



El Monte Walmart

GREENHOUSE GAS ANALYSIS

CITY OF EL MONTE

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08344-05 GHG Report

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LIST OF ABBREVIATED TERMS

(1)	Reference
ARB	California Air Resources Board
AQIA	Air Quality Impact Analysis
BAU	Business as Usual
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAP	Climate Action Plan
CAT	Climate Action Team
CBSC	California Building Standards Commission
CCR	California Code of Regulations
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CO	Carbon Monoxide
CREED	Citizens for Responsible Equitable Environmental Development
EISA	Energy Independence and Security Act
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
Gg	Gigagrams
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
MMTCO ₂ e	Million Metric Ton of Carbon Dioxide Equivalent
MTCO ₂ e	Metric Ton of Carbon Dioxide Equivalent

NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health
NOx	Oxides of Nitrogen
PFCs	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	El Monte Walmart
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
TSF	Thousand Square Feet
UNFCCC	United Nations' Framework Convention on Climate Change
USEPA	United States Environmental Protection Agency
WCI	Western Regional Climate Action Initiative
ZEV	Zero Emission Vehicle

1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Walmart in El Monte (referred to as “Project”).

The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the 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 (California Air Resource Board (CARB) Scoping Plan, Scoping Plan) developed to implement Assembly Bill (AB) 32,(referred to herein as “Business as Usual” or BAU); and second, GHG emissions levels resulting from AB 32 compliance measures complemented by physical design and operational programs to be implemented under the Project.

1.1 PROJECT LOCATION

The Project site is located within the northwestern portion of the City of El Monte, within Los Angeles County, near the intersection of Valley Boulevard and Arden Drive. Specifically, Arden Drive borders the Project site to the west; the boundary of an existing City of El Monte Maintenance Facility located northerly of Rose Avenue comprises the site’s northerly boundary; Valley Circle forms the site’s easterly boundary; and parcels containing industrial/office facilities with Valley Boulevard frontages comprise the site’s southerly boundary. Please refer also Exhibit 1-A, “Project Location.”

1.2 EXISTING LAND USES AND LAND USE DESIGNATIONS

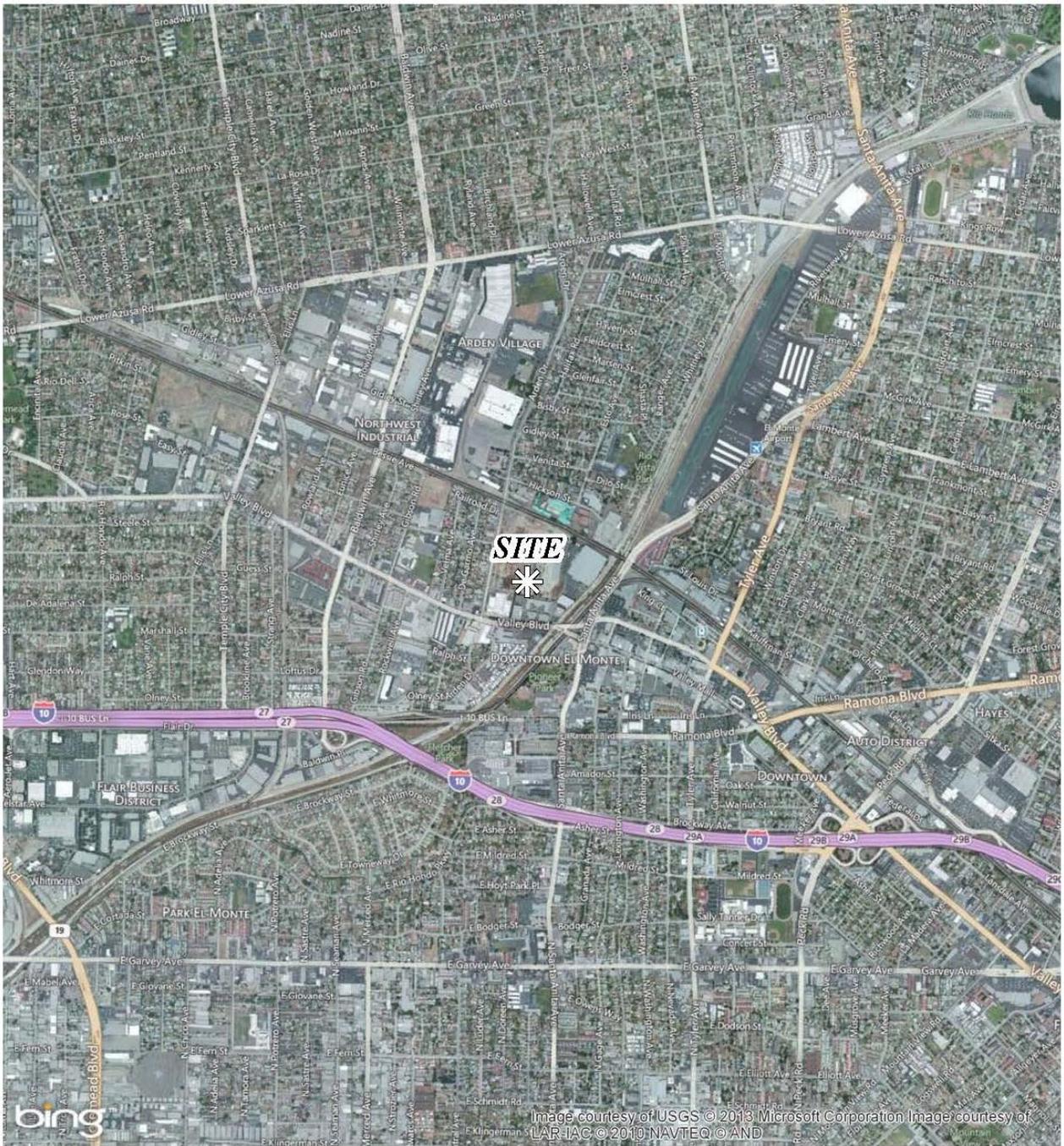
The following discussions summarize existing land use conditions in the Project vicinity and provide context for the Project.

1.2.1 EXISTING LAND USES

The Project site (APN 8575-024-043) is roughly rectangular in shape, totaling approximately 15.41 acres. The Project site, as shown on Exhibit 1-B, “Existing Land Uses” is essentially level and currently vacant. The site was historically used for agriculture and the manufacturing of glass products and, more recently, the production of food and beverage containers. Manufacturing facilities previously occupying the Project site were demolished in 2011.

The Project site has been extensively disturbed by human activities, including demolition of facilities and associated heavy equipment operations. The Project site evidences no topographic features of note; nor is any protected or intrinsically valuable biologic habitat located within the Project site. The limited vegetation that does exist within the Project site consists primarily of non-native, ruderal grasses and shrubs evident along the perimeter of the Project site.

EXHIBIT 1-A: LOCATION MAP



The Project site has been rough-graded, and is essentially flat, with an elevation of approximately 280 feet above mean sea level (MSL). The Project grading plan concept indicates that approximately 4,000 cubic yards of soil would be exported from the site in the course of Project development.

1.2.2 VICINITY LAND USES

To the west of the Project site, across Arden Drive, properties include a mix of single-family residential and commercial uses. To the north, an existing City of El Monte Maintenance Facility and associated parking areas border the Project area. To the east, between the Project boundary and the Rio Hondo Channel, are existing industrial facilities. To the south, parcels abutting the Project site contain large-scale industrial, commercial and municipal office buildings, with frontages on Valley Boulevard. An existing masonry wall separates these uses from the Project.

As seen in the following Exhibit 1-B, “Existing Land Uses,” two (2) El Monte City School District elementary schools are located in the vicinity of the Project site. The first of these is Shirpsper Elementary School, which serves grades K-5, and is located at 4020 Gibson Road, approximately 800 feet west of the Project’s westerly boundary. The other District school, Rio Vista Elementary School, serves grades K-6 and is located at 4300 North Esto Avenue, approximately one-quarter mile northeasterly of the Project site. In addition to the above District schools, The Nativity Catholic School (a private school serving grades K-12) is located at 10907 St. Louis Drive, approximately one-third mile easterly of the Project site, across the Rio Hondo Channel.

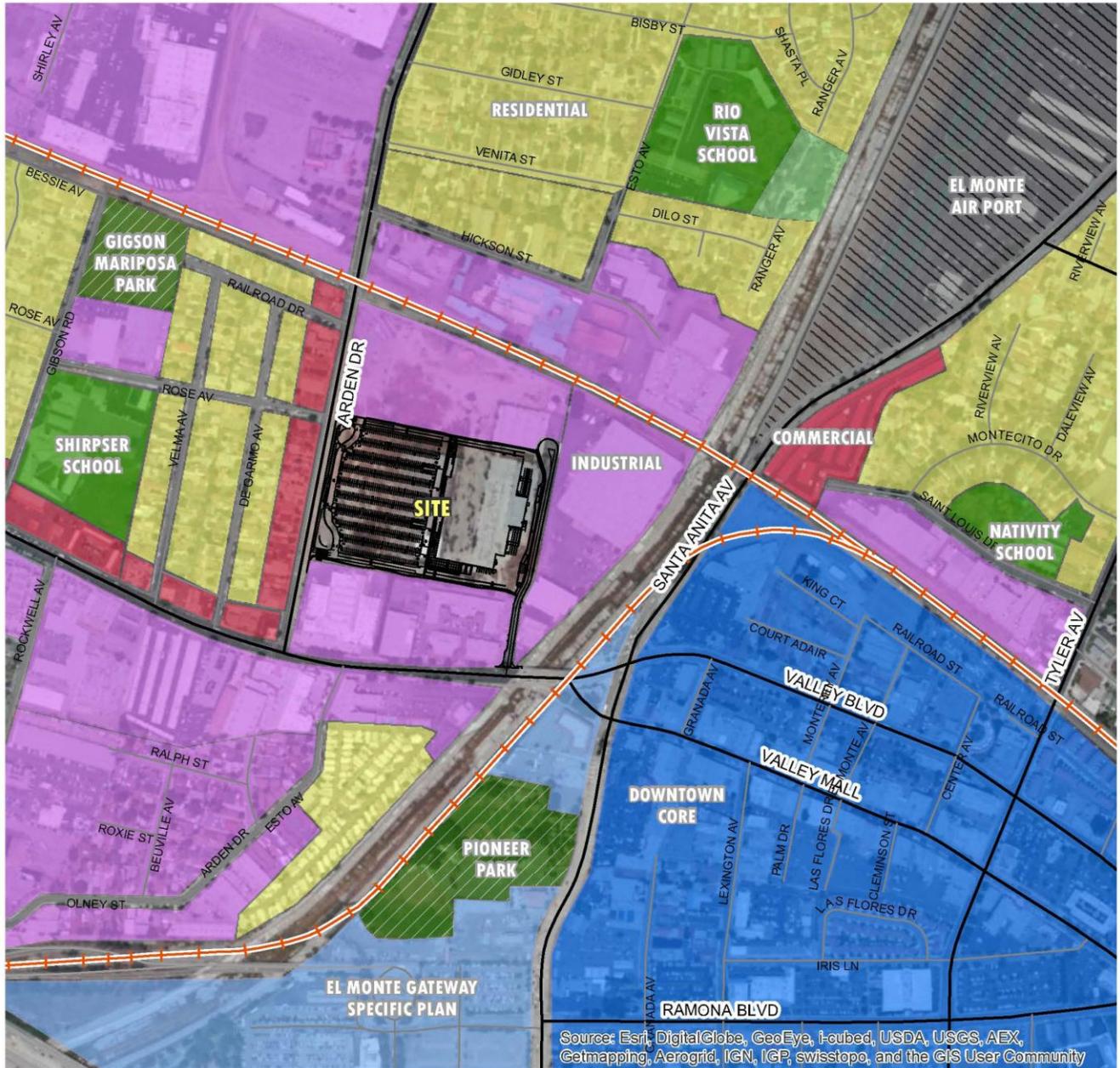
Other notable physical features in the Project vicinity include the Rio Hondo Channel (Channel), a fully improved flood control facility traversing the westerly portions of the City. The Channel conveys stormwater from Peck Water Conservation Park (approximately 2.5 miles northeasterly of the Project site) beyond the City limits, ultimately merging with the Los Angeles River approximately twelve (12) miles southwesterly of the City. The River then drains southerly for approximately twelve (12) miles to its terminus at the Port of Long Beach/Pacific Ocean. The Rio Hondo Bike Path parallels the Channel’s east side. Pioneer Park, a City cultural and recreational facility, is located along the Rio Hondo Bike Path at 3575 Santa Anita Avenue, on the easterly side of the Channel, approximately 1,000 feet southerly of the Project site. Additionally, a Union Pacific/Metrolink rail line configured in a generally northwest-to-southeast orientation is located approximately 600 feet northerly of the Project site, northerly of the City’s maintenance facility and an adjacent California Department of Motor Vehicles (DMV) office.

1.2.3 EXISTING LAND USE DESIGNATIONS

The City of El Monte General Plan Land Use designation of the Project site is “Industrial/Business Park.” Zoning designation of the site is “General Manufacturing,” (M-2). The Applicant is requesting an amendment to the site’s existing General Plan land use designation to “General Commercial” and a zone change to “Heavy Commercial” (C-4) to reflect the intended use of the property. Additionally, the Project includes the modification of the boundaries of the Northwest Industrial District to remove that portion generally located east of Arden Drive and south of the Southern Pacific Railroad.

Vicinity properties are designated for a variety of land uses ranging from industrial and commercial to residential and open space (parks).

EXHIBIT 1-B: EXISTING LAND USES



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LEGEND:

- | | | | |
|---|----------------------------------|---|---------------------------------------|
|  | = EL MONTE AIRPORT |  | = RESIDENTIAL |
|  | = COMMERCIAL |  | = PARK |
|  | = INDUSTRIAL |  | = SCHOOL |
|  | = DOWNTOWN CORE |  | = OPEN SPACE |
|  | = EL MONTE GATEWAY SPECIFIC PLAN |  | = UNION PACIFIC / METROLINK RAIL LINE |

1.3 PROJECT ELEMENTS

1.3.1 SITE PREPARATION

Following the completion of any necessary site remediation activities involving near-surface soils, the Project site would be graded in preparation for building construction.

Any existing surface improvements within the Project site (e.g., remnant paving and concrete pads) would be demolished and the site would be rough-graded and fine-graded in preparation of building construction. Existing grades within the Project site would be modified to establish suitable building pads and to facilitate site drainage. The current grading plan concept indicates that approximately 4,000 cubic yards of soil would be exported from the site over the course of project development.

Debris generated during site preparation activities would be disposed of and/or recycled consistent with the City's Source Reduction and Recycling Element (SRRE). In this latter regard, Walmart would develop and implement a Construction and Demolition (C&D) program to capture and recycle metals, woods, floor and ceiling tiles, concretes, asphalts and other materials that may be generated as part of Project implementation.

1.3.2 DEVELOPMENT CONCEPT

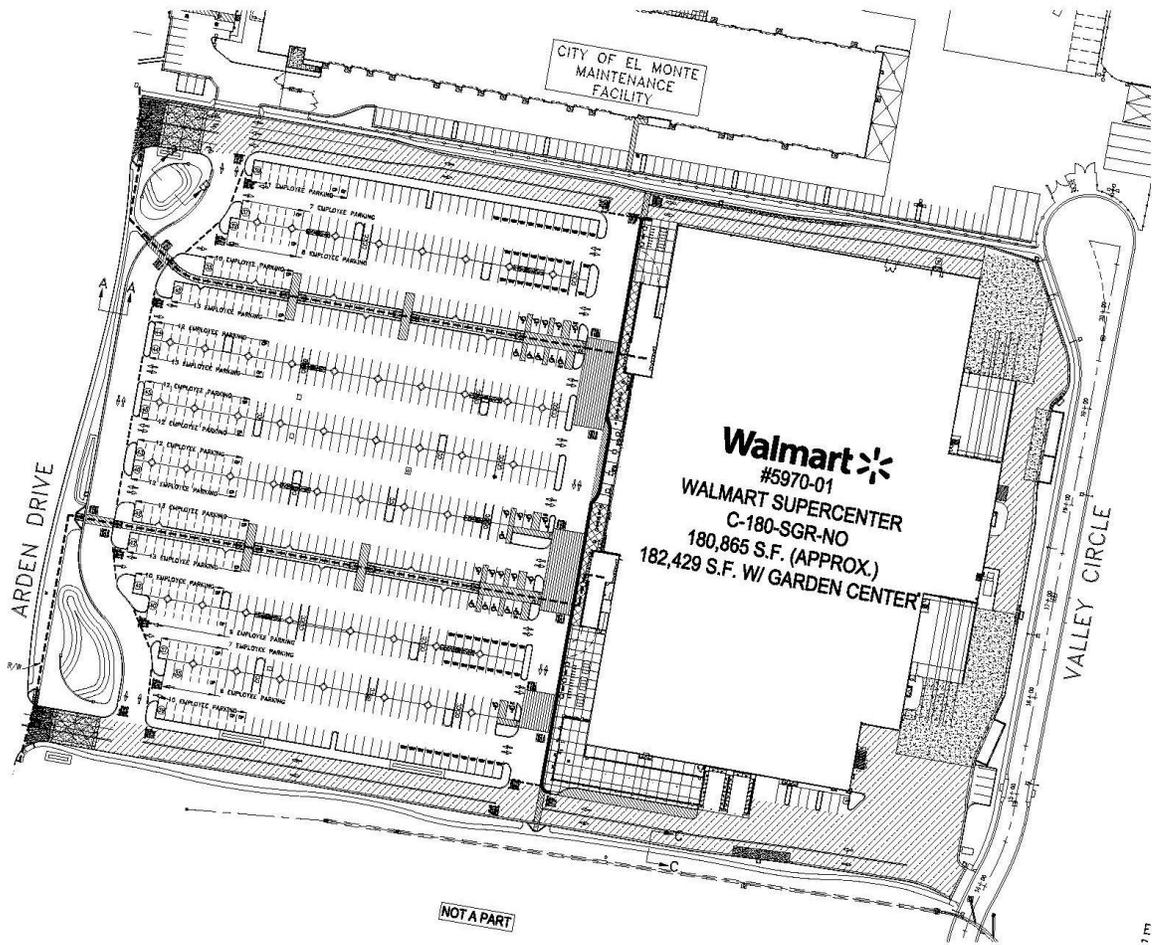
The Project proposes development of an approximately 182,429-square-foot¹ Walmart, within an approximately 15.41-acre site. In addition to offering general merchandise and groceries, the Walmart would include a bakery, deli, photo lab, off-site alcohol sales, along with a food tenant (e.g., McDonalds), a non-food tenant (e.g., a bank, medical clinic, portrait studio or salon), and an outdoor garden center. The Project would also implement associated access, circulation, parking and loading facilities, and supporting infrastructure improvements. Orientation of proposed uses within the Project site is illustrated at Exhibit 1-C, "Site Plan Concept." Consistent with guidelines and requirements of the City General Plan and Municipal Code, building concepts proposed by the Project reflect a contemporary commercial architectural style evidencing articulated surfaces and roof lines, and employing varied exterior finish materials.

It is noted here that the location and sizes of proposed facilities within the Project site are approximate, but considered accurate for planning and environmental evaluation purposes. Ultimate configuration and orientation of the facilities proposed by the Project are subject to City review and approval. However, such changes would not substantively affect environmental analyses or conclusions presented herein.

The Project would be designed, constructed, and operated in a manner that would act to reduce resource consumption and promote the efficient use of energy, water, and construction materials, with correlating environmental benefits. Please refer also to Section 1.4, "Energy Efficiency/Sustainability" providing descriptions of energy efficiency and sustainability elements and programs incorporated in the Project.

¹ For analysis purposes, as a conservative measure, we have used a building square footage of 182,500 which is consistent with the Traffic Impact Analysis which would overstate rather than understate Project emissions

EXHIBIT 1-C: PRELIMINARY SITE PLAN



The Project would also be designed in accordance with applicable building code requirements including but not limited to: Americans with Disabilities Act (ADA); California Building Code (CBC); California Green Building Standards Code Green Building Code (CALGreen); applicable General Plan design standards, policies and programs; and requirements of the City Municipal Code.

For the purposes of this analysis, it is assumed that the Project would be constructed and at full occupancy by 2016.

1.4 PROJECT SUSTAINABILITY FEATURES

1.4.1 GENERAL

As implemented and operated, the Project will meet or surpass all California Title 24 Energy Efficiency Standards. To this end, the Project will be implemented consistent with established Walmart practices providing for energy efficiency, energy conservation, and use of alternative energy sources (summarized below). Energy-saving and sustainable design features and operational programs incorporated in the Project are summarized and described below. Pursuant to Mitigation Measure AQ-4 presented herein, the Project would be required to demonstrate a minimum 5% improvement on requirements and performance standards established under the Building Energy Efficiency Standards contained in the California Code of Regulations (CCR), Title 24, Part 6 (Title 24, Title 24 Energy Efficiency Standards).

BUILDING ENERGY AND RESOURCE CONSERVATION

Lighting:

- The entire store would include occupancy sensors in most non-sales areas, including restrooms, break rooms, and offices. The sensors automatically turn the lights off when the space is unoccupied.
- All lighting in the store would consist of T-8 fluorescent lamps and electronic ballasts, resulting in up to a 15 to 20 percent reduction in energy load.
- All exterior building signage and many refrigerated food cases would be illuminated with light emitting diodes (LEDs). In refrigerated food cases, LEDs perform well in the cold and produce less heat (which must be compensated for by the refrigeration equipment) than fluorescent bulbs. LEDs also contain no mercury or lead. LED technology is up to 52 percent more energy efficient than fluorescent lights. Total estimated energy savings for LED lighting in the store's grocery section is approximately 59,000 kWh per year, enough energy to power five single family homes.
- The store would include a daylight harvesting system, which incorporates more efficient lighting, electronic continuous dimming ballasts, skylights and computer controlled daylight sensors that monitor the amount of natural light available. During periods of higher natural daylight, the system dims or turns off the store lights if they are not needed, thereby reducing energy use. This program would help the store save a substantial amount of energy. Dimming and turning off building lights also helps eliminate unnecessary heat in the building.

Central Energy Management System:

- Walmart employs a centralized energy management system (EMS) to monitor and control the heating, air conditioning, refrigeration and lighting systems for all stores from Walmart's corporate headquarters in Bentonville, Arkansas. The EMS enables Walmart to constantly monitor and control the expanded store's energy use, analyze refrigeration temperatures, observe HVAC and lighting performance, and adjust system levels from a central location 24 hours per day, seven days per week. Energy use for the entire store would be monitored and controlled in this manner.

Heating Ventilation and Air Conditioning (HVAC) Systems:

- The store would employ energy efficient heating (HVAC) systems surpassing industry baseline standards and California Title 24 requirements. In this regard, current designs for Walmart stores incorporate HVAC systems rated as among the industry's most energy efficient.

Dehumidification:

- The Walmart store would include a dehumidifying system allowing the store to operate comfortably at a higher interior temperature, use less energy for air conditioning, and allow the air conditioning/refrigeration systems to operate more efficiently.

White Roofs:

- The store would utilize a white membrane roof instead of the typical darker colored roof materials employed in commercial construction. The white membrane roof's higher reflectivity helps reduce building energy consumption and reduces the heat island effect, as compared to buildings utilizing darker roofing colors.

Refrigeration:

- Refrigeration equipment is typically roof-mounted proximate to refrigerated cases. This reduces the amount of copper refrigerant piping, insulation, and minimizes the potential for refrigerant leaks and attendant demands for refrigerant recharging. Walmart uses non ozone-depleting refrigerants (R407a and R410a) for refrigeration equipment and air conditioning, respectively.

Heat Reclamation:

- The proposed Walmart store would reclaim waste heat from onsite refrigeration equipment to supply approximately 70 percent of the hot water needs for the store.

Water Conservation:

- Walmart would install high-efficiency urinals that use only one-eighth (1/8) gallon of water per flush. This fixture reduces water use by 87 percent compared to the conventional one gallon per flush urinal. The 1/8 gallon urinal also requires less maintenance than waterless urinals.
- All restroom sinks would use sensor-activated one-half (1/2) gallon per minute high-efficiency faucets. These faucets reduce water use by approximately 75 percent when compared to mandated 1992 EPA Standards. During use, water flows through turbines built into the faucets to generate the electricity needed to operate the motion sensors.

- Water efficient restroom toilets would be employed in the Walmart restrooms. These fixtures use 20 percent less water compared to mandated EPA Standards of 1.6 gallon per flush fixtures.
 - The toilets utilize built-in water turbines to generate the power required to activate the flush mechanism. These turbines save energy and material by eliminating electrical conduits required to power automatic flush valve sensors.
 - It is estimated that Walmart's water conservation measures could save up to 530,000 gallons of water annually at this store.

Material and Finishes:

Cement Mixes

- The store would be built using cement mixes that include 15 to 20 percent fly ash, a waste product of coal-fired electrical generation, or 25 to 30 percent slag, a by-product of the steel manufacturing process. By incorporating these waste product materials into its cement mixes, Walmart offsets the greenhouse gases emitted in the cement manufacturing process.
- The store would use Non-Reinforced Thermoplastic Panel (NRP) in lieu of Fiber Reinforced Plastic (FRP) sheets on the walls in areas where plastic sheeting is appropriate, including food preparation areas, utility and janitorial areas, and associate break rooms. NRP can be recycled, has better impact resistance and, like FRP, is easy to keep clean.
- The store would employ a plant-based oil extracted from a renewable resource as a concrete form release agent (a product sprayed on concrete forms to allow ease of removal after the concrete has set). This release agent is nonpetroleum based non-toxic and a biodegradable agent. For the store's exterior and interior field paint coatings, Walmart would use low-volatile organic (VOC) content paint consistent with South Coast Air Quality Management District (SCAQMD) requirements.
- Paint products required for the Project would be primarily purchased in 55 gallon drums and 275 gallon totes, reducing the number of one gallon and five gallon buckets needed. These plastic buckets are filled from the drums and totes and then returned to the paint supplier for cleaning and reuse.
- Exposed concrete floors are used where appropriate thereby reducing surface applied flooring materials. Use of exposed concrete floors also substantially reduces the need for most chemical cleaners, wax strippers, and propane-powered floor buffing.

Recycled Building Materials

- Construction of the store would use steel containing approximately 90 to 98 percent recycled structural steel, which utilizes less energy in the mining and manufacturing process than does new steel.
- All of the plastic baseboards and much of the plastic shelving employed in the store would be composed of recycled plastic.

Construction and Demolition (C&D) Recycling

- Walmart would develop and implement a Construction and Demolition (C&D) program at this location in order to capture and recycle as much of any metals, woods, floor and ceiling tiles, concretes, asphalts and other materials that may be generated as part of Project implementation. Walmart would work with the City and serving waste management company to

fully research all available C&D recycling facilities in the area, and the Walmart C&D program would seek to include the widest possible range of materials recovery options. Throughout the course of Project construction, any demolished concrete or asphalt, concrete truck wash out, scrap building materials and construction refuse would be removed and recycled/disposed of consistent with the City's adopted Source Reduction and Recycling Element (SRRE), thereby maximizing reuse of building materials and minimizing recyclables placed within landfills.

Other Energy Conservation/Sustainability Considerations

Pedestrian Walkways:

Pedestrian paths and pedestrian crosswalks would be provided consistent with City of El Monte requirements, allowing for patrons to safely walk within the Project site, and to adjacent off-site areas. Provision of functional and safe pedestrian paths tends to reduce the number short vehicle trips and vehicle startups, with associated reductions in fuel consumption.

Bicycle Racks:

Consistent with City of El Monte requirements, bicycle racks and bicycle lockers would be provided on-site, facilitating bicycle use by Project employees and customers. Provision of bicycle racks and bicycle lockers facilitates and encourages use of bicycles with correlating reductions in vehicle fuel consumption.

Location:

Location of the Project proximate to major roadways within an urban context also results in traffic/transportation efficiencies in that the Project's commercial/retail facilities are readily accessible and proximate to customers and patrons, generally reducing vehicle miles traveled (VMT) and associated consumption of resources.

Transit Services:

The Project would accommodate a mix of automobile, pedestrian, and transit modes of transportation. In this latter regard, location of the Project along Arden Drive provides access to proximate City of El Monte bus services. The City of El Monte Transportation Services Division "Red Route" travels along Arden Avenue with approximate 40 minute service intervals. A bus stop is currently located at Valley Boulevard and Arden Avenue.

Serving transit agencies (in this case the City of El Monte Transportation Services Division) routinely review and adjust their ridership schedules to accommodate public demand. The need for transit-related facilities, including but not limited to bus turn outs and bus shelters, would be coordinated between the City and the Project Applicant, with specific input from the City Transportation Services Division as part of the City's standard development review process.

1.5 SUMMARY OF FINDINGS

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

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) ² or a methodology for quantifying GHG emissions. To evaluate GHG emissions impact significance, GHG emissions that would be generated pursuant to development of the Project area are compared with a GHG emissions “Business as Usual” scenario. This comparison indicates whether GHG emissions generated by development of the Project area would likely be consistent with the CARB Scoping Plan GHG emissions reductions measures and GHG emissions reductions targets. In summary, the Scoping Plan reflects implementation of measures that would achieve an approximate 28.5% reduction in GHG emissions when compared to GHG emissions produced under a “Business as Usual” scenario (1).

Results of the analysis indicate that the Project GHG emissions would not result in or cause a potentially significant impact on the environment. To this end, the analysis demonstrates that the Project is consistent with, or otherwise not in conflict with, recommended measures and actions in the CARB Scoping Plan. The Scoping Plan establishes strategies and measures to implement in order to achieve the GHG reductions goals set forth in the Global Warming Solutions Act of 2006 (AB 32). As shown in Table 1-1, Project GHG emissions would be reduced by approximately 36.06% when compared to the BAU scenario. This reduction is consistent with the target reduction percentage of 28.5% based on CARB’s analysis supporting AB 32.

² SCAQMD has adopted interim significance thresholds for industrial sources of 10,000 metric tons of carbon dioxide equivalent (CO₂e) per year. The Board adopted these thresholds December 5, 2008. This threshold however was adopted by SCAQMD for projects where it is the lead agency and applies specifically to “industrial” projects.

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

Category	CO2e Emissions	
	BAU	Project
	Metric Tons per Year	
Construction	23.09	23.09
Energy Use	895.19	614.37
Mobile Sources (Traffic)	10,479.09	6,521.28
Waste Disposed	357.05	357.05
Water Use	93.77	59.53
Total	11,848.22	7,575.35
Project Improvement over BAU	36.06%	

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

Consistency with AB 32

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

The Project would generate GHG emissions from a variety of sources which would all emit Carbon Dioxide (CO₂), Methane (CH₄) and N₂O. GHGs could also be indirectly generated by incremental electricity consumption and waste generation from the Project.

As stated previously, the CARB Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32. The CARB Scoping Plan recommendations serve as statewide measures to reduce GHG emissions levels. Project consistency with applicable CARB Scoping Plan GHG emissions reduction measures is summarized at Table 1-2.

TABLE 1-2: PROJECT CONSISTENCY WITH SCOPING PLAN GREENHOUSE GAS EMISSION REDUCTION

Scoping Plan Measure	Measure Number	Remarks
Pavley Motor Vehicle Standards (AB 1493)	T-1	Employees and customers would purchase vehicles in compliance with incumbent CARB vehicle standards
Limit High GWP Use in Consumer Products	H-4	Employees and customers would use consumer products that would comply with the incumbent regulations
Motor Vehicle Air Conditioning Systems – Reduction from Non-Professional Servicing	H-1	Employees and customers would be prohibited from performing air conditioning repairs and required to use professional servicing.
Tire Pressure Program	T-4	Motor vehicles driven by employees and customers would maintain proper tire pressure when vehicles are serviced.
Low Carbon Fuel Standard	T-2	Motor vehicles driven by employees and customers would use fuels that are compliant with incumbent standards.
Water Use Efficiency	W-1	Development proposals within the Project site would implement measures to minimize water use and maximize efficiency.
Green Buildings	GB-1	Development proposals within the Project site would be constructed in compliance with incumbent state or local green building standards.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by employees and customers would comply with the leak test requirements during smog checks.
Energy Efficiency Measures (Electricity)	E-1	The Project would comply with incumbent electrical energy efficiency standards
Energy Efficiency (Natural Gas)	CR-1	Development proposals within the Project site would comply with incumbent natural gas energy efficiency standards
Greening New Residential and Commercial Construction	GB-1	Development proposals within the Project site would comply with incumbent green building standards
Greening Existing Homes and Commercial Buildings	GB-1	Development proposals within the Project site would meet retrofit standards as they become effective.

1.6 OTHER REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air pollutant emissions. Those that are applicable to the Project and that would assist in the reduction of greenhouse gas emissions include:

- Global Warming Solutions Act of 2006 (AB32)(2)
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375)(3). Supports the State's climate action goals to reduce greenhouse gas (GHG) emissions through coordinated transportation and land use planning with the goal of more sustainable communities.
- Pavely 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).

1.7 CONSTRUCTION ACTIVITY MITIGATION MEASURES

The Project Air Quality Impact Analysis (AQIA) establishes construction activity mitigation measures that would globally reduce air pollutant emissions generated by subsequent development proposals within the Project site. Although these measures could act to reduce GHG emissions, there is insufficient data to support any reductions associated with the construction activity mitigation measures identified in the AQIA. Thus, as a conservative measure no reduction in GHG emissions are taken for construction activity mitigation measures identified in the AQIA.

1.8 OPERATIONAL ACTIVITY MITIGATION MEASURES

The Project AQIA establishes operational activity mitigation measures that would globally reduce air pollutant emissions generated by subsequent development proposals within the Project site. These same measures would act to reduce GHG emissions, and are restated here:

Operational-Source Mitigation Measures

MM AQ-4

Prior to the issuance of building permits, the Project applicant shall submit energy usage calculations to the Planning Division showing that the Project is designed to achieve 5% efficiency beyond then incumbent California Building Code Title 24 requirements. Example of measures that reduce energy consumption include, but are not limited to, the following (it being understood that the items listed below are not all required and merely present examples; the list is not all-inclusive and other features that reduce energy consumption also are acceptable):

- Increase in insulation such that heat transfer and thermal bridging is minimized;
- Limit air leakage through the structure and/or within the heating and cooling distribution system;
- Use of energy-efficient space heating and cooling equipment;
- Installation of electrical hook-ups at loading dock areas;
- Installation of dual-paned or other energy efficient windows;
- Use of interior and exterior energy efficient lighting that exceeds then incumbent California Title 24 Energy Efficiency performance standards;
- Installation of automatic devices to turn off lights where they are not needed;
- Application of a paint and surface color palette that emphasizes light and off-white colors that reflect heat away from buildings;
- Design of buildings with “cool roofs” using products certified by the Cool Roof Rating Council, and/or exposed roof surfaces using light and off-white colors;
- Installation of ENERGY STAR-qualified energy-efficient appliances, heating and cooling systems, office equipment, and/or lighting products; and/or

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Enhanced Water Conservation Required: To reduce water demands and associated energy use, subsequent development proposals within the Project site incorporate a Water Conservation Strategy and demonstrate a minimum 30% reduction in outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy)³.

Development proposals within the Project site shall also implement the following:

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

³ The analysis includes a reduction of 20% indoor water usage consistent with the current CalGreen Code (11) for residential and non-residential land uses. Per CalGreen, the reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code.

2 BACKGROUND

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 Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to effect a discernible change in global climate. However, the Project may participate in the potential for GCC by its incremental contribution of greenhouse gases combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 evaluates the potential for the 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 gigagrams (Gg) Carbon Dioxide Equivalent (CO₂e⁴)(11) (12). 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.

⁴ 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 (13). 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 UNION⁵

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 2008 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2008 greenhouse gas emissions inventory, California emitted 474 Million Metric Ton of Carbon Dioxide Equivalent (MMTCO₂e) including emissions resulting from imported electrical power in 2008 (14). Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute (15), California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 417 MMTCO₂e excluding emissions related to imported power.

2.3 GLOBAL CLIMATE CHANGE DEFINED

Global Climate Change 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 (16).

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.

⁵ 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.

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(15).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-2 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 values; Global Warming Potential (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.

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

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop would continue is unknown as there are also dynamics that hold the positive feedback loop in check.

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 (CF ₄)	50,000	6,500
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	9,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900

Source: Environmental Protection Agency (EPA) 2006 (URL: <http://www.epa.gov/nonco2/econ-inv/table.html>)

As an example, when water vapor increases in the atmosphere, more of it would 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 (17).

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(18).

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 anthropogenic 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) (19).

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 would 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 (20). 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

The California Environmental Protection Agency (CalEPA) published a report titled "Scenarios of Climate Change in California: An Overview" (Climate Scenarios report) in February 2006 (California Climate Change Center 2006), that while not adequate for a CEQA project-specific or cumulative analysis, is generally instructive about the statewide impacts of global warming.

The Climate Scenarios report uses a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century: lower warming range (3.0-5.5°F); medium warming range (5.5-8.0°F); and higher warming range (8.0-10.5°F). The Climate Scenarios report then presents an analysis of future climate in California under each warming range, that while uncertain, present a picture of the impacts of global climate change trends in California.

In addition, most recently on August 5, 2009, the State's Natural Resources Agency released a public review draft of its "California Climate Adaptation Strategy" report that details many vulnerabilities arising from climate change with respect to matters such as temperature extremes, sea level rise, wildfires, floods and droughts and precipitation changes. This report responds to the Governor's Executive Order S-13-2008 that called on state agencies to develop California's strategy to identify and prepare for expected climate impacts

According to the reports, substantial temperature increases arising from increased GHG emissions potentially could result in a variety of impacts to the people, economy, and environment of California associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. Under the emissions scenarios of the Climate Scenarios report, the impacts of global warming in California have the potential to include, but are not limited to, the following areas:

Air Quality/General Thermal Effects

According to Cal EPA, 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 difficult 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 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 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

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

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

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

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO₂ levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate 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 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 would likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (21). 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.

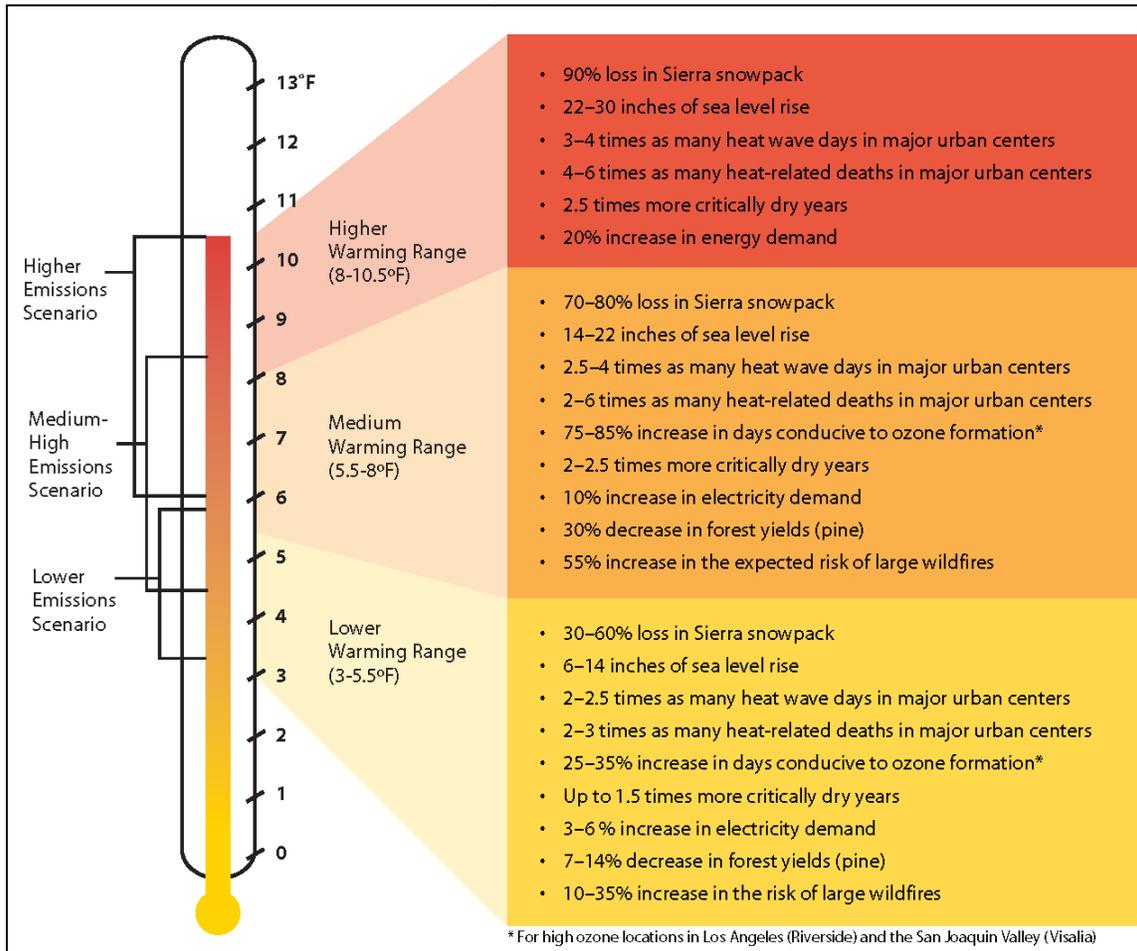
Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood 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 (22).

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 (23).

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(23).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



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 (22).

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 (24).

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 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 (25) 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 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 latest revisions were adopted in 2008 and became effective on January 1, 2010.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code (CALGreen Code) (26). 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.

California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2013 Standards will continue to improve upon the current 2008 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2013 Building Energy Efficiency Standards are 25 percent more efficient than previous standards for residential construction and 30 percent better for nonresidential construction. The Standards, which take effect on January 1, 2014, offer builders better windows, insulation, lighting, ventilation systems and other features that reduce energy consumption in homes and businesses.

Vehicle Standards

Other regulations have been adopted to address vehicle standards including United States Environmental Protection Agency (USEPA) and National Highway Traffic Safety Administration (NHTSA) joint rulemaking for vehicle standards:

- On March 30, 2009, the NHTSA issued a final rule for model year 2011 (27).
- On May 7, 2010, the USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal greenhouse gas and fuel economy standards for model year 2017-2025 light-duty vehicles (28)
- On August 9, 2011 USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal greenhouse gas and fuel economy standards for model year 2017-2025 light-duty vehicles (29)
- The NHTSA intends to set standards for model years 2022-2025 in a future rulemaking (30)

- In addition to the regulations applicable to cars and light-duty trucks, on August 9, 2011, the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which applies to vehicles from model year 2014–2018 (31)

Energy Independence and Security Act

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law (32). Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions, both mobile and non-mobile.

Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Guidelines on GHG

On February 18, 2010, the White House Council on Environmental Quality published draft guidance on the consideration of greenhouse gases and climate change for NEPA analyses (33). It recommends that proposed federal actions that are reasonably expected to directly emit 25,000 metric tons of CO₂e/year should prepare a quantitative and qualitative NEPA analysis of direct and indirect greenhouse gas emissions.

The draft guidance provides reporting tools and instructions on how to assess the effects of climate change. The draft guidance does not apply to land and resource management actions, nor does it propose to regulate greenhouse gases. Although CEQ has not yet issued final guidance, various NEPA documents are beginning to incorporate the approach recommended in the draft guidance(34)

Other Applicable Regulations and Policies

In addition to the federal regulations and programs described above, there are still more policies and programs to address climate change. A database compiled by the International Energy Agency lists more than 300 policies and measures addressing climate change in the United States (35).

The Western Regional Climate Action Initiative (WCI)

The Western Regional Climate Action Initiative (WCI) is a partnership among seven states, including California, and four Canadian provinces to implement a regional, economy-wide cap-and-trade system to reduce global warming pollution. The WCI will cap GHG emissions from the region's electricity, industrial, and transportation sectors with the goal to reduce the heat trapping emissions that cause global warming to 15% below 2005 levels by 2020. When the WCI adopted this goal in 2007, it estimated that this would require 2007 levels to be reduced worldwide between 50% and 85% by 2050. California is working closely with the other states and provinces to design a regional GHG reduction program that includes a cap-and-trade approach. Air Resource Board's (ARB) planned cap and-trade program, discussed below, is also intended to link California and the other member states and provinces.

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 Clean Air Act (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(36). 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 (37). 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 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) ⁶. Accordingly, 427 MMTs of CO₂ equivalent was

⁶ On a national level, the EPA's Endangerment Finding stated that electricity generation is the largest emitting sector (34%),

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 summarizes estimated GHG emissions reduction realized from implementation of regulations and programs outlined in the CARB 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 would 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).

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 would effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of

followed by the transportation (28%), and industry (19%)

the State. Thus, SB 1368 would lead to dramatically lower greenhouse gas emissions associated with California energy demand, as SB 1368 would 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.

TABLE 2-3: CARB SCOPING PLAN GHG MEASURES AND ESTIMATED GHG EMISSIONS REDUCTIONS

<i>Recommended Scoping Plan Measures</i>	<i>Reductions Counted toward 2020 Target of 169 MMT CO₂e</i>	<i>Percentage of Statewide 2020 Target</i>
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

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

²According 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

The CEQA Guidelines do not identify a threshold of significance for greenhouse gas emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a “good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.” The Guidelines encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies’ discretion to make their own determinations based upon substantial evidence. The Guidelines also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. Specific GHG language incorporated in the Guidelines’ suggested Environmental Checklist (Guidelines Appendix G) is as follows:

VII. GREENHOUSE GAS EMISSIONS

Would the project:

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

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 (38). 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 (39). SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010 (38). 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 (40).

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 would prescribe land use allocation in that MPO’s regional transportation plan. ARB, in consultation with MPOs, would 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 would 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 would 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 for 2020 (8% reduction) and 2035 (13% reduction). On April 4, 2012, the Regional Council of 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 (41), 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 would 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 (42). 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(43), 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

2.8 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

In order to assess the significance of a 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 Project considered herein 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." 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, the 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 El Monte (the Project lead agency) has determined it is appropriate to rely on AB 32 implementation guidance as one benchmark for purposes of this analysis (44). 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 (45), a reduction of 28.5 percent below the "business as usual" scenario is required to meet the goals of AB 32 (46).

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.

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 PROJECT GREENHOUSE GAS IMPACT

3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ (CALEEMOD™) EMPLOYED TO ESTIMATE GHG EMISSIONS

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, PM₁₀, 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 (47). 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

3.2 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (48). 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 (49). 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.

3.3 EXISTING PROJECT SITE GREENHOUSE GAS EMISSIONS

The Project site is currently vacant and would not be generating a quantifiable amount of GHG emissions.

3.4 PROJECT RELATED GREENHOUSE GAS EMISSIONS

3.4.1 CONSTRUCTION EMISSIONS

Construction activities associated with the Project would result in emissions of CO₂ and CH₄ from construction activities. The report El Monte Walmart Air Quality Impact Analysis Report, Urban Crossroads, inc. (2013) (Project AQIA) provides additional details on the specific construction-related inputs programmed in CalEEMod (50).

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 (51). As such, construction emissions were amortized over a 30 year period and added to the annual operational phase GHG emissions.

3.4.2 OPERATIONAL EMISSIONS

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

- Building Energy Use (combustion emissions associated with natural gas and electricity)
- Water Supply, Treatment and Distribution
- Solid Waste
- Mobile Source Emissions

3.4.1 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 CO₂ and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.4.2 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. Unless otherwise noted, CalEEMod default parameters were used.

3.4.3 SOLID WASTE

Commercial land uses would result in the generation and disposal of solid waste. A large percentage of this waste would 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 would 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 Project were calculated using CalEEMod default parameters.

3.4.4 MOBILE SOURCE EMISSIONS

GHG emissions would also result from mobile sources associated with the Project. These mobile source emissions would 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, Walmart on Arden Drive Traffic Impact Analysis (Mountain Pacific, Inc.) 2013 were utilized in this analysis (52).

The Project would tend to reduce vehicle miles traveled (VMT) and associated vehicular-source emissions by: designing a Project that promotes a suburban center setting; increasing the diversity in land uses; providing design elements that enhance walkability and connectivity including; with connection to off-site pedestrian paths. Corresponding CalEEMod parameters have been enabled to ensure appropriate credit is taken for these design features.

3.5 EMISSIONS SUMMARY

3.5.1 BAU SCENARIO

The BAU scenario presented here is consistent with the California Air Resources Board's definition of BAU⁷. More specifically, the BAU scenario evaluated herein reflects development of the Project site pursuant to the El Monte Walmart absent design features, operational programs, mitigation measures, and state requirements established by AB 32 which would collectively act to reduce GHG emissions.

The total amount of Project-related GHG emissions under a BAU scenario, without accounting for any design features or regulatory developments that would reduce GHG emissions from direct and indirect sources combined would total approximately 11,848.22 MTCO₂e, as shown on Table 3-2.

⁷ CARB defines BAU in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002-2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004

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

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Annual construction-related emissions amortized over 30 years	23.00	0.004	--	23.09
Energy	891.64	0.04	8.70e-3	895.19
Mobile Sources	10,457.05	1.05	--	10,479.09
Waste	159.32	9.42	--	357.05
Water Usage	81.00	0.44	0.01	93.77
Total CO₂E (All Sources)	11,848.22			

Source: CalEEMod 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 $\times 10^b$) and is followed by the value of the exponent

3.5.3 PROJECT SCENARIO

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 approximately 7,575.35 MMTCO₂e, as shown on Table 3-3. This translates to in an approximate 36.06% reduction in GHG emissions when compared to a BAU scenario., Thus, with implementation of the Project’s design features, application of proposed air pollutant mitigation measures, and realization of regulatory developments, the Project’s GHG reduction (36.06 %) would exceed the AB 32 reduction target of 28.5% (2).

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 ₂ O	Total CO ₂ E
Annual construction-related emissions amortized over 30 years	23.00	0.004	--	23.09
Energy	611.36	0.03	7.37e-3	614.37
Mobile Sources	6,515.95	0.25	--	6,521.28
Waste	159.32	9.42	--	357.05
Water Usage	49.33	0.36	8.87e-3	59.53
Total CO₂E (All Sources)	7,575.35			

Source: CalEEMod 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

3.6 SUMMARY AND CONCLUSIONS

PROJECT IS CONSISTENT WITH AND SUPPORTS AB32 AND CARB SCOPING PLAN

The analysis demonstrates that the Project is consistent with, or otherwise not in conflict with, recommended measures and actions in the CARB Scoping Plan. The Scoping Plan establishes strategies and measures that would achieve GHG reductions goals set forth in the Global Warming Solutions Act of 2006 (AB 32). More specifically, the CARB Scoping Plan calls for an approximately 28.5 percent reduction in GHG emissions when compared to BAU conditions.

As shown on Table 3-3, 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 11,848.22 MTCO₂e. 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 7,575.35 MTCO₂e. This results in a 36.06% reduction from BAU, thus with implementation of the Project’s design features and regulatory developments, the Project’s GHG reduction would exceed the AB 32 reduction target of 28.5%.

TABLE 3-3: SUMMARY OF GHG EMISSIONS FOR BAU VS PROJECT

Category	CO ₂ e Emissions	
	BAU	Project
	Metric Tons per Year	
Construction	23.09	23.09
Energy Use	895.19	614.37
Mobile Sources (Traffic)	10,479.09	6,521.28
Waste Disposed	357.05	357.05
Water Use	93.77	59.53
Total	11,848.22	7,575.35
Project Improvement over BAU	36.06%	

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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 El Monte Walmart 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
California State University, Fullerton • May, 2010

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University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

APPENDIX 3.1:
CALEEMOD EMISSIONS MODEL OUTPUTS

El Monte Walmart (BAU)
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	755.00		0.00		0
Free-Standing Discount Superstore	182.50	1000sqft	4.19	182,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
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 - Based on a 2016 Opening year

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Grading -

Vehicle Trips - Based on ITE Trip Generation Manual

Vehicle Emission Factors -

Vehicle Emission Factors -

Energy Use -

Water And Wastewater -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Used

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	250	100
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	100	50
tblConstructionPhase	NumDays	18.00	90.00
tblConstructionPhase	NumDays	230.00	110.00
tblConstructionPhase	NumDays	8.00	45.00
tblConstructionPhase	NumDays	18.00	35.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2005
tblTripsAndVMT	WorkerTripNumber	23.00	15.00

2.0 Emissions Summary

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.8729	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255
Energy	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	891.6441	891.6441	0.0403	8.7000e-003	895.1883
Mobile	16.1306	32.0968	155.9077	0.2280	6.5491	1.0107	7.5598	1.9059	1.0107	2.9167	0.0000	10,457.0572	10,457.0572	1.0494	0.0000	10,479.0936
Waste						0.0000	0.0000		0.0000	0.0000	159.3236	0.0000	159.3236	9.4158	0.0000	357.0543
Water						0.0000	0.0000		0.0000	0.0000	4.2887	76.7132	81.0019	0.4440	0.0111	93.7767
Total	17.0060	32.1202	155.9424	0.2281	6.5491	1.0125	7.5616	1.9059	1.0125	2.9185	163.6123	11,425.4377	11,589.0500	10.9495	0.0198	11,825.1386

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.8729	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255
Energy	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	891.6441	891.6441	0.0403	8.7000e-003	895.1883
Mobile	16.1306	32.0968	155.9077	0.2280	6.5491	1.0107	7.5598	1.9059	1.0107	2.9167	0.0000	10,457.0572	10,457.0572	1.0494	0.0000	10,479.0936
Waste						0.0000	0.0000		0.0000	0.0000	159.3236	0.0000	159.3236	9.4158	0.0000	357.0543
Water						0.0000	0.0000		0.0000	0.0000	4.2887	76.7132	81.0019	0.4439	0.0111	93.7699
Total	17.0060	32.1202	155.9424	0.2281	6.5491	1.0125	7.5616	1.9059	1.0125	2.9185	163.6123	11,425.4377	11,589.0500	10.9495	0.0198	11,825.1317

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	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	Grading	Grading	6/29/2015	8/28/2015	5	45	
2	Utilities and Underground	Trenching	8/29/2015	10/9/2015	5	30	
3	Building Construction	Building Construction	10/10/2015	3/11/2016	5	110	
4	Paving	Paving	3/12/2016	4/29/2016	5	35	
5	Architectural Coating	Architectural Coating	4/30/2016	9/2/2016	5	90	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 135

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 273,750; Non-Residential Outdoor: 91,250 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	2	8.00	174	0.41
Grading	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Utilities and Underground	Rubber Tired Dozers	3	8.00	255	0.40
Utilities and Underground	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

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
Grading	10	25.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities and Underground	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3426	0.0000	0.3426	0.1567	0.0000	0.1567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2050	2.3468	1.5029	1.7300e-003		0.1144	0.1144		0.1053	0.1053	0.0000	164.8699	164.8699	0.0492	0.0000	165.9035
Total	0.2050	2.3468	1.5029	1.7300e-003	0.3426	0.1144	0.4570	0.1567	0.1053	0.2619	0.0000	164.8699	164.8699	0.0492	0.0000	165.9035

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	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302
Total	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302

3.2 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3426	0.0000	0.3426	0.1567	0.0000	0.1567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2050	2.3468	1.5029	1.7300e-003		0.1144	0.1144		0.1053	0.1053	0.0000	164.8697	164.8697	0.0492	0.0000	165.9033
Total	0.2050	2.3468	1.5029	1.7300e-003	0.3426	0.1144	0.4570	0.1567	0.1053	0.2619	0.0000	164.8697	164.8697	0.0492	0.0000	165.9033

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	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302
Total	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302

3.3 Utilities and Underground - 2015

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	0.0789	0.8533	0.6395	5.9000e-004		0.0463	0.0463		0.0426	0.0426	0.0000	55.9517	55.9517	0.0167	0.0000	56.3025
Total	0.0789	0.8533	0.6395	5.9000e-004		0.0463	0.0463		0.0426	0.0426	0.0000	55.9517	55.9517	0.0167	0.0000	56.3025

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	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905
Total	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905

3.3 Utilities and Underground - 2015

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	0.0789	0.8533	0.6395	5.9000e-004		0.0463	0.0463		0.0426	0.0426	0.0000	55.9516	55.9516	0.0167	0.0000	56.3024
Total	0.0789	0.8533	0.6395	5.9000e-004		0.0463	0.0463		0.0426	0.0426	0.0000	55.9516	55.9516	0.0167	0.0000	56.3024

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	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905
Total	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905

3.4 Building Construction - 2015

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	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2465	77.2465	0.0196	0.0000	77.6588
Total	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2465	77.2465	0.0196	0.0000	77.6588

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	9.0600e-003	0.0916	0.1136	1.9000e-004	5.4300e-003	1.4700e-003	6.9000e-003	1.5500e-003	1.3600e-003	2.9000e-003	0.0000	17.8111	17.8111	1.5000e-004	0.0000	17.8141
Worker	8.3000e-003	0.0121	0.1258	2.4000e-004	0.0188	1.9000e-004	0.0189	4.9800e-003	1.8000e-004	5.1500e-003	0.0000	18.9272	18.9272	1.1300e-003	0.0000	18.9508
Total	0.0174	0.1036	0.2394	4.3000e-004	0.0242	1.6600e-003	0.0258	6.5300e-003	1.5400e-003	8.0500e-003	0.0000	36.7383	36.7383	1.2800e-003	0.0000	36.7650

3.4 Building Construction - 2015

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	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2464	77.2464	0.0196	0.0000	77.6587
Total	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2464	77.2464	0.0196	0.0000	77.6587

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	9.0600e-003	0.0916	0.1136	1.9000e-004	5.4300e-003	1.4700e-003	6.9000e-003	1.5500e-003	1.3600e-003	2.9000e-003	0.0000	17.8111	17.8111	1.5000e-004	0.0000	17.8141
Worker	8.3000e-003	0.0121	0.1258	2.4000e-004	0.0188	1.9000e-004	0.0189	4.9800e-003	1.8000e-004	5.1500e-003	0.0000	18.9272	18.9272	1.1300e-003	0.0000	18.9508
Total	0.0174	0.1036	0.2394	4.3000e-004	0.0242	1.6600e-003	0.0258	6.5300e-003	1.5400e-003	8.0500e-003	0.0000	36.7383	36.7383	1.2800e-003	0.0000	36.7650

3.4 Building Construction - 2016**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	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6024
Total	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.8800e-003	0.0700	0.0909	1.7000e-004	4.6900e-003	1.0500e-003	5.7400e-003	1.3400e-003	9.7000e-004	2.3000e-003	0.0000	15.2299	15.2299	1.1000e-004	0.0000	15.2323
Worker	6.4600e-003	9.4400e-003	0.0984	2.1000e-004	0.0162	1.6000e-004	0.0164	4.3000e-003	1.4000e-004	4.4500e-003	0.0000	15.8146	15.8146	9.0000e-004	0.0000	15.8335
Total	0.0133	0.0794	0.1893	3.8000e-004	0.0209	1.2100e-003	0.0221	5.6400e-003	1.1100e-003	6.7500e-003	0.0000	31.0446	31.0446	1.0100e-003	0.0000	31.0658

3.4 Building Construction - 2016

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	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6023
Total	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.8800e-003	0.0700	0.0909	1.7000e-004	4.6900e-003	1.0500e-003	5.7400e-003	1.3400e-003	9.7000e-004	2.3000e-003	0.0000	15.2299	15.2299	1.1000e-004	0.0000	15.2323
Worker	6.4600e-003	9.4400e-003	0.0984	2.1000e-004	0.0162	1.6000e-004	0.0164	4.3000e-003	1.4000e-004	4.4500e-003	0.0000	15.8146	15.8146	9.0000e-004	0.0000	15.8335
Total	0.0133	0.0794	0.1893	3.8000e-004	0.0209	1.2100e-003	0.0221	5.6400e-003	1.1100e-003	6.7500e-003	0.0000	31.0446	31.0446	1.0100e-003	0.0000	31.0658

3.5 Paving - 2016**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	0.0441	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1158	43.1158	0.0128	0.0000	43.3839
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0441	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1158	43.1158	0.0128	0.0000	43.3839

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	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102
Total	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102

3.5 Paving - 2016**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	0.0441	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1157	43.1157	0.0128	0.0000	43.3838
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0441	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1157	43.1157	0.0128	0.0000	43.3838

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	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102
Total	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0221	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3575
Total	2.1368	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3575

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	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810

3.6 Architectural Coating - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0221	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3574
Total	2.1368	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3574

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	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810

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	16.1306	32.0968	155.9077	0.2280	6.5491	1.0107	7.5598	1.9059	1.0107	2.9167	0.0000	10,457.0572	10,457.0572	1.0494	0.0000	10,479.0936
Unmitigated	16.1306	32.0968	155.9077	0.2280	6.5491	1.0107	7.5598	1.9059	1.0107	2.9167	0.0000	10,457.0572	10,457.0572	1.0494	0.0000	10,479.0936

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Free-Standing Discount Superstore	9,696.23	11,692.78	10241.90	19,047,881	19,047,881
Total	9,696.23	11,692.78	10,241.90	19,047,881	19,047,881

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Free-Standing Discount	16.60	8.40	6.90	13.20	67.80	19.00	47.5	35.5	17

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.522333	0.068956	0.227821	0.102314	0.020978	0.006497	0.016927	0.024074	0.001426	0.001960	0.004080	0.000756	0.001878

5.0 Energy Detail

4.4 Fleet Mix

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	866.4203	866.4203	0.0398	8.2400e-003	869.8111
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	866.4203	866.4203	0.0398	8.2400e-003	869.8111
NaturalGas Mitigated	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2237	25.2237	4.8000e-004	4.6000e-004	25.3773
NaturalGas Unmitigated	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2237	25.2237	4.8000e-004	4.6000e-004	25.3773

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					
Free-Standing Discount Superstore Parking Lot	472675	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2237	25.2237	4.8000e-004	4.6000e-004	25.3773
	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		2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2237	25.2237	4.8000e-004	4.6000e-004	25.3773

5.2 Energy by Land Use - NaturalGas

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
Free-Standing Discount Superstore	472675	2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2237	25.2237	4.8000e-004	4.6000e-004	25.3773
Total		2.5500e-003	0.0232	0.0195	1.4000e-004		1.7600e-003	1.7600e-003		1.7600e-003	1.7600e-003	0.0000	25.2237	25.2237	4.8000e-004	4.6000e-004	25.3773

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Free-Standing Discount Superstore	3.02768e+006	866.4203	0.0398	8.2400e-003	869.8111
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		866.4203	0.0398	8.2400e-003	869.8111

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Free-Standing Discount Superstore	3.02768e+006	866.4203	0.0398	8.2400e-003	869.8111
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		866.4203	0.0398	8.2400e-003	869.8111

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	0.8729	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255
Unmitigated	0.8729	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2115					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6595					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9700e-003	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255
Total	0.8729	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255

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	0.2115					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6595					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9700e-003	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255
Total	0.8729	1.8000e-004	0.0152	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0233	0.0233	1.1000e-004	0.0000	0.0255

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	81.0019	0.4439	0.0111	93.7699
Unmitigated	81.0019	0.4440	0.0111	93.7767

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Free-Standing Discount Superstore	13.5182 / 8.28537	81.0019	0.4440	0.0111	93.7767
Total		81.0019	0.4440	0.0111	93.7767

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Free-Standing Discount Superstore	13.5182 / 8.28537	81.0019	0.4439	0.0111	93.7699
Total		81.0019	0.4439	0.0111	93.7699

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	159.3236	9.4158	0.0000	357.0543
Unmitigated	159.3236	9.4158	0.0000	357.0543

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Free-Standing Discount Superstore	784.88	159.3236	9.4158	0.0000	357.0543
Total		159.3236	9.4158	0.0000	357.0543

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Free-Standing Discount Superstore	784.88	159.3236	9.4158	0.0000	357.0543
Total		159.3236	9.4158	0.0000	357.0543

9.0 Operational Offroad

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

El Monte Walmart (2020)
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	755.00	Space	6.80	302,000.00	0
Free-Standing Discount Superstore	182.50	1000sqft	4.19	182,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	10			Operational Year	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	505	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The RPS of 33% (for 2020) is based on SCE's 2007 PUP Report of 631 lb/MWhr and 13% Renewable Portfolio.

Land Use -

Construction Phase - Based on a 2016 Opening year

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Off-road Equipment - Based on the construction list of a similiar project

Grading -

Vehicle Trips - Weekday rate based on Project Traffic Study.

Energy Use -

Water And Wastewater -

Construction Off-road Equipment Mitigation - Tier 3 mitigation for rubber tired dozers and scrapers

Mobile Land Use Mitigation -

Area Mitigation - Used

Energy Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	95,780.00	91,250.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	287,340.00	273,750.00
tblAreaCoating	Area_Nonresidential_Interior	287340	273750
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	90.00
tblConstructionPhase	NumDays	300.00	110.00
tblConstructionPhase	NumDays	30.00	45.00
tblConstructionPhase	NumDays	20.00	35.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	505
tblProjectCharacteristics	OperationalYear	2014	2020
tblTripsAndVMT	VendorTripNumber	79.00	30.00
tblTripsAndVMT	WorkerTripNumber	185.00	58.00
tblTripsAndVMT	WorkerTripNumber	23.00	15.00
tblTripsAndVMT	WorkerTripNumber	37.00	12.00
tblVehicleTrips	WD_TR	53.13	50.75

2.0 Emissions Summary

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	1.9660	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246
Energy	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	738.1242	738.1242	0.0415	8.9200e-003	741.7600
Mobile	4.4602	10.0592	42.3778	0.1074	6.9995	0.1524	7.1520	1.8749	0.1406	2.0155	0.0000	7,564.8039	7,564.8039	0.2911	0.0000	7,570.9162
Waste						0.0000	0.0000		0.0000	0.0000	159.3236	0.0000	159.3236	9.4158	0.0000	357.0543
Water						0.0000	0.0000		0.0000	0.0000	4.2887	61.4056	65.6943	0.4440	0.0111	78.4691
Total	6.4284	10.0801	42.4072	0.1075	6.9995	0.1541	7.1536	1.8749	0.1422	2.0172	163.6123	8,364.3569	8,527.9692	10.1924	0.0201	8,748.2242

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	1.9660	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246
Energy	1.5900e-003	0.0144	0.0121	9.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	611.3601	611.3601	0.0345	7.3700e-003	614.3680
Mobile	4.3147	8.9381	38.7584	0.0925	5.9846	0.1325	6.1171	1.6031	0.1222	1.7253	0.0000	6,515.9511	6,515.9511	0.2540	0.0000	6,521.2847
Waste						0.0000	0.0000		0.0000	0.0000	159.3236	0.0000	159.3236	9.4158	0.0000	357.0543
Water						0.0000	0.0000		0.0000	0.0000	3.4310	45.8963	49.3273	0.3550	8.8700e-003	59.5314
Total	6.2823	8.9526	38.7826	0.0926	5.9846	0.1336	6.1182	1.6031	0.1234	1.7264	162.7545	7,173.2308	7,335.9853	10.0593	0.0162	7,552.2630

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	2.27	11.19	8.55	13.87	14.50	13.26	14.47	14.50	13.27	14.41	0.52	14.24	13.98	1.31	19.00	13.67

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	6/29/2015	8/28/2015	5	45	
2	Utilities and Underground	Trenching	8/29/2015	10/9/2015	5	30	
3	Building Construction	Building Construction	10/10/2015	3/11/2016	5	110	
4	Paving	Paving	3/12/2016	4/29/2016	5	35	
5	Architectural Coating	Architectural Coating	4/30/2016	9/2/2016	5	90	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 135

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 273,750; Non-Residential Outdoor: 91,250 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	2	8.00	174	0.41
Grading	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Utilities and Underground	Rubber Tired Dozers	3	8.00	255	0.40
Utilities and Underground	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	1	8.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	78	0.48

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
Grading	10	25.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities and Underground	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3426	0.0000	0.3426	0.1567	0.0000	0.1567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2050	2.3468	1.5029	1.7300e-003		0.1144	0.1144		0.1053	0.1053	0.0000	164.8699	164.8699	0.0492	0.0000	165.9035
Total	0.2050	2.3468	1.5029	1.7300e-003	0.3426	0.1144	0.4570	0.1567	0.1053	0.2619	0.0000	164.8699	164.8699	0.0492	0.0000	165.9035

3.2 Grading - 2015

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	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302
Total	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1336	0.0000	0.1336	0.0611	0.0000	0.0611	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1090	1.3693	1.0561	1.7300e-003		0.0696	0.0696		0.0656	0.0656	0.0000	164.8697	164.8697	0.0492	0.0000	165.9033
Total	0.1090	1.3693	1.0561	1.7300e-003	0.1336	0.0696	0.2032	0.0611	0.0656	0.1267	0.0000	164.8697	164.8697	0.0492	0.0000	165.9033

3.2 Grading - 2015

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	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302
Total	2.7300e-003	3.9700e-003	0.0414	8.0000e-005	6.1600e-003	6.0000e-005	6.2300e-003	1.6400e-003	6.0000e-005	1.6900e-003	0.0000	6.2224	6.2224	3.7000e-004	0.0000	6.2302

3.3 Utilities and Underground - 2015

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	0.0789	0.8533	0.6395	5.9000e-004		0.0463	0.0463		0.0426	0.0426	0.0000	55.9517	55.9517	0.0167	0.0000	56.3025
Total	0.0789	0.8533	0.6395	5.9000e-004		0.0463	0.0463		0.0426	0.0426	0.0000	55.9517	55.9517	0.0167	0.0000	56.3025

3.3 Utilities and Underground - 2015

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	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905
Total	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905

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	0.0313	0.3937	0.3560	5.9000e-004		0.0232	0.0232		0.0220	0.0220	0.0000	55.9516	55.9516	0.0167	0.0000	56.3024
Total	0.0313	0.3937	0.3560	5.9000e-004		0.0232	0.0232		0.0220	0.0220	0.0000	55.9516	55.9516	0.0167	0.0000	56.3024

3.3 Utilities and Underground - 2015

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	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905
Total	1.3100e-003	1.9100e-003	0.0199	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.9868	2.9868	1.8000e-004	0.0000	2.9905

3.4 Building Construction - 2015

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	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2465	77.2465	0.0196	0.0000	77.6588
Total	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2465	77.2465	0.0196	0.0000	77.6588

3.4 Building Construction - 2015

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	9.0600e-003	0.0916	0.1136	1.9000e-004	5.4300e-003	1.4700e-003	6.9000e-003	1.5500e-003	1.3600e-003	2.9000e-003	0.0000	17.8111	17.8111	1.5000e-004	0.0000	17.8141
Worker	8.3000e-003	0.0121	0.1258	2.4000e-004	0.0188	1.9000e-004	0.0189	4.9800e-003	1.8000e-004	5.1500e-003	0.0000	18.9272	18.9272	1.1300e-003	0.0000	18.9508
Total	0.0174	0.1036	0.2394	4.3000e-004	0.0242	1.6600e-003	0.0258	6.5300e-003	1.5400e-003	8.0500e-003	0.0000	36.7383	36.7383	1.2800e-003	0.0000	36.7650

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	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2464	77.2464	0.0196	0.0000	77.6587
Total	0.1147	0.9563	0.5911	8.5000e-004		0.0669	0.0669		0.0628	0.0628	0.0000	77.2464	77.2464	0.0196	0.0000	77.6587

3.4 Building Construction - 2015

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	9.0600e-003	0.0916	0.1136	1.9000e-004	5.4300e-003	1.4700e-003	6.9000e-003	1.5500e-003	1.3600e-003	2.9000e-003	0.0000	17.8111	17.8111	1.5000e-004	0.0000	17.8141
Worker	8.3000e-003	0.0121	0.1258	2.4000e-004	0.0188	1.9000e-004	0.0189	4.9800e-003	1.8000e-004	5.1500e-003	0.0000	18.9272	18.9272	1.1300e-003	0.0000	18.9508
Total	0.0174	0.1036	0.2394	4.3000e-004	0.0242	1.6600e-003	0.0258	6.5300e-003	1.5400e-003	8.0500e-003	0.0000	36.7383	36.7383	1.2800e-003	0.0000	36.7650

3.4 Building Construction - 2016

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	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6024
Total	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6024

3.4 Building Construction - 2016

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	0.0000
Vendor	6.8800e-003	0.0700	0.0909	1.7000e-004	4.6900e-003	1.0500e-003	5.7400e-003	1.3400e-003	9.7000e-004	2.3000e-003	0.0000	15.2299	15.2299	1.1000e-004	0.0000	15.2323	
Worker	6.4600e-003	9.4400e-003	0.0984	2.1000e-004	0.0162	1.6000e-004	0.0164	4.3000e-003	1.4000e-004	4.4500e-003	0.0000	15.8146	15.8146	9.0000e-004	0.0000	15.8335	
Total	0.0133	0.0794	0.1893	3.8000e-004	0.0209	1.2100e-003	0.0221	5.6400e-003	1.1100e-003	6.7500e-003	0.0000	31.0446	31.0446	1.0100e-003	0.0000	31.0658	

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	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6023	
Total	0.0924	0.7852	0.5045	7.3000e-004		0.0538	0.0538		0.0505	0.0505	0.0000	66.2522	66.2522	0.0167	0.0000	66.6023	

3.4 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.8800e-003	0.0700	0.0909	1.7000e-004	4.6900e-003	1.0500e-003	5.7400e-003	1.3400e-003	9.7000e-004	2.3000e-003	0.0000	15.2299	15.2299	1.1000e-004	0.0000	15.2323
Worker	6.4600e-003	9.4400e-003	0.0984	2.1000e-004	0.0162	1.6000e-004	0.0164	4.3000e-003	1.4000e-004	4.4500e-003	0.0000	15.8146	15.8146	9.0000e-004	0.0000	15.8335
Total	0.0133	0.0794	0.1893	3.8000e-004	0.0209	1.2100e-003	0.0221	5.6400e-003	1.1100e-003	6.7500e-003	0.0000	31.0446	31.0446	1.0100e-003	0.0000	31.0658

3.5 Paving - 2016

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	0.0441	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1158	43.1158	0.0128	0.0000	43.3839
Paving	8.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0530	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1158	43.1158	0.0128	0.0000	43.3839

3.5 Paving - 2016

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	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102
Total	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102

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	0.0441	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1157	43.1157	0.0128	0.0000	43.3838
Paving	8.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0530	0.4584	0.3096	4.6000e-004		0.0268	0.0268		0.0247	0.0247	0.0000	43.1157	43.1157	0.0128	0.0000	43.3838

3.5 Paving - 2016

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	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102
Total	1.1500e-003	1.6700e-003	0.0175	4.0000e-005	2.8800e-003	3.0000e-005	2.9000e-003	7.6000e-004	3.0000e-005	7.9000e-004	0.0000	2.8069	2.8069	1.6000e-004	0.0000	2.8102

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0221	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3575
Total	2.1368	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3575

3.6 Architectural Coating - 2016

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	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	0.0000
Worker	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810	
Total	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810	

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.1147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0221	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3574
Total	2.1368	0.1423	0.1130	1.8000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	15.3195	15.3195	1.8100e-003	0.0000	15.3574

3.6 Architectural Coating - 2016

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	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810
Total	2.3600e-003	3.4500e-003	0.0359	8.0000e-005	5.9200e-003	6.0000e-005	5.9700e-003	1.5700e-003	5.0000e-005	1.6200e-003	0.0000	5.7741	5.7741	3.3000e-004	0.0000	5.7810

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Improve Pedestrian Network

Provide Traffic Calming Measures

	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	4.3147	8.9381	38.7584	0.0925	5.9846	0.1325	6.1171	1.6031	0.1222	1.7253	0.0000	6,515.9511	6,515.9511	0.2540	0.0000	6,521.2847
Unmitigated	4.4602	10.0592	42.3778	0.1074	6.9995	0.1524	7.1520	1.8749	0.1406	2.0155	0.0000	7,564.8039	7,564.8039	0.2911	0.0000	7,570.9162

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Free-Standing Discount Superstore	9,261.88	11,692.78	10241.90	18,460,410	15,783,651
Parking Lot	0.00	0.00	0.00		
Total	9,261.88	11,692.78	10,241.90	18,460,410	15,783,651

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Free-Standing Discount	16.60	8.40	6.90	13.20	67.80	19.00	47.5	35.5	17
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.530094	0.057664	0.178835	0.124843	0.039181	0.006319	0.017052	0.034445	0.002509	0.003148	0.003693	0.000531	0.001685

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	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	595.6513	595.6513	0.0342	7.0800e-003	598.5635
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	715.5300	715.5300	0.0411	8.5000e-003	719.0283
NaturalGas Mitigated	1.5900e-003	0.0144	0.0121	9.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	15.7088	15.7088	3.0000e-004	2.9000e-004	15.8044
NaturalGas Unmitigated	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.5942	22.5942	4.3000e-004	4.1000e-004	22.7317

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					
Free-Standing Discount Structure	423400	2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.5942	22.5942	4.3000e-004	4.1000e-004	22.7317
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		2.2800e-003	0.0208	0.0174	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.5942	22.5942	4.3000e-004	4.1000e-004	22.7317

5.2 Energy by Land Use - NaturalGas

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
Free-Standing Discount Superstore	294373	1.5900e-003	0.0144	0.0121	9.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	15.7088	15.7088	3.0000e-004	2.9000e-004	15.8044
Total		1.5900e-003	0.0144	0.0121	9.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	15.7088	15.7088	3.0000e-004	2.9000e-004	15.8044

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Free-Standing Discount Superstore	2.85795e+006	654.6539	0.0376	7.7800e-003	657.8546
Parking Lot	265760	60.8761	3.5000e-003	7.2000e-004	61.1737
Total		715.5300	0.0411	8.5000e-003	719.0283

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Free-Standing Discount Superstore	2.36119e+006	540.8628	0.0311	6.4300e-003	543.5072
Parking Lot	239184	54.7885	3.1500e-003	6.5000e-004	55.0564
Total		595.6513	0.0342	7.0800e-003	598.5635

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	1.9660	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246
Unmitigated	1.9660	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1300e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246
Total	1.9660	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246

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	0.2141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1300e-003	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246
Total	1.9660	1.1000e-004	0.0120	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0233	0.0233	6.0000e-005	0.0000	0.0246

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	49.3273	0.3550	8.8700e-003	59.5314
Unmitigated	65.6943	0.4440	0.0111	78.4691

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Free-Standing Discount Structure	13.5182 / 8.28537	65.6943	0.4440	0.0111	78.4691
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		65.6943	0.4440	0.0111	78.4691

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Free-Standing Discount Superstore	10.8146 / 5.79976	49.3273	0.3550	8.8700e-003	59.5314
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		49.3273	0.3550	8.8700e-003	59.5314

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	159.3236	9.4158	0.0000	357.0543
Unmitigated	159.3236	9.4158	0.0000	357.0543

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Free-Standing Discount Superstore	784.88	159.3236	9.4158	0.0000	357.0543
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		159.3236	9.4158	0.0000	357.0543

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Free-Standing Discount Superstore	784.88	159.3236	9.4158	0.0000	357.0543
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		159.3236	9.4158	0.0000	357.0543

9.0 Operational Offroad

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