3.2 Air Quality

As a result of the analysis undertaken in the Initial Study for the proposed 2009 Master Plan, the LACCD determined that the proposed 2009 Master Plan may result in environmental impacts to air quality. Therefore, this issue is being carried forward for detailed analysis in this EIR. This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to air quality and to identify potential alternatives.

The analysis of air quality consists of a summary of the regulatory framework that guides the decision-making process, the existing conditions at the proposed 2009 Master Plan area, thresholds for determining if the proposed project would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to air quality at the proposed 2009 Master Plan site have been evaluated in accordance with the methodologies and protocols recommended by the South Coast Air Quality Management District (SCAQMD) and in accordance with Appendix G of the CEQA Guidelines.

3.2.1 Setting

3.2.1.1 Regulatory Setting

Federal

**Federal Clean Air Act**

The U.S. Environmental Protection Agency (EPA) enforces the Federal Clean Air Act (FCAA) and the associated national ambient air quality standards (NAAQS) for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), respirable particulate matter (PM₁₀), fine particulate matter (PM₂.⁵), and lead. These air quality standards are concentrations above which the pollutant is known to cause adverse health effects.

The EPA defines boundaries of “nonattainment” areas (i.e., geographical areas whose air quality does not meet federal air quality standards designed to protect public health). A nonattainment designation indicates that the air quality violates an ambient air quality standard. An attainment designation indicates that the air quality does not violate the established standard. An unclassified designation indicates that there are insufficient data for determining attainment or nonattainment. EPA requires that states submit State Implementation Plans (SIPs) demonstrating how clean air will be attained or maintained with each air quality basin.

The project site is located in Los Angeles County, within the South Coast Air Basin (Basin). The Basin includes the southern two-thirds of Los Angeles County, all of Orange County, and the western urbanized portions of Riverside and San Bernardino counties. Please refer to Table 3.2-2 for state and federal attainment/non-attainment designations.

**US EPA Endangerment Finding**

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHG are air pollutants covered by the Clean Air Act. The court held that the administrator must

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1 California Code of Regulations, Title 24, Division 6, Chapter 3, Sections 15000-15387. Available at http://ceres.ca.gov/topic/env_law/ceqa/guidelines/
determine whether or not emissions of GHG from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. The Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act was signed on April 17, 2009. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009-0171. The administrator proposed to find that:

Greenhouse gases in the atmosphere endanger the public health and welfare of current and future generations. Concentrations of greenhouse gases are at unprecedented levels compared to the recent and distant past. These high atmospheric levels are the unambiguous result of human emissions, and are very likely the cause of the observed increase in average temperatures and other climatic changes. The effects of climate change observed to date and projected to occur in the future—including but not limited to the increased likelihood of more frequent and intense heat waves, more wildfires, degraded air quality, more heavy downpours and flooding, increased drought, greater sea level rise, more intense storms, harm to water resources, harm to agriculture, and harm to wildlife and ecosystems—are effects on public health and welfare within the meaning of the Clean Air Act.

State

The California Air Resources Board (CARB) is the state agency that:

1. Sets and enforces emission standards for motor vehicles, fuels and consumer products;
2. Sets health-based air quality standards;
3. Conducts research;
4. Monitors air quality;
5. Identifies and sets control measures for toxic air contaminants;
6. Provides compliance assistance for businesses;
7. Produces education and outreach programs and materials; and
8. Oversees and assists local air quality districts which regulate most non-vehicular sources of air pollution.

CARB approves the regional air quality management plans (AQMPs) for incorporation into the SIP and is responsible for preparing those portions of the SIP related to mobile source emissions. The SIPs are then submitted to EPA for approval. CARB implements the California Clean Air Act (CCAA) requirements, regulating emissions from motor vehicles, and setting fuel standards. The CCAA established ambient air quality standards for ozone, PM$_{10}$, PM$_{2.5}$, CO, N$_2$O, SO$_2$, lead (Pb), visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. California standards are generally stricter than federal standards.
Table 3.2-1 presents the California and National (Federal) Ambient Air Quality Standards.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>California Standards</th>
<th>Federal Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Concentration¹</td>
<td>Method</td>
</tr>
<tr>
<td>Ozone (O₃)</td>
<td>1 Hour</td>
<td>0.09 ppm (180 µg/m³)</td>
<td>Ultraviolet Photometry</td>
</tr>
<tr>
<td></td>
<td>8 Hour</td>
<td>0.070 ppm (137 µg/m³)</td>
<td>--</td>
</tr>
<tr>
<td>Respirable Particulate Matter (PM₁₀)</td>
<td>24 Hour</td>
<td>50 µg/m³³</td>
<td>Gravimetric or Beta Attenuation*</td>
</tr>
<tr>
<td></td>
<td>Annual Arithmetic Mean</td>
<td>20 µg/m³³</td>
<td>--</td>
</tr>
<tr>
<td>Fine Particulate Matter (PM₂.₅)</td>
<td>24 Hour</td>
<td>No Separate State Standard</td>
<td>35 µg/m³³</td>
</tr>
<tr>
<td></td>
<td>Annual Arithmetic Mean</td>
<td>12 µg/m³³</td>
<td>Gravimetric or Beta Attenuation</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>8 Hour</td>
<td>9 ppm (10 mg/m³)</td>
<td>Non-Dispersive Infrared Photometry (NDIR)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>20 ppm (23 mg/m³³</td>
<td>Non-Dispersive Infrared Photometry (NDIR)</td>
</tr>
<tr>
<td></td>
<td>8 Hour (Lake Tahoe)</td>
<td>6 ppm (7 mg/m³³</td>
<td>--</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO₂)</td>
<td>Annual Arithmetic Mean</td>
<td>0.030 ppm (56 µg/m³³</td>
<td>Gas Phase Chemiluminescence</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.18 ppm (339 µg/m³³</td>
<td>Gas Phase Chemiluminescence</td>
</tr>
<tr>
<td>Lead⁸</td>
<td>30 Day Average</td>
<td>1.5 µg/m³³</td>
<td>Atomic Absorption</td>
</tr>
<tr>
<td></td>
<td>Calendar Quarter</td>
<td>--</td>
<td>Atomic Absorption</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO₂)</td>
<td>Annual Arithmetic Mean</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>0.04 ppm (105 µg/m³³</td>
<td>Ultraviolet Fluorescence</td>
</tr>
<tr>
<td></td>
<td>3 Hour</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.25 ppm (655 µg/m³³</td>
<td>--</td>
</tr>
<tr>
<td>Visibility Reducing Particles</td>
<td>8 Hour</td>
<td>Extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 – 30 miles of more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.</td>
<td>--</td>
</tr>
</tbody>
</table>
### 3.0 Setting, Environmental Impact Analysis, Mitigation Measures

#### 3.2 Air Quality

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>California Standards</th>
<th>Federal Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Concentration</td>
<td>Method</td>
</tr>
<tr>
<td>Sulfates</td>
<td>24 Hour</td>
<td>25 µg/m³</td>
<td>Ion Chromatography</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>1 Hour</td>
<td>0.03 ppm (42 µg/m³)</td>
<td>Ultraviolet Fluorescence</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>24 Hour</td>
<td>0.01 ppm (26 µg/m³)</td>
<td>Gas Chromatography</td>
</tr>
</tbody>
</table>

**Source:** California Air Resources Board, 6/2009

**Notes:**
1. California standards for O₃, CO (except Lake Tahoe), SO₂ (1 and 24 hour), NO₂, PM₁₀, PM₂.₅, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than O₃, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM₂.₅, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.
4. Any equivalent procedure, which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard, may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by EPA.
8. CARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

The CCAA requires that each area exceeding the state ambient air quality standards for O₃, CO, SO₂, and NO₂ must develop a plan aimed at achieving those standards (California Health and Safety Code 40911). The California Health and Safety Code, Section 40914, requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5 percent or more, averaged every consecutive three-year period. To satisfy this requirement, the Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) have to develop and implement air pollution reduction measures, which are described in their AQAP/AQMP outlining strategies for achieving the state ambient air quality standard for any criteria pollutants for which the region is classified as non-attainment. The AQAP/AQMP outlines both stationary and mobile-emission source-control measures and emphasizes Transportation Control Measures and Indirect Source Control Measures to reduce mobile-source emissions. These measures are also incorporated into the SIP to satisfy federal requirements.

The CCAA of 1988 required non-attainment areas in the state to prepare air quality attainment plans. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of non-attainment pollutants unless all feasible measures have been implemented. The Basin is currently classified as a non-attainment area for O₃, PM₂.₅, and PM₁₀ (Table 3.2-2).
Table 3.2-2  State and Federal Attainment/Non-attainment Designations for Basin

<table>
<thead>
<tr>
<th>Criteria Pollutant</th>
<th>State Status</th>
<th>Federal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>Attainment</td>
<td>Attainment/Maintenance</td>
</tr>
<tr>
<td>NO\textsubscript{2}</td>
<td>Attainment</td>
<td>Attainment/Maintenance</td>
</tr>
<tr>
<td>SO\textsubscript{2}</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>Non-attainment</td>
<td>Non-attainment</td>
</tr>
<tr>
<td>PM\textsubscript{2.5}</td>
<td>Non-attainment</td>
<td>Non-attainment</td>
</tr>
<tr>
<td>Ozone (1-hour)</td>
<td>Extreme Non-attainment</td>
<td>Extreme Non-attainment*</td>
</tr>
<tr>
<td>Ozone (8-hour)</td>
<td>Extreme Non-attainment</td>
<td>Severe-17 Non-attainment</td>
</tr>
<tr>
<td>Lead</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
</tbody>
</table>

*This was the status under a prior standard. The federal 1-hour ozone standard was vacated in 2006. Source: www.arb.ca.gov

**Criteria Pollutants**

The following paragraphs briefly describe the adverse human health effects of the six criteria pollutants monitored in the Basin.

**Ozone**

**Description:** Ozone (O\textsubscript{3}) is a gas composed of three oxygen atoms. Ozone is not usually emitted directly into the air, but at ground level is formed by photochemical reactions between NO\textsubscript{X} and Volatile Organic Compounds (VOCs) in the presence of sunlight. O\textsubscript{3} is a pungent, colorless gas typical of southern California smog. O\textsubscript{3} levels peak during the summer and early fall months. VOCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower. VOC is also commonly referred to as Reactive Organic Gas (ROG).

**Health Effects:** Breathing O\textsubscript{3} can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone can also reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. These health problems are particularly acute in sensitive receptors such as the sick, elderly, and young children.

**Sources:** Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents as well as natural sources emit NO\textsubscript{X} and VOCs that help form O\textsubscript{3}. Sunlight and hot weather cause O\textsubscript{3} to form in harmful concentrations in the air (EPA).

**Carbon Monoxide**

**Description:** Carbon monoxide (CO) is a colorless, practically odorless, and tasteless gas or liquid. It results from incomplete oxidation of carbon in combustion.

**Health Effects:** At low concentrations, CO can cause fatigue in healthy people and chest pain in people with heart disease. At higher concentrations, CO can cause impaired vision and coordination, headaches, dizziness, confusion, nausea, and flu-like symptoms. Acute effects are due to the formation of carboxyhemoglobin in the blood, which inhibits oxygen intake. At moderate concentrations, angina, impaired vision, and reduced brain function may result. At higher concentrations, CO exposure can be fatal.
Sources: Incomplete oxidation during combustion in gas ranges and unvented gas or kerosene heaters may cause high concentrations of CO in indoor air. Worn or poorly adjusted and maintained combustion devices (e.g., boilers, furnaces) can be significant sources. Auto, truck, or bus exhaust from roads or parking areas can be a source (EPA).

**Oxides of Nitrogen**

**Description:** Oxides of nitrogen (NO\(_X\)) is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. NO\(_X\) contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO\(_2\), a reddish-brown gas, and nitric oxide, a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. NO\(_X\) is a primary component of the photochemical smog reaction.

**Health Effects:** NO\(_2\) decreases lung function and may reduce resistance to infection.

**Sources:** Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO\(_X\) are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. NO\(_X\) can also be formed naturally.

**Sulfur Dioxide**

**Description:** Sulfur dioxide (SO\(_2\)) is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO\(_2\) levels in the Basin.

**Health Effects:** SO\(_2\) irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

**Sources:** According to the EPA, in California, the largest emission sources of SO\(_2\) are from fossil fuel combustion, emissions from non-road equipment, and industrial processes.

**Particulate Matter**

**Description:** Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air.

**Health Effects:** Coarse particles can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA’s scientific review concluded that fine particles at concentrations that extend well below those allowed by the current PM\(_{10}\) standards, which penetrate deeply into the lungs, are more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies. These health effects include premature death, increased hospital admissions, and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.
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Sources: Coarse particles (larger than 2.5 microns, or PM$_{10}$) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 microns, or PM$_{2.5}$) often come from fuel combustion, power plants, diesel buses, and trucks. Fine particles can also be formed in the atmosphere through chemical reactions.

**Executive Order S-3-05**

Establishes statewide GHG emission reduction targets at 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

**California Global Warming Solutions Act of 2006 (AB 32)**

This law requires CARB to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990 to be achieved by 2020. To achieve this, CARB has a mandate to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

CARB announced early-action GHG reduction measures in June 2007 and established a statewide emissions cap for 2020 in December 2007. In December 2008, CARB adopted regulations requiring mandatory GHG emissions reporting (Subchapter 10, Article 2, Sections 95100 to 95133, Title 17, California Code of Regulations) and approved a draft scoping plan outlining the main strategies California will use to reduce GHG emissions, including clean-car standards, energy efficiency, the renewable portfolio standard, and the low-carbon fuel standard, among other measures.

**SB 375**

Enacted in 2008, SB 375 requires metropolitan planning organizations (MPOs) to include sustainable communities strategies (SCS), as defined, in their regional transportation plans (RTPs) for the purpose of reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies.

**Regional**

The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the Basin. The SCAQMD operates monitoring stations in the basin, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The Air Quality Management Plan (AQMP) includes control measures and strategies to be implemented to attain state and federal ambient air quality standards. Following approval of the AQMP by CARB and EPA, SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment. The Basin is shown in Figure 3.2-1.

**Southern California Association of Governments Growth Vision.** The comprehensive Growth Vision outlines land use and transportation planning for the six-county Southern California Association of Governments (SCAG) region and includes strategies that are key in attaining the vision. The underlying principles of the Growth Vision include encouraging transit-oriented development, promoting pedestrian-friendly communities, supporting educational opportunities that
3.0 Setting, Environmental Impact Analysis, Mitigation Measures

3.2 Air Quality

promote balanced growth, and developing strategies to accommodate growth that use resources efficiently, eliminate pollution, and significantly reduce waste.

3.2.1.2 Environmental Setting

Regional Climate

The topography and climate of southern California combine to make the Basin an area with a high potential for air pollution, constraining efforts to achieve clean air. During the summer months, a warm air mass frequently descends over the cool moist marine layer produced by the interaction between the ocean’s surface and the lowest layer of the atmosphere. The warm upper layer forms a cap, or “inversion,” over the cool marine layer and inhibits the pollutants released into the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions which produce ozone, and this region experiences more days of sunlight than many other major urban areas in the nation.

Regional Air Quality

The SCAQMD has the responsibility to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone; carbon monoxide; nitrogen dioxide; particulate matter less than 10 microns; particulate matter less than 2.5 microns; sulfur dioxide; and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. California standards are more stringent than federal standards, and, in the case of PM$_{10}$ and SO$_2$, far more stringent. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride. The state and national ambient air quality standards for each of these pollutants are shown above in Table 3.2-1.

Greenhouse Gases

GHG emissions that contribute to global climate change are CO$_2$, methane (CH$_4$), N$_2$O, hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF$_6$), nitrogen trifluoride (NF$_3$), and hydrofluorinated ethers (HFE). In response to Executive Order S-3-05 (June 2005), which declared California’s particular vulnerability to climate change, the California Global Warming Solutions Act of 2006, Assembly Bill 32 (AB 32), was signed into effect on September 27, 2006. In passing the bill, the California Legislature found that:

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

(California Health & Safety Code, § 38500, Division 25.5, Part 1).
Figure 3.2-1, South Coast Air Basin
3.0 Setting, Environmental Impact Analysis, Mitigation Measures

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Almost 90 percent of the total GHG emissions in the 1990 inventory were in the form of CO₂ (ARB, 2007). Emissions of CO₂ occur largely from combustion of fossil fuels. Other GHG emissions such as methane and nitrous oxide are also tracked by state inventories but occur in much smaller quantities. The global warming potential of methane and nitrous oxide are 21 and 310 times that of CO₂, respectively. When quantifying GHG emissions, the different global warming potentials of GHG pollutants are usually taken into account by normalizing their rates to a CO₂-equivalent emission rate (CO₂e).

AB 32 required CARB to adopt a statewide GHG emissions limit for 2020 based on the 1990 emissions level. CARB staff recommended that the Board approve 427 million metric tons of carbon dioxide equivalent (MMT CO₂e) as the total statewide aggregated GHG 1990 emissions level and 2020 emissions limit (CARB, 2007). This recommendation was approved by the ARB on December 6, 2007. CARB staff estimated the 2020 “business-as-usual” emissions level as 596 MMT CO₂e, effectively establishing California’s emission reduction goal at 169 MMT CO₂e.

California’s GHG emissions are large in a global context and growing over time (CARB, 2007). By 2004, the state’s GHG emissions had grown to approximately 484 MMT CO₂e, or roughly one percent of the 49,000 MMT CO₂e emitted globally (IPCC, 2007). Statewide emissions of GHGs in 1990 and 2004 are summarized in Table 3.2-3. Emission sources are broken out into seven major categories: transportation; electricity generation; industrial; residential; agriculture; commercial; and forestry.

<table>
<thead>
<tr>
<th>Sector</th>
<th>1990 MMT CO₂e</th>
<th>Percent of Total Gross Emissions</th>
<th>2004 MMT CO₂e</th>
<th>Percent of Total Gross Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>23.4</td>
<td>5 percent</td>
<td>27.9</td>
<td>6 percent</td>
</tr>
<tr>
<td>Commercial</td>
<td>14.4</td>
<td>3 percent</td>
<td>12.8</td>
<td>3 percent</td>
</tr>
<tr>
<td>Electricity Generation</td>
<td>110.6</td>
<td>26 percent</td>
<td>119.8</td>
<td>2 percent</td>
</tr>
<tr>
<td>Forestry (excluding sinks)</td>
<td>0.2</td>
<td>&lt;1 percent</td>
<td>0.2</td>
<td>&lt;1 percent</td>
</tr>
<tr>
<td>Industrial</td>
<td>103.0</td>
<td>24 percent</td>
<td>96.2</td>
<td>20 percent</td>
</tr>
<tr>
<td>Residential</td>
<td>29.7</td>
<td>7 percent</td>
<td>29.1</td>
<td>6 percent</td>
</tr>
<tr>
<td>Transportation</td>
<td>150.7</td>
<td>35 percent</td>
<td>182.4</td>
<td>38 percent</td>
</tr>
<tr>
<td>Forestry Sinks</td>
<td>-6.7</td>
<td>--</td>
<td>-4.7</td>
<td>--</td>
</tr>
</tbody>
</table>

Source: CARB, 2007²

### 3.2.2 Significance Thresholds

As noted in the Initial Study, for the purposes of this EIR, and in accordance with Appendix G of the CEQA Guidelines, an impact to air quality is considered significant if the proposed project would:

²The remaining 1.3 MMT CO₂e and 16.0 MMT CO₂e for 1990 and 2004, respectively, are from unspecified fuel combustion and Ozone Depleting Substances substitute use, which is not attributed to an individual sector. Percents may not total 100 due to rounding.
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- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standards or contribute substantially to an existing or projected air quality standard;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

In addition to the significance criteria established by CEQA, the SCAQMD has established specific regional significance thresholds in order to examine the effect of project emissions on the air quality of the Basin. SCAQMD has also established specific localized significance thresholds in order to examine the effect of project emissions to the sensitive receptors local to the project site. If project-specific emissions exceed any of the regional thresholds in Table 3.2-4 or localized thresholds in Table 3.2-5 below, the project would be considered significant.

### Table 3.2-4  SCAQMD Regional Significance Thresholds

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>VOC (lbs/day)</th>
<th>NO\textsubscript{X} (lbs/day)</th>
<th>CO (lbs/day)</th>
<th>SO\textsubscript{X} (lbs/day)</th>
<th>PM\textsubscript{10} (lbs/day)</th>
<th>PM\textsubscript{2.5} (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>75</td>
<td>100</td>
<td>550</td>
<td>150</td>
<td>150</td>
<td>55</td>
</tr>
<tr>
<td>Operational</td>
<td>55</td>
<td>55</td>
<td>550</td>
<td>150</td>
<td>150</td>
<td>55</td>
</tr>
</tbody>
</table>

SCAQMD’s localized significance thresholds are specific to a project’s Source Receptor Area, distance to the nearest sensitive receptor, and acreage. The project is located in Source Receptor Area #7 – East San Fernando Valley. The nearest sensitive receptors are residences located adjacent (approximately 25 meters distance) to the project site, south of Eldridge Avenue and west of Hubbard Street. SCAQMD lookup tables provide thresholds for 1-acre sites, 2-acre sites, and 5-acre sites. To represent a worst-case analysis, the thresholds for a 1-acre site were utilized. The localized significance thresholds specific to the project are presented in Table 3.2-5 below.

### Table 3.2-5  SCAQMD Localized Significance Thresholds

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NO\textsubscript{X} (lbs/day)</th>
<th>CO (lbs/day)</th>
<th>PM\textsubscript{10} (lbs/day)</th>
<th>PM\textsubscript{2.5} (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>91</td>
<td>498</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
3.0 Setting, Environmental Impact Analysis, Mitigation Measures  
3.2 Air Quality

3.2.3 Environmental Impact Analysis

3.2.3.1 Methodology

Typically, assessment of air quality impact from a proposed project requires evaluating emissions from construction and operational activities compared to pollutant significance thresholds to determine whether the project’s air quality impact is significant. Pollutant thresholds established by SCAQMD for construction and operation are presented in Table 3.2-4 and Table 3.2-5 and are used to determine the level of significance.

Construction

Construction emissions are considered short-term because of the time duration, while operational emissions are considered long-term. In order to quantify construction emissions accurately, construction data from the project applicant was obtained and reasonable assumptions were made to simulate realistic construction activities. Air quality impacts were analyzed on a regional and localized level and compared with the regional and localized significance thresholds. Regional air quality thresholds examine the effect of project emissions on the air quality of the Basin, while localized air quality impacts examine the effect of project emissions on the neighborhood around the project site. Regional impacts for both short-term and long-term project emissions were assessed using the URBEMIS2007 Version 9.2.4 computer program.

Construction-related emissions can be distinguished as either on-site or off-site. On-site emissions generated during construction principally consist of exhaust emissions from the operation of heavy-duty construction equipment, fugitive dust (as PM$_{10}$ and PM$_{2.5}$) from disturbed soil, and VOC emissions from asphalt paving and painting. Off-site emissions during construction consists of exhaust emissions and entrained paved road dust (as PM$_{10}$ and PM$_{2.5}$) from worker commute trips, material delivery trips, and haul-truck material removal trips to and from the construction site.

As shown in Table 3.2-6, there are seven buildings and facilities approved as part of the current 2007 Master Plan that are either under construction or in pre-construction stages. Although emissions from these projects were included in the 2007 Master Plan EIR, they are also included with the proposed 2009 Master Plan emissions as well, since the construction phasing is anticipated to occur during the same timeframe. To provide the most conservative, project-specific analysis, each of the phases was analyzed collaboratively in the Air Quality Technical Memorandum (included as Appendix C of the EIR).
### Table 3.2-6  Construction Phasing

<table>
<thead>
<tr>
<th>Construction Phase Number</th>
<th>Construction Project</th>
<th>Construction Commencement</th>
<th>Construction Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Health, Fitness, and Athletics Building</td>
<td>06 / 2007</td>
<td>8 / 2009</td>
</tr>
<tr>
<td>2</td>
<td>Family &amp; Consumer Studies with Bookstore</td>
<td>9 / 2008</td>
<td>5 / 2010</td>
</tr>
<tr>
<td>3</td>
<td>Media Arts Center</td>
<td>8 / 2009</td>
<td>3 / 2011</td>
</tr>
<tr>
<td>4b</td>
<td>-East Campus Central Plant</td>
<td>12 / 2009</td>
<td>12 / 2011</td>
</tr>
<tr>
<td>5</td>
<td>Student Services and Administration Building</td>
<td>12 / 2011</td>
<td>6 / 2013</td>
</tr>
<tr>
<td>6</td>
<td>Plant Facilities with Central Plant</td>
<td>1 / 2013</td>
<td>6 / 2015</td>
</tr>
<tr>
<td>7a</td>
<td>Athletic Fields</td>
<td>10 / 2009</td>
<td>9 / 2010</td>
</tr>
<tr>
<td>8</td>
<td>College Programs and Activities Center</td>
<td>6 / 2014</td>
<td>6 / 2015</td>
</tr>
</tbody>
</table>

The peak daily emissions of \( \text{NO}_x \), \( \text{CO} \), \( \text{SO}_x \), \( \text{PM}_{10} \), \( \text{PM}_{2.5} \) and \( \text{CO}_2 \) are anticipated to occur when the following construction phases overlap in December of 2009:

- Building Construction – Family and Consumer Studies with Bookstore
- Building Construction – Media Arts Center
- Mass Grading – Science and Math Technology Center
- Mass Grading – Athletic Fields

The peak daily emissions of VOCs are anticipated to occur when the following construction phases overlap in October 2011:

- Asphalt and Painting – Science and Math Technology Center
- Asphalt and Painting – Eldridge Avenue Streetscape Improvements

A summary of the maximum daily emissions from the collaborative phasing is presented in Section 3.1.3.2.

**Operation**

An operational air quality analysis was performed for the collaborative project by deriving emissions generated by mobile sources based on enrollment statistics. It is anticipated that the facilities will accommodate a maximum of 15,000 enrolled students and 1,100 faculty and staff by 2015. According to LAMC staff, the current (Spring 2009) number of students enrolled in the college is approximately 9,100, and the current number of faculty and staff is approximately 550. The difference between the existing enrollment and the enrollment at 2015 is 5,900 students. The difference between the existing faculty and staff and the faculty and staff in 2015 is 550.

It is anticipated that not all enrolled students would attend LAMC on the same day; according to LAMC staff, it is more likely that only two-thirds of the students enrolled would attend on any given day. Therefore, the increase of 5,900 students was reduced by one-third to yield a more realistic
estimate of 3,933 students daily. The increased number of students (3,933 students) and the increased staff (550 staff members) were added together (4,483), and then multiplied by an average trip generation rate of 1.2 in order to determine the number of average daily trips (ADT). The trip generation rate of 1.2 was derived from the Institute of Transportation Engineers (ITE) Trip Generation manual, 7th Edition, for institutional land uses. The number of average daily trips was determined to be 5,380.

The emissions associated with 5,380 ADT were derived by multiplying the ADT with an average trip length of 12 miles and by emission factors provided by SCAQMD, which are based on the CARB EMFAC2007 Version 2.3 model for on-road passenger vehicles. Table 3.2-7 presents the emission factors utilized for project build-out year, 2015.

### Table 3.2-7  On-Road Emission Factors

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Criteria Pollutants</th>
<th>Greenhouse Gases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VOC</td>
<td>NOₓ</td>
</tr>
<tr>
<td>Emission Factor (lbs/mile)</td>
<td>0.00066355</td>
<td>0.00060188</td>
</tr>
</tbody>
</table>

**Greenhouse Gases**

Construction and operational GHG emissions were estimated for the collaborative project. Because OPR believes the unique nature of GHG emissions warrants investigation of a statewide threshold of significance for GHG emissions, OPR has asked CARB technical staff to recommend a method for setting thresholds of significance. CARB has not formally adopted statewide significance thresholds at this point in time. Until further guidance is provided from CARB, determination of significant impacts to GHG emissions can be performed using the tiered decision-tree approach recommended in the SCAQMD Interim CEQA GHG Significance Threshold Draft Guidance Document adopted on December 5, 2008. According to SCAQMD, “Project emissions will include direct, indirect, and, to the extent information is available, life cycle emissions during construction and operation. Construction emissions will be amortized over the life of the project, defined as 30 years, added to the operational emissions, and compared to the applicable interim GHG significance threshold tier” (SCAQMD, 2008). A schematic of the SCAQMD tiered decision tree is provided in Figure 3.2-2. In the proposed SCAQMD Interim CEQA GHG Significance Threshold Draft Guidance Document, a Tier 3 significance threshold of 3,000 metric MT of CO₂e per year was proposed for non-industrial projects. The proposed 3,000 MT CO₂e per year threshold is still being debated, but in the absence of alternative significance thresholds the 3,000 MT CO₂e per year level will be applied for determination of GHG impacts from the project.
Global warming potentials (GWP) for non-CO$_2$ greenhouse gases were taken from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (SAR), reprinted in Table C.1 of the California Climate Action Registry (CCAR) General Reporting Protocol (GRP) Version 3.1 (CCAR, 2009). The GWP corresponding to methane and nitrous oxide is 21 and 310, respectively, meaning that every molecule of methane and nitrous oxide has a global warming potential equivalent to 21 and 310 molecules of CO$_2$, respectively.

The CCAR GRP Version 3.1 is identified by SQAQMD as an acceptable guidance document for GHG quantification and was used as the basis for quantifying GHG emissions from electricity and natural gas in this report. Table C.2 of the CCAR GRP Version 3.1 indicates that appropriate emission factors associated with electricity in the WECC California eGRID Subregion are 724.12, 0.0302, and 0.0081 lbs per megawatt hour (MWh) for CO$_2$, CH$_4$, and N$_2$O, respectively (CCAR, 2009). Applying the corresponding GWPs listed above yields the following formula for GHG emissions associated with electricity consumption:

$$\text{lbs } \text{CO}_2\text{e} = \text{MWh} \times \left[724.12 + (0.0302 \times 21) + (0.0081 \times 310)\right]$$

Table C.7 of the CCAR GRP Version 3.1 gives CO$_2$ emission factors for natural gas combustion as 53.06 kg CO$_2$ per million British thermal units (MMBtu). Methane and nitrous oxide emission factors for stationary combustion of natural gas in the commercial/institutional sector are given in
3.0 Setting, Environmental Impact Analysis, Mitigation Measures

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CCAR GRP Version 3.1 Table C.8 as 0.005 and 0.0001 kg/MMBtu, respectively (CCAR, 2009). Applying the corresponding GWPs listed above yields the following formula for GHG emissions associated with natural gas use:

\[
kg\ _{CO_2e} = MMBtu \times \left[53.06 + (0.005 \times 21) + (0.0001 \times 310)\right]
\]

In addition to GHG emissions associated with direct energy consumption, there are also GHG emissions resulting from the consumption of resources such as water. The California Energy Commission (CEC) estimates that the typical amount of electric energy required for the supply and conveyance, treatment, and distribution of water in southern California is 10.2 MWh per million gallons (MG). An additional 2.5 MWh is required for the treatment of every MG of wastewater generated by a project (CEC, 2005). SCAQMD recommends using the CEC guidance for quantifying the embodied energy associated with water consumption and wastewater generation (Krause, 2009). This embodied energy value is converted to GHG emissions using the formula described above derived from CCAR GRP Version 3.1.

According to the EPA, the national average net GHG emissions from landfilling mixed municipal solid waste (MSW) is 0.12 metric tons of carbon equivalent (MTCE) per wet ton of MSW, or 0.44 MTCO₂e (USEPA, 2006).

When estimating construction emissions, URBEMIS2007 includes maximum daily emissions of CO₂ in pounds per day, from all construction activities. CO₂ emissions during construction are primarily from equipment exhaust (from graders, backhoes, water trucks, etc.) and worker’s vehicles. SCAQMD advises that construction-related GHG emissions should be amortized over the life of the project, which will be 30 years (SQAQMD, 2008).

GHG emissions of CO₂ and CH₄ from vehicular traffic during project operation were estimated by multiplying the ADT by an average trip length of 12 miles, and by the emission factors (lbs/mile) provided by SCAQMD, which are based on the CARB EMFAC2007 model for on-road passenger vehicles. The emissions from CH₄ were converted to CO₂e using the CH₄ global warming potential of 21.

3.2.3.2 Campus and Athletic Fields Impacts

Construction Impacts

The peak daily emissions of NOₓ, CO, SOₓ, PM₁₀, PM₂.₅, and CO₂ are anticipated to occur when the following construction phases overlap in December 2009:

- Building Construction – Family and Consumer Studies with Bookstore
- Building Construction – Media Arts Center
- Mass Grading – Science and Math Technology Center
- Mass Grading – Athletic Fields
The peak daily emissions of VOCs are anticipated to occur when the following construction phases overlap in October 2011:

- Asphalt and Painting – Science and Math Technology Center
- Asphalt and Painting – Eldridge Avenue Streetscape Improvements

A summary of the unmitigated peak daily construction emissions are presented in Table 3.2-8 below. For a detailed breakdown of emissions by construction activity and phase, please refer to the Technical Memorandum in Appendix C.

**Table 3.2-8  Unmitigated Collaborative Peak Daily Construction Emissions**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Criteria Pollutants</th>
<th>GHG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VOC (lbs/day)</td>
<td>NOx (lbs/day)</td>
</tr>
<tr>
<td>Peak Daily Emissions</td>
<td>58.89</td>
<td>97.78</td>
</tr>
<tr>
<td>SCAQMD Regional Thresholds</td>
<td>75</td>
<td>100</td>
</tr>
<tr>
<td>Exceeds Thresholds?</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

On a peak day of construction activity, without mitigation, the collaborative project will not exceed the SCAQMD regional thresholds of significance.

SCAQMD’s localized significance thresholds are specific to a project’s Source Receptor Area, distance to the nearest sensitive receptor, and acreage. Due to these factors, the localized significance thresholds will vary between construction sites. For the purposes of this EIR, the peak daily emissions from the Eldridge Avenue Streetscape Improvements are presented due to the close proximity of the construction activities to sensitive receptors; of the 9 construction sites, the Eldridge Avenue Streetscape Improvements site has the most stringent localized significance thresholds. The project is located in Source Receptor Area #7 – East San Fernando Valley. The nearest sensitive receptors are residences located adjacent to the project site, south of Eldridge Avenue, and west of Hubbard Street. To represent a worst-case analysis, the thresholds for a 1-acre site were utilized. The localized significance thresholds specific to the project are presented in Table 3.2-9 below. For the LST analyses of the other construction sites, please refer to the Technical Memorandum in Appendix C.

**Table 3.2-9  Unmitigated Peak Daily Construction Emissions – Localized Significance Eldridge Avenue Streetscape Improvements**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NOx (lbs/day)</th>
<th>CO (lbs/day)</th>
<th>PM10 (lbs/day)</th>
<th>PM2.5 (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Daily Emissions</td>
<td>42.85</td>
<td>20.78</td>
<td>14.08</td>
<td>4.36</td>
</tr>
<tr>
<td>SCAQMD Localized Thresholds</td>
<td>91</td>
<td>498</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Exceeds Thresholds?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Without mitigation, the construction emissions from the Eldridge Avenue Streetscape Improvements would exceed the SCAQMD localized thresholds of significance for PM$_{10}$ and PM$_{2.5}$.

Construction impacts are discussed below for each pertinent CEQA air quality checklist question.

**Would the project conflict with or obstruct implementation of the applicable air quality plan?**

The AQMP for the Basin sets forth a comprehensive program that will lead the Basin into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments.

Indicators or criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 of the SCAQMD’s CEQA Air Quality Handbook. These indicators are discussed below:

- **Consistency Criterion 1**: Potential increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations that Consistency Criterion 1 refers to are the SCAQMD regional and localized significance thresholds. As shown in Table 3.2-9 above, the project would temporarily exceed the short-term construction thresholds for localized PM$_{10}$ and PM$_{2.5}$ emissions. Impacts to Consistency Criterion 1 are potentially significant. Mitigation measures are necessary.

- **Consistency Criterion 2**: Potential to exceed the assumptions in the AQMP in 2010 or increments based on the years of project build-out phase.

Assumptions of the AQMP used in projecting future emission levels are based in part on land-use data provided by the Lead Agency general plan documentation. Projects that propose general plan amendments and changes of zone may increase the intensity of use and/or result in higher traffic volumes, thereby resulting in increased mobile source emissions when compared to the AQMP assumptions. At most, the proposed 2009 Master Plan would include conditionally permitted uses but does not propose general plan amendments or changes of zone. Impacts to Consistency Criterion 2 are less than significant.

**Would the project violate any air quality standards or contribute substantially to an existing or projected air quality standard?**

As shown in Table 3.2-9 above, the project would exceed SCAQMD localized significance thresholds for PM$_{10}$ and PM$_{2.5}$. Therefore, the project would violate air quality standards and the impact would be significant. Mitigation measures are necessary.
3.0 Setting, Environmental Impact Analysis, Mitigation Measures

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Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The portion of the Basin in which the proposed 2009 Master Plan is located is designated as a non-attainment area for ozone and PM\textsubscript{10} and PM\textsubscript{2.5} under state and federal standards. As shown in Table 3.2-9 above, the project would exceed SCAQMD localized significance thresholds for PM\textsubscript{10} and PM\textsubscript{2.5}. Therefore, as a whole, the proposed 2009 Master Plan would violate air quality standards and the impact would be significant. Mitigation measures are necessary.

Would the project expose sensitive receptors to substantial pollutant concentrations?

The nearest sensitive receptors are located adjacent to the various construction sites, and include El Cariso Golf Course and Park, LifeHOUSE Maclay Healthcare Center, Harding Street Elementary, Hubbard Street Elementary, and surrounding residential neighborhoods. As shown in Table 3.2-9 above, the project would exceed SCAQMD localized significance thresholds for PM\textsubscript{10} and PM\textsubscript{2.5}. Therefore, as a whole, the proposed 2009 Master Plan would violate air quality standards and the impact would be significant. Mitigation measures are necessary.

Would the project create objectionable odors affecting a substantial number of people?

The proposed 2009 Master Plan does not propose land uses typically associated with emitting objectionable odors (i.e., wastewater treatment plants, chemical plants, composting operations, refineries, landfills, dairies). Potential odor sources associated with the various construction sites may result from construction equipment exhaust and the application of asphalt and architectural coating during construction activities. These emissions would be temporary, short-term, and intermittent in nature, and would cease upon completion of the respective phase of construction. Odors associated with diesel exhaust would be minimized by requiring that idling of such equipment and vehicles be limited to no more than 5 minutes. Additionally, each phase of construction would be required to comply with SCAQMD Rule 204, which prevents occurrences of public nuisance air quality discharges. Therefore, odors associated with short-term construction of each phase of construction would be less than significant.

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

The SCAQMD recommends that construction-related GHG emissions should be amortized over 30 years and added to operational GHG emissions. Please see the Operational Impacts section for construction GHG emission considerations.

Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

The proposed 2009 Master Plan would be in compliance with all plans, policies, and regulations of agencies adopted for the purpose of reducing GHG emissions. Therefore, the project would not conflict with any applicable plan, policy or regulation, and the impact would be less than significant.
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3.2 Air Quality

**Operational Impacts**

Using the methodology described in Section 3.1.3.1., LAMC’s build-out peak daily operational emissions compared to SCAQMD’s operational thresholds are shown in Table 3.2-10.

LAMC build-out operational emissions are in the form of mobile source emissions from increased vehicle trips. Localized significance thresholds are meant to analyze impacts to the sensitive receptors in the immediate project vicinity. Since mobile source emissions from project-generated traffic would occur, both inside and outside boundaries of LAMC, and according to SCAQMD LST methodology, an operational localized significance threshold analysis is not required for mobile sources.

<table>
<thead>
<tr>
<th>Table 3.2-10</th>
<th>2015 Peak Daily Operational Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Students</td>
<td>Increase in Staff</td>
</tr>
<tr>
<td>5,900</td>
<td>550</td>
</tr>
<tr>
<td>SCAQMD Regional Operational Thresholds</td>
<td>55</td>
</tr>
<tr>
<td>Exceeds Threshold?</td>
<td>No</td>
</tr>
</tbody>
</table>

**Would the project conflict with or obstruct implementation of the applicable air quality plan?**

The AQMP for the SCAB sets forth a comprehensive program that will lead the SCAB into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments.

Indicators or criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 of the SCAQMD’s CEQA Air Quality Handbook. These indicators are discussed below:

- **Consistency Criterion 1**: Potential increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations that Consistency Criterion 1 refers to are the SCAQMD regional significance thresholds. As shown in Table 3.2-10 above, LAMC’s build-out would not exceed the long-term operational thresholds for regional emissions. Impacts to Consistency Criterion 1 are less than significant.

- **Consistency Criterion 2**: Potential to exceed the assumptions in the AQMP in 2010 or increments based on the years of LAMC’s build-out phase.

Assumptions of the AQMP used in projecting future emission levels are based in part on land-use data provided by the Lead Agency general plan documentation. Projects that propose general plan amendments and changes of zone may increase the intensity of use and/or result in higher traffic volumes, thereby resulting in increased mobile-source emissions when compared to the AQMP.
assumptions. At most, the proposed 2009 Master Plan would include conditionally permitted uses but does not propose general plan amendments or changes of zone. Impacts to Consistency Criterion 2 are less than significant.

**Would the project violate any air quality standards or contribute substantially to an existing or projected air quality standard?**

As shown in Table 3.2-10 above, LAMC’s build-out long-term emissions from operation are below the SCAQMD regional thresholds of significance for all criteria pollutants. Therefore, LAMC’s build-out would not violate any air quality standards or contribute substantially to an existing or projected air quality standard and impacts are less than significant.

**Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

The portion of the Basin within which the project is located is designated as a non-attainment area for ozone and PM\(_{10}\) and PM\(_{2.5}\) under state and federal standards. As shown in Table 3.2-10 above, LAMC’s build-out would not exceed SCAQMD localized significance thresholds. Therefore, LAMC’s build-out would not violate operational air quality standards and the impact would be less than significant.

**Would the project expose sensitive receptors to substantial pollutant concentrations?**

The nearest sensitive receptors are located adjacent to LAMC, and include El Cariso Golf Course and Park, LifeHOUSE Maclay Healthcare Center, Harding Street Elementary, Hubbard Street Elementary, and surrounding residential neighborhoods. As shown in Table 3.2-10 above, LAMC’s build-out long-term emissions from operation are below the SCAQMD regional thresholds of significance for all criteria pollutants. Therefore, LAMC’s build-out would not expose sensitive receptors to substantial pollutant concentrations and impacts are less than significant.

**Would the project create objectionable odors affecting a substantial number of people?**

LAMC’s build-out does not propose land uses typically associated with emitting objectionable odors (i.e., wastewater treatment plants, chemical plants, composting operations, refineries, landfills, dairies). No odors are anticipated during project operation. Additionally, LAMC’s build-out would be required to comply with SCAQMD Rule 204, which prevents occurrences of public nuisance air quality discharges. Therefore, odors associated with short-term construction and long-term operation of the project would be less than significant.

**Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**GHGs from Electric Energy**

Baseline electric energy demand for LAMC is estimated at 5,214 MWh annually, based on metered data received from LADWP for the period of record beginning April 2008 and ending March 2009. Under a business-as-usual (BAU) growth scenario, future electric energy demand at full build-out of LAMC is estimated at 7,449 MWh/yr. Therefore, the BAU scenario projects a net increase in
electricity consumption associated with LAMC of 2,235 MWh/yr, with a corresponding increase in GHG emissions of 737 MTCO₂e/yr.

**GHGs from Natural Gas**

Baseline natural gas usage for LAMC is estimated at 8,132 MMBtu annually, based on metered data for the 2007 calendar year. Under a BAU growth scenario, future natural gas demand at full build-out of the project is estimated at 11,617 MMBtu/yr. Therefore, the BAU scenario projects a net increase in natural gas use associated with the project of 3,485 MMBtu/yr, with a corresponding increase in GHG emissions of 185 MTCO₂e/yr.

**GHGs from Water/Wastewater**

Baseline water use for LAMC is estimated at 13 MG/yr, based on utility invoices for the period of record beginning July 2008 and ending December 2008. Applying the typical embodied energy factor given by the CEC yields 135 MWh/yr of electric energy required for potable water supply and conveyance, treatment, and distribution to LAMC. Under a BAU growth scenario, future water demand is estimated at 19 MG/yr with embodied energy of 192 MWh/yr. Therefore, the BAU scenario projects a net increase in energy use for water supply and conveyance, treatment, and distribution associated with the project of 58 MWh/yr with a corresponding increase in GHG emissions of 19 MTCO₂e/yr.

Baseline wastewater disposal from LAMC is estimated at 4 MG/yr, based on utility invoices for the period of record beginning August 2008 and ending December 2008. Applying the typical embodied energy factor given by the CEC yields 9 MWh/yr of electric energy required for treatment of wastewater derived from LAMC. Under a BAU growth scenario, future wastewater disposal is estimated at 9 MG/yr with embodied energy of 14 MWh/yr. Therefore, the BAU scenario projects a net increase in energy use for wastewater treatment associated with the project of 4 MWh/yr, with a corresponding increase in GHG emissions of 1 MTCO₂e/yr.

**GHGs from Construction**

SCAQMD advises that construction-related GHG emissions should be amortized over the life of the project, which will be 30 years. The annual CO₂ construction emissions from each of the 10 construction projects shown in Table 3.2-6 were added together to yield 3,731.93 tons of total CO₂ emissions from all project construction. 3,731.93 tons amortized throughout the 30-year life of the project yields 124.40 tons of CO₂ per year.

**GHGs from Operational Transportation**

The project’s peak daily and annual operational GHG emissions from transportation were calculated using the methodology described in Section 3.1.3.1. The results are shown in Table 3.2-11. CH₄ emissions were converted to carbon dioxide equivalents (CO₂e) using its global warming potential of 21, then added to CO₂ emissions for total CO₂e.

<table>
<thead>
<tr>
<th>Derived ADT</th>
<th>CO₂ (lbs/day)</th>
<th>CH₄ (lbs/day)</th>
<th>CO₂e (lbs/day)</th>
<th>CO₂e (MTCO₂e/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,380</td>
<td>71,140.50</td>
<td>3.82</td>
<td>71,220.80</td>
<td>8,528.58</td>
</tr>
</tbody>
</table>

Table 3.2-11  2015 Peak Operational GHG Emissions
3.0 Setting, Environmental Impact Analysis, Mitigation Measures

3.2 Air Quality

The net increase in GHG emissions associated with the project under a BAU scenario is [972 electricity, natural gas and water + 124.40 amortized construction + 8,528.58 transportation] 9,624.98 MTCO$_2$e/yr. This emissions level exceeds the 3,000 MTCO$_2$e/yr significance threshold provided in the SCAQMD Interim CEQA GHG Significance Threshold Draft Guidance Document for non-industrial projects. It is important to note that the BAU scenario represents a worst-case scenario. LAMC is committed to utilizing energy efficiency, renewable energy, and alternative transportation in order to abate GHG emissions to the fullest extent feasible. Because the worst-case scenario exceeds the draft significance threshold for GHG emission impacts, the impact of the project on generation of GHG emissions would be significant.

**Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?**

The project would be in compliance with all plans, policies, and regulations of agencies adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, the impact of the project on conflict with any applicable plan, policy or regulation would be less than significant.

**Cumulative Impacts**

The cumulative impacts of past, present, and probable future related projects would result in an increase in GHG emissions. Overall, cumulative impacts on GHG emissions related to the project would be significant.

**3.2.4 Mitigation Measures for Significant Impacts**

<table>
<thead>
<tr>
<th>Impact Number</th>
<th>Impact</th>
<th>Mitigation Measure (MM) Number</th>
<th>Mitigation Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact AQ-1</td>
<td>Exceedance of SCAQMD regional and localized construction thresholds.</td>
<td>MMAQ-1</td>
<td>Diesel-powered equipment shall use low-sulfur diesel, as defined in SCAQMD Rule 431.2, to the maximum extent feasible.</td>
</tr>
<tr>
<td>MMAQ-2</td>
<td>Develop and implement a Construction Traffic Emission Management Plan to minimize emissions from vehicles including, but not limited to, scheduling truck deliveries to avoid peak-hour traffic conditions, consolidating truck deliveries, and prohibiting truck idling in excess of 10 minutes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMAQ-3</td>
<td>Suspend the use of all construction equipment during first-stage smog alerts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMAQ-4</td>
<td>Use electricity or alternate fuels for on-site construction equipment instead of diesel equipment to the extent feasible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMAQ-5</td>
<td>Maintain construction equipment by conducting regular tune-ups and retard diesel engine timing, to the extent feasible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMAQ-6</td>
<td>Use electric welders to avoid emissions from gas or diesel welders, to the extent feasible.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMAQ-7</td>
<td>Use on-site electricity or alternative fuels rather than diesel-powered or gasoline-powered generators to the extent feasible.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Implementation of Mitigation Measures AQ-1 through AQ-11 would reduce construction air quality impacts associated with the project. However, with the exception of MMAQ-9 and MMAQ-10, the effectiveness of the mitigation measures above cannot be quantified. The project's emissions after MMAQ-9 and MMAQ-10, which address PM$_{10}$ and PM$_{2.5}$ emissions are presented in Table 3.2-12 below.
Table 3.2-12  Mitigated Peak Daily Construction Emissions – Localized Significance
Eldridge Avenue Streetscape Improvements

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NO&lt;sub&gt;x&lt;/sub&gt; (lbs/day)</th>
<th>CO (lbs/day)</th>
<th>PM&lt;sub&gt;10&lt;/sub&gt; (lbs/day)</th>
<th>PM&lt;sub&gt;2.5&lt;/sub&gt; (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Daily Emissions</td>
<td>42.85</td>
<td>20.78</td>
<td>7.19</td>
<td>2.92</td>
</tr>
<tr>
<td>SCAQMD Localized Thresholds</td>
<td>91</td>
<td>498</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Exceeds Thresholds?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

With the implementation of Mitigation Measures AQ-9 and AQ-10, PM<sub>10</sub> and PM<sub>2.5</sub> emissions would be reduced during construction; however, the effectiveness of all the proposed mitigation measures cannot be quantified. Moreover, it is not expected that other feasible mitigation exists that would reduce those emission to below SCAQMD's localized thresholds of significance. Therefore, temporary construction emissions of PM<sub>10</sub> would continue to exceed localized thresholds of significance, and the impact would remain significant.

Implementation of Mitigation Measures AQ-12 through AQ-21 would reduce GHG emission impacts associated with the project. However, the effectiveness of the mitigation measures cannot be quantified. It is not expected that feasible mitigation exists that would reduce GHG emissions to a level below SCAQMD's interim significance threshold. Therefore, GHG emissions continue to exceed localized thresholds of significance, and the impact would remain significant.

3.2.5  Level of Significance after Mitigation

Impacts from construction emissions and greenhouse gases would be significant after mitigation.