

## 3.6 Greenhouse Gas Emissions

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and potential greenhouse gas (GHG) emissions resulting from implementation of the proposed program. Impacts related to GHGs and climate change are analyzed and mitigation measures are provided for any potentially significant impacts. The methods of analyzing emissions described in this section are consistent with the recommendations of the South Coast Air Quality Management District (SCAQMD).

### 3.6.1 Environmental Setting

#### Affected Environment

This section presents a discussion of existing climate conditions, the current state of climate change science, and GHG emissions sources in California.

#### *Climate*

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens, 2003). The proposed program is located in the County of Los Angeles within the Basin, which has a distinctive climate determined by its terrain and geographic location. The general region lies in the semipermanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climate is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

#### *Climate Change Overview*

Various gases in the earth's atmosphere, classified as GHGs, play a critical role in determining its surface temperature. Solar radiation enters earth's atmosphere from space, and a portion of the radiation is absorbed by the earth's surface. Earth re-radiates this energy back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation (that otherwise would have escaped back into space) is now retained in the atmosphere, and results in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Much of the scientific literature suggests that human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of earth's climate, known as global climate change or global warming. While there is some debate regarding this issue, it is unlikely that global climate change of the past 50 years can be explained without contribution from human activities (IPCC, 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO<sub>2</sub> is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO<sub>2</sub> emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within 1 year, whereas the remaining 46 percent of human-caused CO<sub>2</sub> emissions remains stored in the atmosphere (Seinfeld and Pandis, 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of the California Environmental Quality Act (CEQA), GHG impacts to global climate change are inherently cumulative.

### ***Greenhouse Gas Emission Sources***

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CARB, 2014a). Emissions of CO<sub>2</sub> are by-products of fossil fuel combustion. CH<sub>4</sub>, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N<sub>2</sub>O is also largely attributable to agricultural practices and soil management. CO<sub>2</sub> sinks, or reservoirs, include vegetation and the ocean, which absorb CO<sub>2</sub> through sequestration and dissolution, respectively, and are two of the most common processes of CO<sub>2</sub> sequestration.

California is the 12th to 16th largest emitter of CO<sub>2</sub> in the world (CEC, 2006a). California produced 452 million gross metric tons of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) in 2010 (CARB, 2014a). CO<sub>2</sub>e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. Expressing emissions in CO<sub>2</sub>e takes the contributions to the greenhouse effect of all GHG emissions and converts them to the equivalent effect that would occur if only CO<sub>2</sub> were being emitted. This measurement, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, Calculation References, of the General Reporting Protocol of the California Climate Action Registry (CCAR, 2009), 1 ton of CH<sub>4</sub> has the same contribution to the greenhouse effect as approximately 21 tons of CO<sub>2</sub>. Therefore, CH<sub>4</sub> is a much more potent GHG than CO<sub>2</sub>.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2012, accounting for 36 percent of total GHG emissions in the state (CARB, 2014a). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (21 percent) and the industrial sector (19 percent) (CARB, 2014a).

## 3.6.2 Regulatory Framework

### Federal

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to define national ambient air quality standards to protect public health and welfare in the United States. The CAA does not specifically regulate GHG emissions; however, on April 2, 2007, the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency* determined that GHGs are pollutants that can be regulated under the CAA. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On December 7, 2009, USEPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the USEPA Administrator should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The USEPA Administrator determined that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, and higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

Specific GHG regulations that USEPA has adopted to-date are as follows:

**40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.** This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO<sub>2</sub>e emissions per year (USEPA, 2011). Additionally, reporting of emissions is required for owners of SF<sub>6</sub>- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

**40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.** USEPA recently mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO<sub>2</sub>e emissions exceed 75,000 tons per year (USEPA, 2010).

The USEPA also recently released a proposed rule which would regulate GHG emissions from existing power plants across the nation. The proposed rule establishes state-by-state 2030 GHG goals.

## **State**

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California. Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

### ***Assembly Bill 1493 (Pavley)***

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 required that CARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state.”

To meet the requirements of AB 1493, in 2004 CARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37 percent lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with a loaded vehicle weight of 3,751

pounds to gross vehicle weight of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24 percent between 2009 and 2016.

### ***Executive Order S-03-05***

Executive Order S-03-05, which was signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. 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 GHG emission targets. Specifically, emissions were to be reduced to the 2000 level by 2010 and are to be reduced to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of CalEPA created the California Climate Action Team (CCAT), which is made up of members from various state agencies and commissions. CCAT 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.

### ***Assembly Bill 32 (California Global Warming Solutions Act of 2006)***

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act (AB 32; California Health and Safety Code Division 25.5, Sections 38500–38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a 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.

### ***Senate Bill 1368***

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities. CPUC adopted a GHG Emissions Performance Standard in January 2007. The California Energy Commission (CEC) adopted consistent regulations for implementing and enforcing SB 1368 for the state's publicly owned utilities in August 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

### ***Executive Order S-1-07***

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directed CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009, CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons (MMT) in 2020.

### ***Senate Bill 97***

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; Public Resources Code Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. The bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines for GHG emissions, as required by SB 97. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the CCR. The amendments became effective on March 18, 2010.

### ***CARB Climate Change Scoping Plan***

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (CARB, 2008). CARB's Scoping Plan contains the main strategies California will implement to reduce CO<sub>2</sub>e emissions by 169 MMT, or approximately 28.4 percent, from the state's projected 2020 emissions level of 596 MMT of CO<sub>2</sub>e under a "business-as-usual" (BAU) scenario. In August 2011, the Scoping Plan was reapproved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 MMT CO<sub>2</sub>e, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 Scoping Plan that has been adopted and one measure that is no longer under consideration by CARB (CARB, 2011).

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (transportation, electrical power, commercial and residential,

industrial, etc.). CARB used 3-year average emissions, by sector, for 2002–2004 to forecast emissions to 2020. At the time CARB’s Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB’s Scoping Plan are intended to reduce the projected 2020 BAU levels to 1990 levels, as required by AB 32.

CARB’s Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state’s GHG inventory. CARB’s Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO<sub>2</sub>e)
- The LCFS (15.0 MMT CO<sub>2</sub>e)
- Energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems (26.3 MMT CO<sub>2</sub>e)
- A renewable portfolio standard for electricity production (21.3 MMT CO<sub>2</sub>e)

CARB has identified a GHG reduction target of 5 MMT (of the 174 MMT total) local land use changes (Table 2 of CARB’s Plan), by implementation of Reduction Strategy T-3 regarding Regional Transportation-Related GHG Targets. Additional land use reductions may be achieved as SB 375 is implemented. CARB’s Scoping Plan states that successful implementation of the plan relies on local governments’ land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. CARB’s Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

**Table 3.6-1** shows the Recommended Actions contained in Appendices C and E of CARB’s Scoping Plan.

**TABLE 3.6-1  
 RECOMMENDED ACTIONS FROM CARB CLIMATE CHANGE SCOPING PLAN**

ID #	Sector	Strategy Name
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards
T-2	Transportation	LCFS (Discrete Early Action)
T-3	Transportation	Regional Transportation-Related GHG Targets
T-4	Transportation	Vehicle Efficiency Measures
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)
T-6	Transportation	Goods-movement Efficiency Measures
T-7	Transportation	Heavy-Duty Vehicle GHG Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)
T-8	Transportation	Medium- and Heavy-Duty Vehicle Hybridization
T-9	Transportation	High-Speed Rail

**TABLE 3.6-1 (CONTINUED)  
RECOMMENDED ACTIONS FROM CARB CLIMATE CHANGE SCOPING PLAN**

<b>ID #</b>	<b>Sector</b>	<b>Strategy Name</b>
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs More stringent Building and Appliance Standards
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000GWh
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency
CR-2	Electricity and Natural Gas	Solar Water Heating
GB-1	Green Buildings	Green Buildings
W-1	Water	Water Use Efficiency
W-2	Water	Water Recycling
W-3	Water	Water System Energy Efficiency
W-4	Water	Reuse Urban Runoff
W-5	Water	Increase Renewable Energy Production
W-6	Water	Public Goods Charge (Water)
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission
I-4	Industry	Refinery Flare Recovery Process Improvements
I-5	Industry	Removal of CH <sub>4</sub> Exemption from Existing Refinery Regulations
RW-1	Recycling and Waste Management	Landfill CH <sub>4</sub> Control (Discrete Early Action)
RW-2	Recycling and Waste Management	Additional Reductions in Landfill CH <sub>4</sub> – Capture Improvements
RW-3	Recycling and Waste Management	High Recycling/Zero Waste
F-1	Forestry	Sustainable Forest Target
H-1	High GWP Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)
H-2	High GWP Gases	SF <sub>6</sub> Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)
H-3	High GWP Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)
H-4	High GWP Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)
H-5	High GWP Gases	High GWP Reductions from Mobile Sources
H-6	High GWP Gases	High GWP Reductions from Stationary Sources
H-7 <sup>a</sup>	High GWP Gases	Mitigation Fee on High GWP Gases
A-1	Agriculture	CH <sub>4</sub> Capture at Large Dairies

<sup>a</sup> This original measure in the 2008 Scoping Plan was subsequently excluded by CARB in the Final Supplement to the Scoping Plan Functional Equivalent Document in 2011, as CARB staff concluded that implementation of this measure would not be feasible.

SOURCE: CARB, 2008.

As discussed previously, a draft Update to the initial Scoping Plan was developed by CARB in collaboration with the CCAT to address the requirement by AB 32 that the Scoping Plan be updated at least every 5 years. The draft Update to the initial Scoping Plan developed by CARB in collaboration with the CCAT was presented to CARB’s Board for discussion at its February 20, 2014 meeting. The draft Update builds upon the initial Scoping Plan with new strategies and expanded measures, and identifies opportunities to leverage existing and new funds to drive GHG



emission reductions through strategic planning and targeted program investments. The first update to the AB 32 Scoping Plan was approved on May 22, 2014, by CARB.

As part of the proposed update to the Scoping Plan, the emissions reductions required to meet the 2020 statewide GHG emissions limit were further adjusted. The primary reason for adjusting the 2020 statewide emissions limit was based on the fact that the original Scoping Plan relied on the Intergovernmental Panel on Climate Change (IPCC) 1996 Second Assessment Report (SAR) to assign the GWPs of greenhouse gases. Recently, in accordance the United Nations Framework Convention on Climate Change (UNFCCC), international climate agencies have agreed to begin using the scientifically updated GWP values in the IPCC's Fourth Assessment Report (AR4) that was released in 2007. Because CARB has begun to transition to the use of the AR4 100-year GWPs in its climate change programs, CARB recalculated the Scoping Plan's 1990 GHG emissions level with the AR4 GWPs (CARB, 2014b).

### ***CEQA Guidelines Revisions***

In 2007, the State Legislature passed SB 97, which required amendment of the CEQA Guidelines to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The California Natural Resources Agency adopted these amendments on December 30, 2009, and they took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the CCR.

The Guidelines revisions include a new section (Section 15064.4) that specifically addresses the potential significance of GHG emissions. Section 15064.4 calls for a "good-faith effort" to "describe, calculate or estimate" GHG emissions; Section 15064.4 further states that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." The new Guidelines also state that a project may be found to have a less-than-significant impact on GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Section 15064(h)(3)). The Guidelines do not, however, require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

## **Local**

### **SCAQMD**

As an interim method for determining significance under CEQA until statewide significance thresholds are established, SCAQMD developed a draft tiered flowchart in 2008 for determining significance thresholds for GHGs for projects where SCAQMD is acting as the lead agency. The SCAQMD flowchart uses a tiered approach in which a proposed program is deemed to have a less-than-significant impact related to GHG emissions when any of the following conditions are met:

- GHG emissions are within GHG budgets in an approved regional plan.

- Incremental increases in GHG emissions due to the project are below the defined Significance Screening Levels, or mitigated to less than the Significance Screening Levels.
- Performance standards are met by incorporating project design features and/or implementing emission reduction measures.
- Carbon offsets are made to achieve target significance screening level.

### ***County of Los Angeles General Plan***

The 1980 County of Los Angeles General Plan does not address GHG emissions and climate change. However, the Conservation and Open Space Element contains policies that would contribute to the reduction of GHG emissions (County of Los Angeles, 1980). These are as follows:

- Policy 1:** Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling and improved public transportation.
- Policy 2:** Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind and ocean-related sources.
- Policy 3:** Promote the use of solar energy to the maximum extent possible.

The Air Quality Element of the Draft 2014 County of Los Angeles General Plan summarizes air quality issues and outlines goals and policies that will improve air quality and reduce GHG emissions (County of Los Angeles, 2014a). The policies that are most relevant to GHG emissions include:

- Policy AQ 1.2:** Encourage the use of low or no volatile organic compound (VOC) emitting materials.
- Policy AQ 3.1:** Facilitate the implementation and maintenance of the Community Climate Action Plan to ensure that the County reaches its climate change and greenhouse gas emission reduction goals.
- Policy AQ 3.2:** Reduce energy consumption in County operations by 20 percent by 2015.
- Policy AQ 3.3:** Reduce water consumption in County operations.
- Policy AQ 3.4:** Participate in local, regional and state programs to reduce greenhouse gas emissions.
- Policy AQ 3.5:** Encourage maximum amounts of energy conservation in new development and municipal operations.
- Policy AQ 3.6:** Support and expand urban forest programs within the unincorporated areas.

### **County of Los Angeles Community Climate Action Plan**

The County of Los Angeles released its Final Draft Community Climate Action Plan (CCAP) in July 2014, which serves to mitigate and avoid GHG emissions associated with community activities in unincorporated Los Angeles County. The CCAP addresses emissions from building energy, land use and transportation, water consumption, and waste generation. The measures and actions outlined in the CCAP ties together the County's existing climate change initiatives and provide a blueprint for a more sustainable future. Ultimately, the CCAP and associated GHG reduction measures will be incorporated into the Air Quality Element of the Los Angeles County General Plan 2035.

Specifically, the CCAP will identify emissions related to community activities, establish a GHG reduction target consistent with AB 32, and provide a roadmap for successfully implementing GHG reduction measures selected by the County. Based on the CCAP's estimated amount of GHG emissions generated by community activities in the County's unincorporated areas in 2010, it was determined that building energy use is the largest source of emissions (49 percent), followed by transportation emissions from on- and off-road vehicles (42 percent) and community waste generation (7 percent). The remaining GHG emissions sources are water conveyance and wastewater generation (2 percent), agriculture (0.4 percent), and stationary sources (0.02 percent). The CCAP comprises a variety of state and local actions to reduce GHG emissions within the unincorporated areas. The state actions considered in the CCAP include: the Renewables Portfolio Standard, Title 24 Standards for Commercial and Residential Buildings (Energy Efficiency and CALGreen), Pavley/Advanced Clean Cars (Vehicle Efficiency), the LCFS, and the California cap-and-trade program. These state actions generally do not require action from the County, but will result in local GHG reductions in the unincorporated areas. To supplement these statewide initiatives, the CCAP has identified 26 local actions to reduce GHG emissions in the unincorporated areas of the County. Specifically, these 26 local actions are grouped into five strategy areas: green building and energy; land use and transportation; water conservation and wastewater; waste reduction, reuse, and recycling; and land conservation and tree planting. Many of the local actions will also be implemented through General Plan policies or other County ordinances. These actions undertaken as part of the CCAP will result in important community co-benefits, including improved air quality, energy savings, and increased mobility, as well as enhancing the resiliency of the community in the face of changing climate conditions. Overall, the goal of the CCAP, which will be a component of the Los Angeles County General Plan, will be to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County in a manner that is consistent with statewide goals outlined under AB 32 (County of Los Angeles, 2014b). The Final Draft CCAP is anticipated to be adopted with the County's General Plan update.

### **City General Plans**

The numerous cities encompassed by the Enhanced Watershed Management Program (EWMP) area all have their own respective city General Plans, some of which may contain policies that address GHG emissions and climate change. As implementation of the individual structural Best Management Practice (BMP) projects proceed, specific policies and objectives pertaining to GHG

emissions and/or climate change from applicable city General Plans will be identified and evaluated on a project-by-project basis during subsequent CEQA environmental processes.

### 3.6.3 Impact Assessment

#### Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, a project would have a significant effect on GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As noted, the increased concentration of GHGs in the atmosphere has been linked to global warming, which can lead to climate change. Construction of the structural BMPs would incrementally contribute to GHG emissions along with past, present and future activities. As such, impacts of GHG emissions are analyzed here on a cumulative basis.

Currently, LACFCD has not adopted any thresholds for GHG emissions. Additionally, while SCAQMD has issued proposed standards and guidelines, there is no adopted state or local standard for determining the cumulative significance of the proposed program's GHG emissions on global climate change. In December 2008, SCAQMD adopted a 10,000 metric tons of CO<sub>2</sub> equivalents (MTCO<sub>2</sub>e)/year for industrial facilities, but only with respect to projects where SCAQMD is the lead agency. Additionally, SCAQMD has proposed, but not adopted, a 3,000 MT/year CO<sub>2</sub>e threshold for mixed use developments, a 3,500 MT/year CO<sub>2</sub>e threshold for residential developments, and a 1,400 MT/year CO<sub>2</sub>e threshold for commercial developments. As an alternative to the aforementioned proposed thresholds for residential, commercial, and mixed-use developments, SCAQMD has also recommended the use of a single numerical threshold of 3,000 MTCO<sub>2</sub>e/year for all non-industrial projects. These draft threshold options are being evaluated through the GHG Thresholds Working Group and have not been adopted as of this writing (SCAQMD, 2010).

For the purposes of this analysis, because the BMPs (structural and non-structural) associated with the proposed program are not residential, commercial, mixed-use, or industrial projects, the most appropriate threshold that would apply to the proposed program would be, although not formally adopted, the 3,000 MTCO<sub>2</sub>e/year criteria recommended by SCAQMD.

#### Program Impact Discussion

##### *Program-Generated GHG Emissions*

**Impact 3.6-1: The proposed program could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.**

**Structural (Regional, Centralized, and Distributed) BMPs**

The proposed program would primarily generate GHG emissions during construction of the proposed structural BMP projects in the EWMP areas. The amount of program-related construction that would occur on an annual basis cannot be determined with any certainty at this time. As such, it is expected that the construction activities for the structural BMPs in the EWMP areas would occur intermittently throughout the course of the program implementation period. Construction-related GHG emissions associated with each structural BMP development would be short-term in nature and limited to the period of time when construction activity is taking place for that particular development. Applying the same approach that was used for the program’s air quality analysis in Section 3.2, *Air Quality*, of this PEIR, the maximum annual construction-related GHG emissions for the three structural BMP project types were estimated using the California Emissions Estimator Model (CalEEMod) based on general information provided for the structural BMP projects and CalEEMod default settings along with reasonable assumptions based on other similar types of projects (refer to Tables 3.2-4, 3.2-5, and 3.2-6 in Section 3.2, *Air Quality*, of this PEIR, for the modeling parameters used in CalEEMod for the representative distributed, centralized, and regional structural BMPs, respectively). **Tables 3.6-2, 3.6-3 and 3.6-4** summarize the modeled worst-case annual GHG emissions that are estimated to occur for a representative distributed, centralized, and regional structural BMP project, respectively.

**TABLE 3.6-2  
 ESTIMATED CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS – PROPOSED  
 DISTRIBUTED BMP PROJECT**

<b>Emission Source</b>	<b>Proposed Program Emissions CO<sub>2</sub>e (MT/yr)</b>
<b>Construction</b>	
Total	53.52
Construction (Amortized over 30 years)	1.78

NOTES: CO<sub>2</sub>e= carbon dioxide equivalent; MT/yr = metric tons per year; see Appendix C for CalEEMod model outputs.

SOURCE: Modeling performed by ESA, 2013.

**TABLE 3.6-3  
 ESTIMATED CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS – PROPOSED  
 CENTRALIZED BMP PROJECT**

<b>Emission Source</b>	<b>Proposed Program Emissions CO<sub>2</sub>e (MT/yr)</b>
<b>Construction</b>	
Total	335.33
Construction (Amortized over 30 years)	11.18

CO<sub>2</sub>e= carbon dioxide equivalent;  
 MT/yr = metric tons per year;  
 see Appendix C for CalEEMod model outputs.

SOURCE: Modeling performed by ESA, 2013.

**TABLE 3.6-4  
 ESTIMATED CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS – PROPOSED REGIONAL  
 BMP PROJECT**

<b>Emission Source</b>	<b>Proposed Program Emissions CO<sub>2</sub>e (MT/yr)</b>
<b>Construction</b>	
Total	2,227.89
Construction (Amortized over 30 years)	74.26

NOTES: CO<sub>2</sub>e= carbon dioxide equivalent; MT/yr = metric tons per year; see Appendix C for CalEEMod model outputs.

SOURCE: Modeling performed by ESA, 2013.

As shown in Tables 3.6-2, 3.6-3, and 3.6-4, the total construction-related GHG emissions resulting from representative distributed, centralized, and regional structural BMP projects would be 53.52 MTCO<sub>2</sub>e/year, 335.33 MTCO<sub>2</sub>e/year, and 2,227.89 MTCO<sub>2</sub>e/year, respectively. For construction GHG emissions, SCAQMD recommends that the total construction emissions for a project be amortized over 30 years and added to its operational emission estimates (SCAQMD, 2008). Based on the emissions presented in the tables above, when the highest annual GHG emissions for a representative regional structural BMP project (2,227.89 MTCO<sub>2</sub>e/year) is amortized over 30 years, the resulting annual emissions would be 74.26 MTCO<sub>2</sub>/year. Because this annual emissions amount only represents approximately 2.5 percent of the SCAQMD’s recommended threshold of 3,000 MTCO<sub>2</sub>e/year for non-industrial projects, the construction-related GHG emissions generated would be relatively minimal.

Additionally, although the number of pumps that may be installed for some of the centralized and regional structural BMPs is unknown at this juncture, it is not anticipated that the annual GHG emissions contribution from the operation of these pumps would, when added to the annual construction-related emissions at these applicable structural BMP sites, result in total GHG emissions that exceed 3,000 MTCO<sub>2</sub>e/year at an individual BMP site. Furthermore, because the structural BMPs introduced into the EWMP areas under the program are not land use projects that would generate vehicle trips, GHG emissions would not be generated by motor vehicles traveling to and from the various structural BMP sites on a daily basis. As it is anticipated that only periodic worker trips to the structural BMP sites throughout the year would be required for inspection and maintenance activities, and the mobile GHG emissions generated by these worker trips would be negligible. Thus, because the total GHG emissions generated by the largest structural BMP projects (i.e., regional structural BMPs) under a worst-case scenario would not exceed the 3,000 MTCO<sub>2</sub>e/year benchmark, impacts associated with GHG emissions generated by the structural BMPs in the EWMP areas under the proposed program would be less than significant.

**Mitigation Measures:** None required

**Significance Determination:** Less than significant

### **Non-Structural (Institutional) BMPs**

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, there would be no impacts related to program-generated GHG emissions.

**Mitigation Measures:** None required

**Significance Determination:** No impact

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### **Consistency with GHG Emissions Reduction Plans or Policies**

#### **Impact 3.6-2: The proposed program could conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.**

As discussed in the impact analysis, the GHG emissions generated by each of the structural BMPs associated with the proposed program would not exceed the SCAQMD's recommended threshold of 3,000 MTCO<sub>2</sub>e /year for non-industrial projects. The primary source of GHG emissions generated by the majority of the structural BMPs would occur only during construction, which would be temporary in nature. Additionally, as the structural BMPs are not land use projects, GHG emissions associated with mobile sources would only occur from periodic vehicle trips by workers to the structural BMP sites for inspection and maintenance purposes, which would not generate substantial emissions. The annual GHG emissions associated with the operation of pumps at some of the centralized and regional structural BMP sites would also be minimal relative to the GHG emissions generated during construction of these structural BMPs. Consequently, the implementation of these structural BMPs in the EWMP areas under the program would not generate substantial amounts of GHG emissions that would hinder the State's ability to achieve AB 32's goal of achieving 1990 levels of GHG emissions by 2020.

### **Consistency with CARB Scoping Plan**

Out of the Recommended Actions contained in CARB's Scoping Plan (see Table 3.6-1), the actions that are most applicable to the proposed program would be Action W-4 (Reuse Urban Runoff), which aims to reduce urban runoff by capturing and treating the runoff. The program's BMPs would be implemented for this purpose, reducing and treating urban runoff throughout the County of Los Angeles to comply with the MS4 Permit. Implementation of the structural BMPs in the EWMP areas would serve as GHG emission reduction measures that are consistent with this recommended action from the Scoping Plan. Therefore, the program would not conflict with the CARB scoping plan, and this impact would be less than significant.

### **Consistency with County of Los Angeles Community Climate Action Plan**

As discussed previously, the County released its Final Draft CCAP in July 2014 that serves to mitigate and avoid GHG emissions associated with community activities in unincorporated Los Angeles County. The CCAP establishes a GHG reduction target that is consistent with AB 32. As part of the CCAP, 26 local actions have been identified to reduce GHG emissions in the unincorporated areas of the County. In particular, Measure WAW-2 (Recycled Water Use, Water

Supply Improvement Programs, and Stormwater Runoff) from the CCAP specifically aims to promote recycled water use and policies to better manage stormwater to protect local groundwater supplies. A part of the goal for this measure is to manage stormwater and protect local groundwater supplies. A specific implementation step associated with this measure identified in the CCAP is to expand the Low Impact Development (LID) stormwater catchment to more facilities where feasible in the County. Thus, the structural BMPs that would be implemented as part of the proposed program would be consistent with this GHG reduction measure of the CCAP. Therefore, the program would not conflict with the County's CCAP, and this impact would be less than significant.

**Mitigation Measures:** None required

**Significance Determination:** Less than significant

#### **Non-Structural (Institutional) BMPs**

As discussed in Chapter 2.0, *Project Description*, non-structural/institutional BMPs do not include the construction of new facilities. Consequently, there would be no conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

**Mitigation Measures:** None required

**Significance Determination:** No impact

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### **Cumulative Impact Discussion**

As discussed previously, CEQA considers a project's impacts related to GHG emissions inherently cumulative. Therefore, the discussion presented above comprises the cumulative impact analysis related to global warming and climate change. As concluded, because the GHG emissions generated by the individual structural BMP projects in the EWMP areas would not exceed SCAQMD's recommended threshold of 3,000 MT CO<sub>2</sub>e /year for non-industrial projects, the BMPs implemented under the proposed program would not result in substantial GHG emissions into the environment. Additionally, because the proposed BMPs under the program would serve to capture, treat, and manage stormwater runoff in the EWMP areas, the program would also be consistent with the applicable actions and measures of the CARB's Scoping Plan and County's CCAP, respectively. Overall, the proposed program would result in less than significant GHG and climate change cumulative impacts.

**Mitigation Measures:** None required

**Significance Determination:** Less than significant

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### 3.6.3 Summary of Impact Assessment

Table 3.6-5 shows a summary of the structural BMPs requiring mitigation.

**TABLE 3.6-5  
 SUMMARY OF GREENHOUSE GAS IMPACTS REQUIRING MITIGATION MEASURES**

Structural BMPs	Thresholds of Significance		
	GHG Emissions	Consistency with Plans	Cumulative Impacts
<i>Applicable Mitigation Measures:</i>	None Required	None Required	None Required
<b>Regional BMPs</b>			
Regional Detention and Infiltration	No	No	No
Regional Capture, Detention and Use	No	No	No
<b>Centralized BMP</b>			
Bioinfiltration	No	No	No
Constructed Wetlands	No	No	No
Treatment/Low Flow Diversions	No	No	No
Creek, River, Estuary Restoration	No	No	No
<b>Distributed BMPs</b>			
Site Scale Detention	No	No	No
LID – Infiltration/Filtration BMPs – Porous Pavement, Green Streets, Bioswale/Filter Strips, downspout disconnects	No	No	No
LID – Green Infrastructure – Capture and Use – Cisterns, Rain Barrels, Green roofs, Planter Boxes	No	No	No
Flow through Treatment BMPs	No	No	No
Source Control Treatment BMPs (catch basin inserts/screens, hydrodynamic separators, gross solids removal devices)	No	No	No
Low Flow Diversions	No	No	No

NOTE: These conclusions are based on typical BMP size and location