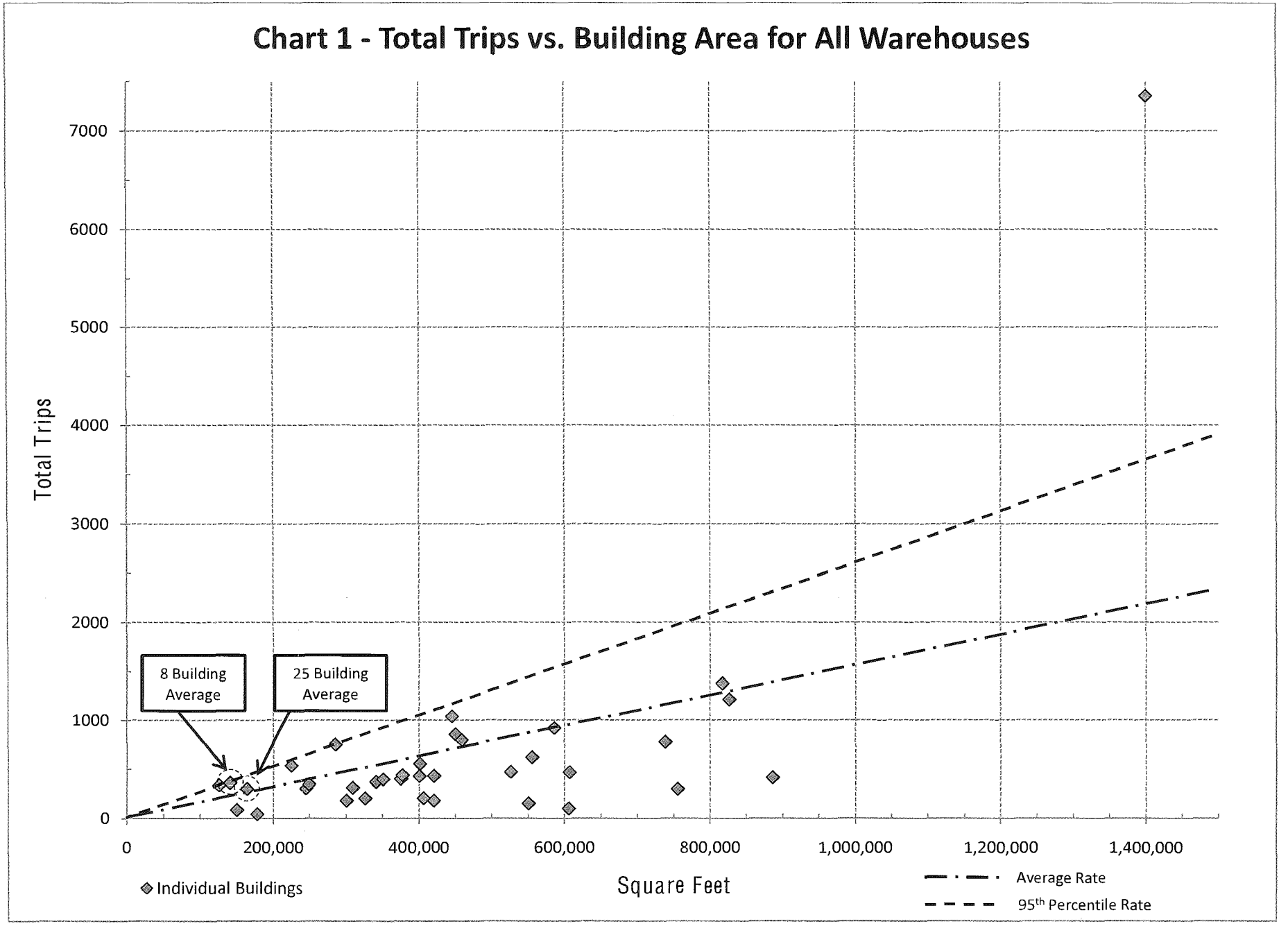
Fleet Mix

The fleet mix used in the URBEMIS model is derived from the regional average distribution of trips obtained from the EMFAC model. While this fleet mix may be appropriate for the majority of land uses, it may not be appropriate for specialized uses such as warehouses. For example, as reported in the ITE 8th Edition Trip Generation manual, truck trips may account for 9 to 29 percent of total trips. Five of the seven studies analyzed here did not report specific truck traffic data, though some generally reported similar rates. The Inland Empire study (#6) found that trucks accounted for 28 to 65 percent of total trips for the ten warehouses in the study, with an average of 48%. The Fontana study (#7) found that trucks make up approximately 20% of total trips for the four warehouses evaluated. This study also broke down the trip distribution among 2, 3, and 4+ axle trucks (3.46%, 4.64%, 12.33%, respectively). In order to avoid underestimating the number of trucks visiting warehouse facilities, AQMD staff recommends that lead agencies conservatively assume that an average of 40% of total trips are truck trips [(0.48*10 + 0.2*4)/(10+4)=0.4)]. Without more project-specific data (such as detailed trip rates based on a known tenant schedule), this average rate of 40% provides a reasonably conservative value based on currently available data.

The fleet mix from the Fontana study as quoted above may be used to determine the distribution of truck type. In order to convert the axle based fleet mix to the vehicle classes utilized by EMFAC, one of two methods may be used.

1. 4+ axles=HHDT, 3 axles=MHDT, 2 axles=LHDT1, all others=LDA
2. Caltrans *Transportation Project-Level Carbon Monoxide Protocol* Appendix B (illustrated below).
   %HDGT = 0.50(%2-axle) + 0.25(%3-axle) + 0.10(%4 axle)
   %HDDT = 0.50(%2-axle) + 0.75(%3-axle) + 0.90(%4-axle) + 1.0(%5-axle)
   All others=LDA

Chart 1 - Total Trips vs. Building Area for All Warehouses



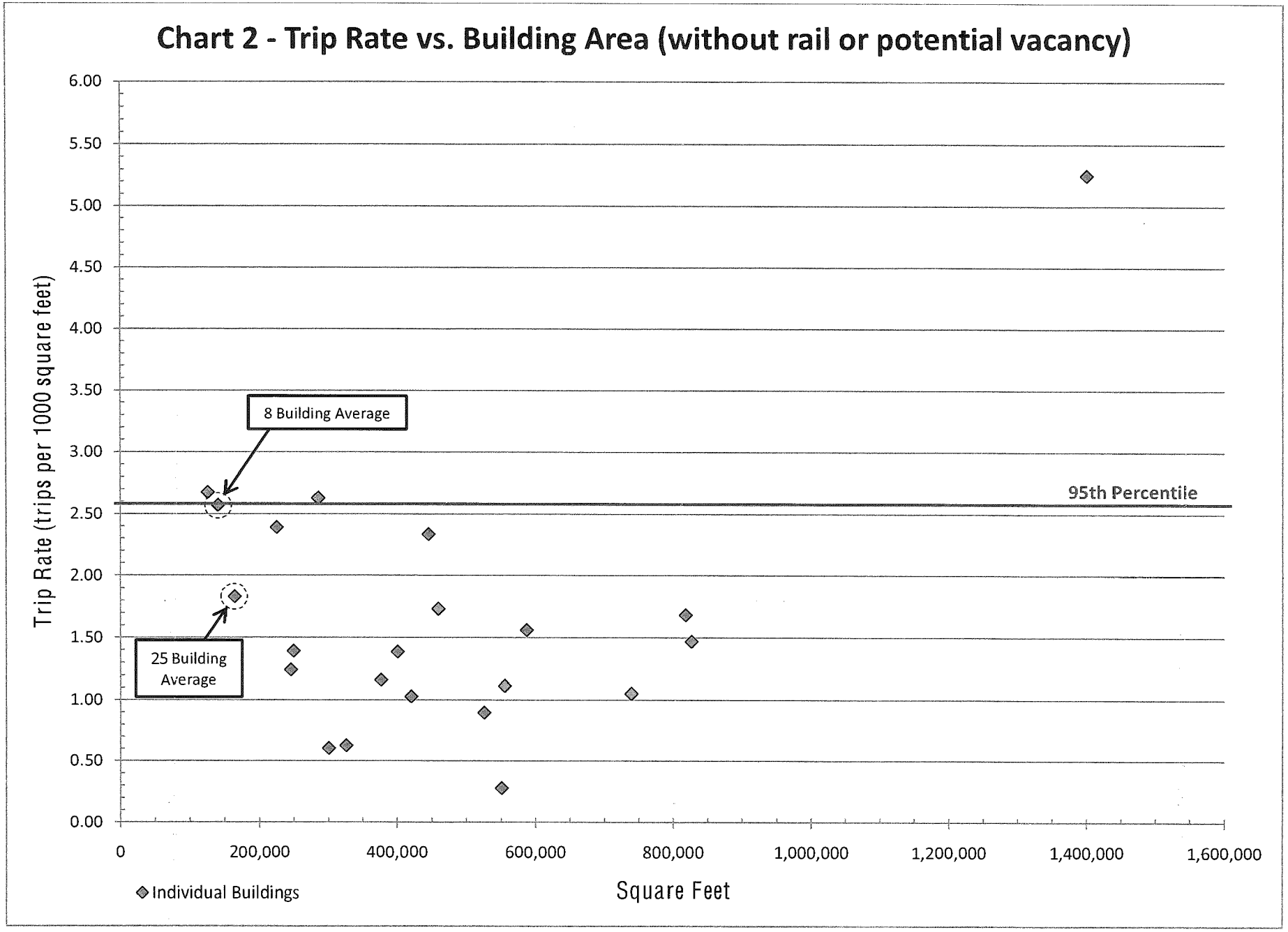


Chart 2 - Trip Rate vs. Building Area (without rail or potential vacancy)
Trip Rate (trips per 1000 square feet)
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
8 Building Average
95th Percentile
25 Building Average
0
200,000
400,000
600,000
800,000
1,000,000
1,200,000
1,400,000
1,600,000
Individual Buildings
Square Feet

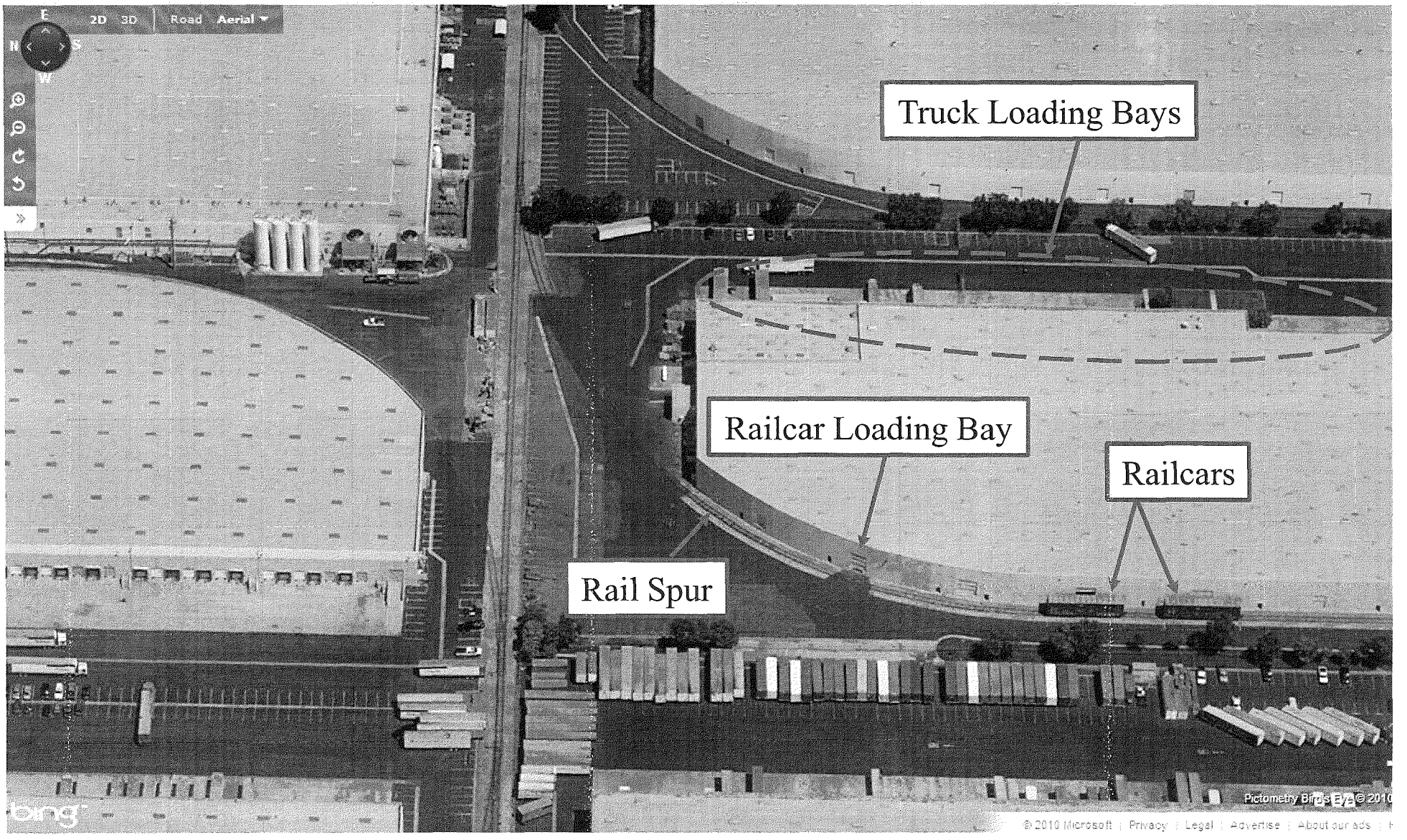


Figure 1 Oblique aerial photograph showing an example of a facility evaluated in the NAIOP San Bernardino County Truck Study. The truck trip rate for this facility was 1.13/TSF

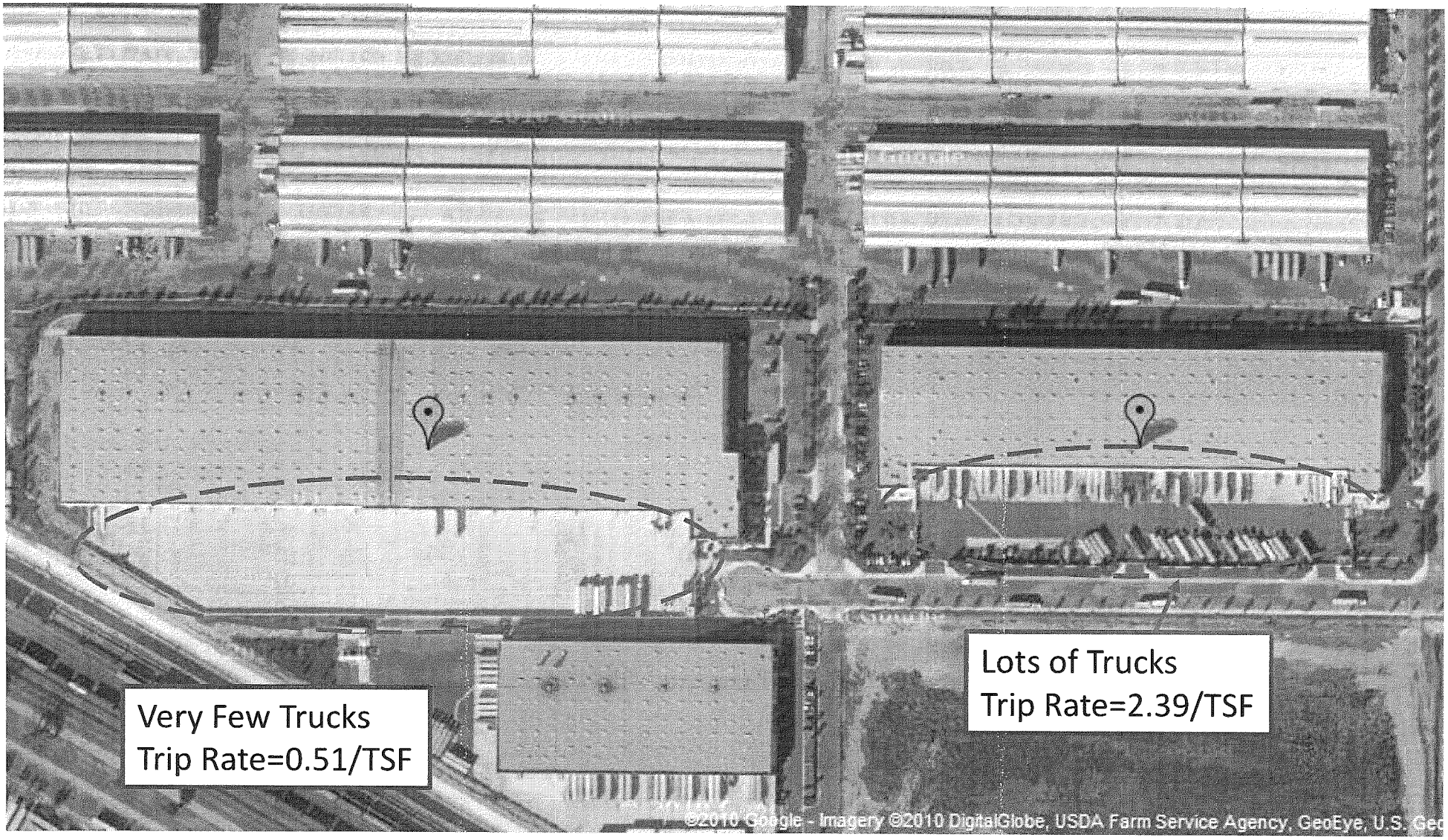


Figure 2 Aerial photograph showing an example of two facilities evaluated in the NAIOP Riverside County Truck Study. The facility on the left is suspected to be at least partially vacant.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

MEMORANDUM

Date: August 23, 2010

To: Jennifer Schulte, ENVIRON

From: David Robinson, Meghan Mitman, Fehr & Peers

Subject: ***Large Warehouse and Distribution Center Trip Rates***

SF10-0495

Fehr & Peers completed its review of the Large Warehouse and Distribution Center Trip Rates white paper prepared by the Southern California Air Quality Management District (SCAQMD). The white paper presents the results of a meta-analysis of seven trip generation studies of warehouse and distribution centers located in California and Florida.

Our review of the white paper focused on the recommended trip generation rates presented in Table 1 (Statistical Summary of Trip Rates) and the statistical analysis provided in file SCAQMD Trip Rate Study_7-21-10.xlsx). We have the following observations based on our review:

- Use of 95 Percentile – The recommended trip generation rates are based on the 95 percentile of trip generation rate observations. The 95 percentile trip generation rate can be defined as the lowest trip generation rate that is greater than 95 percent of the observed trip generation rates. The use of the 95 percentile may be overly conservative. Another approach would be to base the recommended trip generation rate on the 95 percentile confidence interval, which would result in a trip generation rate between the average and 95 percentile rates for all warehouses.

- Observations – Both studies from Florida (i.e., reference 1 and 2 on Page 2) were treated as single observations to calculate the average trip generation rate for all warehouses, but were treated as multiple observations for the standard deviation calculation, which would affect the calculation of the confidence interval (discussed above). These studies and corresponding trip generation rates are based on the combined trip generation and building area of multiple buildings/uses in the same industrial park. One study included 31 buildings and the other included 9 buildings. The building size ranged from about 64,000 to about 440,000 square-feet.

- Outliers – One observation from the Fontana study (i.e., reference 7 on Page 2) is considerably higher than the other observations. Eliminating this observation results in a 20% decrease in the average trip generation rate for all warehouses.

Clarification Responses by SCAQMD regarding Fehr and Peers August 23, 2010 Memorandum
Large Warehouse and Distribution Center Trip Rates

Use of 95 Percentile

- AQMD STAFF RESPONSE – A CONFIDENCE INTERVAL APPROACH IS INAPPROPRIATE FOR A CEQA AIR QUALITY ANALYSIS AS THIS GIVES THE ODDS THAT A NEW POPULATION WILL RETURN AN AVERAGE WITHIN THE CONFIDENCE INTERVAL. IN THE CONTEXT OF CEQA, AIR QUALITY ANALYSES SHOULD EVALUATE A REASONABLE WORST CASE SCENARIO SO AS NOT TO UNDERESTIMATE IMPACTS. THIS CONERVATIVE APPROACH IS SUPPORTED BY CEQA CASE LAW AND IS CONSISTENT WITH AQMD GUIDANCE ON PREPARING AIR QUALITY ANALYSES. ALSO, IT IS WORTH NOTING THAT 11 OUT OF 54 BUILDINGS ARE ALREADY AT OR ABOVE THE 95^{TH} PERCENTILE.

Observations

- AQMD STAFF RESPONSE – THE STATISTACAL APPROACH DESCRIBED IN THIS COMMENT DOES NOT MAKE AFFECT THE TRIP RATE. SPLITTING OUT INDIVIDUAL BUILDINGS FOR THE AVERAGE DOESN'T ALTER THE TRIP RATE SINCE THE AVERAGE IS TRIPS/SQ. FT. HOWEVER, THE NUMBER OF INDIVIDUAL BUILDINGS ARE NEEDED FOR THE STANDARD DEVIATION, SO THE FLORIDA STUDIES WERE SPLIT UP TO OBTAIN A CORRECT 'N' (EVERY BUILDING WAS ASSIGNED THE SAME RATE).

Outliers

- AQMD STAFF RESPONSE - THIS IS EXACTLY THE POINT, IF WE KNOW THAT SOME BUILDINGS HAVE A RATE CONSIDERABLY HIGHER THAN OTHER BUILDINGS, THEN THE USE OF AVERAGES MAY CONSIDERABLY UNDERESTIMATE POTENTIAL AIR QUALITY IMPACTS. THIS IS ESPECIALLY IMPORTANT FOR ANY SENSITIVE RECEPTORS THAT MAY BE LOCATED IN CLOSE PROXIMITY TO EITHER THE FACILITIES OR THE TRUCK ROUTES SERVING THEM. UNLIKE SOME OTHER STATISTICAL STUDIES, THIS SINGULAR HIGH RATE (FROM A SMALL DATASET) IS NOT A MEASUREMENT ERROR, HENCE IT SHOULD NOT BE DISCARDED AS IT IS A REAL FACILITY WITH REAL IMPACTS IN THE COMMUNITY.