4.4

Greenhouse Gas Emissions

There has been significant recent advancement in scientific understanding of the relationship between certain air pollutant emissions and trend-line changes in climatic conditions that have national and even global ramifications. New information about greenhouse gas (GHG) emissions and their potential effects on global climate change, as well as new public environmental policy, have emerged and become more formalized. Recognizing that climate change is an environmental issue now warranting review under CEQA, this EIR provides a thorough assessment of the Specific Plan's contribution to GHG emissions and its effects on climate change.

This section provides an overview of climate change and greenhouse gases, a summary of existing greenhouse gas emissions in Oakland and the region, the regulatory framework, and an analysis of impacts on climate change and greenhouse gases that would result from implementation of the proposed plan.

Physical Setting

There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased GHG emissions that keep the Earth's surface warm by trapping heat in the Earth's atmosphere,[1] in much the same way as glass traps heat in a greenhouse. While many studies show evidence of warming over the last century and predict future global warming, the precise causes of such warming and its potential effects are far less certain.[2] While the greenhouse effect is responsible for maintaining a habitable climate on Earth, human activity has caused increased concentrations of these gases in the atmosphere, contributing to an increase in global temperatures and alteration of climatic conditions.

The U.S. Environmental Protection Agency (U.S. EPA) has recently concluded that scientists know with virtual certainty that:

- Human activities are changing the composition of Earth's atmosphere. Increasing levels of greenhouse gases like carbon dioxide (CO_2) in the atmosphere since pre-industrial times are well-documented and understood.
- The atmospheric buildup of CO_2 and other greenhouse gases is largely the result of human activities such as the burning of fossil fuels.

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1 U.S. Environmental Protection Agency, Global Warming – Climate: Uncertainties (web page), January 2000, http://yosemite.epa.gov/oar/globalwarming.nsf/content/ClimateUncertainties.html#likely, accessed July 24, 2007.

2 "Global climate change" is a broad term used to describe any worldwide, long-term change in the earth's climate. "Global warming" is more specific and refers to a general increase in temperatures across the earth, although it can cause other climatic changes, such as a shift in the frequency and intensity of weather events and even cooler temperatures in certain areas, even though the world, on average, is warmer.

- A warming trend of approximately 0.7° to 1.5° F occurred during the 20th century. Warming occurred in both the northern and southern hemispheres, and over the oceans.
- The major greenhouse gases emitted by human activities remain in the atmosphere for periods ranging from decades to centuries. It is therefore virtually certain that atmospheric concentrations of greenhouse gases will continue to rise over the next few decades. Increasing greenhouse gas concentrations tend to warm the planet."[3]

At the same time, there is much uncertainty concerning the magnitude and rate of the warming. Specifically, the U.S. EPA notes that "important scientific questions remain about how much warming will occur; how fast it will occur; and how the warming will affect the rest of the climate system, including precipitation patterns and storms. Answering these questions will require advances in scientific knowledge in a number of areas:

- Improving understanding of natural climatic variations, changes in the sun's energy, land-use changes, the warming or cooling effects of pollutant aerosols, and the impacts of changing humidity and cloud cover.
- Determining the relative contribution to climate change of human activities and natural causes.
- Projecting future greenhouse emissions and how the climate system will respond within a narrow range.
- Improving understanding of the potential for rapid or abrupt climate change."[4]

Greenhouse Gases

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are the principal GHGs, and when concentrations of these gases exceed the natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO_2, CH_4, and N_2O occur naturally, but are also generated through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Other human-generated GHGs, which have much higher heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6), which are byproducts of certain industrial processes.[5]

Potential Effects of Human Activity on GHG Emissions

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO_2 concentrations were found to have increased by nearly 30 percent above pre-industrial (circa 1860) concentrations.

The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP),[6] and is expressed as a function of how much warming would be

3 U.S. EPA, 2000, op. cit.

4 Ibid.

5 CalEPA, 2006b. *Final 2006 Climate Action Team Report to the Governor and Legislature.* Sacramento, CA. April 3.

6 The potential of a gas or aerosol to trap heat in the atmosphere

caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalents (CO_2e).

Global Emissions

Worldwide emissions of GHGs in 2004 were 30 billion tons of CO_2e per year[7] (including both ongoing emissions from industrial and agricultural sources, but excluding emissions from land-use changes).

U.S. Emissions

In 2004, the United States emitted about 8 billion tons of CO_2e or about 25 tons/year/person. Of the four major sectors nationwide - residential, commercial, industrial and transportation - transportation accounts for the highest fraction of GHG emissions (approximately 35 to 40 percent); these emissions are entirely generated from direct fossil fuel combustion.[8]

State of California Emissions

In 2004, California emitted approximately 550 million tons of CO_2e, or about 6 percent of the U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, California has one of the fourth lowest per capita GHG emission rates in the country, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.[9] Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The California EPA Climate Action Team stated in its March 2006 report that the composition of gross climate change pollutant emissions in California in 2002 (expressed in terms of CO_2 equivalence) were as follows:

- Carbon dioxide (CO_2) accounted for 83.3 percent;
- Methane (CH_4) accounted for 6.4 percent;
- Nitrous oxide (N_2O) accounted for 6.8 percent; and
- Fluorinated gases (HFCs, PFC, and SF_6) accounted for 3.5 percent.[10]

The California Energy Commission found that transportation is the source of approximately 41 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent, and industrial sources at 20 percent. Agriculture and forestry is the source of approximately 8.3 percent, as is the source categorized as "other," which includes residential and commercial activities.[11]

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7 United Nations Framework Convention on Climate Change (UNFCCC), *Sum of Annex I and Non-Annex I Countries Without Counting Land-Use, Land-Use Change and Forestry (LULUCF). Predefined Queries: GHG total without LULUCF* (Annex I Parties). Bonn, Germany, http://unfccc.int/ghg_emissions_data/predefined_queries/items/3814.php, accessed May 2, 2007.

8 U.S. EPA, 2000, op. cit.

9 California Energy Commission (CEC), Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 - Final Staff Report, publication # CEC-600-2006-013-SF, Sacramento, CA, December 22, 2006; and January 23, 2007 update to that report.

10 Cal EPA, 2006b, op. cit.

11 California Energy Commission (CEC), 2007, op. cit.

Bay Area Emissions

BAAQMD most recently updated the GHG emissions inventory in 2010 using a base year of 2007.[12] In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of the Bay Area's GHG emissions, accounting for 36.41 percent of the Bay Area's 95.8 million tons of GHG emissions in 2007. Industrial and commercial sources were the second largest contributors of GHG emissions with about 36.40 percent of total emissions. Domestic sources (e.g., home water heaters, furnaces, etc.) account for about 7 percent of the Bay Area's GHG emissions, and energy production accounted for 15.9 percent. Off-road equipment and agriculture make us the remainder with approximately 3 percent and 1.2 percent of the total Bay Area 2007 GHG emissions, respectively.

Oakland Emissions

In June 2006 the City of Oakland, along with 10 other local governments in Alameda County, committed to becoming a member of Local Governments for Sustainability (ICLEI) and participating in the Alameda County Climate Protection Project. In December 2006, the City of Oakland completed their Baseline Greenhouse Gas Emissions Inventory Report to determine the community-wide levels of GHG emissions that the City of Oakland emitted in its base year, 2005.

Subsequently, the City of Oakland has completed a Draft Energy and Climate Action Plan, which includes an updated analysis of community-wide emissions in the Appendix. As shown in **Table 4.4-1**, Oakland emitted approximately 3 million metric tons of CO2e in 2005 from all focus area sources and highway transportation sources. Of these emissions, more than half were from transportation (59 percent). 37 percent of emissions were from building energy use, and the remaining 4 percent was from landfilled solid waste.

[12] BAAQMD. *Source Inventory of Bay Area Greenhouse Gas Emissions.* February 2010.

Table 4.4-1
Oakland Estimated Community-wide GHG Emissions, 2005

GHG Emission Source	Metric Tons of Carbon Dioxide Equivalent (CO_2e)	Percent of Total
Non-Highway Transportation	759,883	22%
Highway Transportation	1,006,911	29%
Mobile Sources (Port of Oakland)	211,910	6%
Commercial/Industrial Electricity	320,212	9%
Commercial/Industrial Natural Gas	285,365	8%
Residential Electricity	150,105	4%
Residential Natural Gas	346,339	10%
Other Stationary Sources	226,900	7%
Landfill Methane from Solid Waste	126,361	4%
Total	3,433,986	100%

Source: City of Oakland, Garrett Fitzgerald, Sustainability Coordinator.

Note: Individual percentages do not sum to total due to rounding.

Construction and Development Emissions

The construction and operation of developments, such as the proposed Project, cause GHG emissions. Operational phase GHG emissions result from energy use associated with heating, lighting and powering buildings (typically through natural gas and electricity consumption in Oakland), pumping and processing water, as well as fuel used for transportation and decomposition of waste associated with building occupants. New development can also create GHG emissions in its construction and demolition phases including the use of fuels in construction equipment, creation and decomposition of building materials, vegetation clearing, natural gas usage, electrical usage (since electricity generation by conventional means is a major contributor to GHG emissions, discussed below), and transportation.

However, it is important to acknowledge that new development does not necessarily create entirely new GHG emissions, since most of the persons who will visit or occupy new development will come from other locations where they were already causing such GHG emissions. Further, as discussed above, it has not been demonstrated that new GHG emissions caused by a local development project can affect global climate change, or that a project's net increase in GHG emissions, if any, when coupled with other activities in the region, would be cumulatively considerable.

Draft Energy and Climate Action Plan

The City has drafted an Energy and Climate Action Plan to identify, evaluate and prioritize opportunities to reduce energy consumption and GHG emissions in its own government operations and throughout the Oakland community. On July 7, 2009, the Oakland City Council directed staff to develop the draft Oakland Energy and Climate Action Plan using a preliminary planning GHG reduction target equivalent to 36 percent below 2005 GHG emissions by 2020 and 80 percent below 2005 levels by 2050, as well as annual benchmarks for meeting the target. The City has numerous plans and policies to help reduce GHG, including the Zero Waste Strategic Plan and Green Building Ordinance. In addition, the state of

California recently adopted the new Green Building Code known as CALGreen—both the City's local ordinance and CALGreen are now in effect. Oakland's Zero Waste Goal is to cut the City's current waste disposal to 40,000 tons per year—approximately a 90-percent reduction. This will require double the waste disposal reduction that Oakland has achieved over the past 15 years. Progress toward the Zero Waste Goal will be measured by the tons of annual waste landfilled, with key milestones at five-year intervals between now and 2020.

Potential Effects of Human Activity on Global Climate Change

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming is taking place, including substantial loss of ice in the Arctic.[13]

However, the understanding of GHG emissions, particulate matter, and aerosols on global climate trends remains uncertain. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling, rather than warming, effects, as discussed in detail in numerous publications by the International Panel on Climate Change (IPCC), namely "Climate Change 2001, The Scientific Basis"(2001).[14]

Acknowledging uncertainties regarding the rate at which anthropogenic greenhouse gas emissions would continue to increase (based upon various factors under human control, such as future population growth and the locations of that growth; the amount, type, and locations of economic development; the amount, type, and locations of technological advancement; adoption of alternative energy sources; legislative and public initiatives to curb emissions; and public awareness and acceptance of methods for reducing emissions), and the impact of such emissions on climate change, the IPCC devised a set of six "emission scenarios" which utilize various assumptions about the rates of economic development, population growth, and technological advancement over the course of the next century.[15] These emission scenarios are paired with various climate sensitivity models to attempt to account for the range of uncertainties that affect climate change projections. The wide range of temperature, precipitation, and similar projections yielded by these scenarios and models reveal the magnitude of uncertainty presently limiting climate scientists' ability to project long-range climate change (as previously discussed).

The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects, according to the IPCC[16]:

- Snow cover is projected to contract, with permafrost areas sustaining thawing;

[13] International Panel on Climate Change (IPCC) Special Report on Emissions Scenarios, 2000, www.grida.no/climate/ipcc/emission/002.htm, accessed July 24, 2007.

[14] The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.

[15] IPCC, 2000, op. cit.

[16] Ibid.

- Sea ice is projected to shrink in both the Arctic and Antarctic;
- Hot extremes, heat waves, and heavy precipitation events are likely to increase in frequency;
- Future tropical cyclones (typhoons and hurricanes) will likely become more intense;
- Non-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns. Increases in the amount of precipitation are very likely in high-latitudes, while decreases are likely in most subtropical regions; and
- Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic Ocean.

Potential secondary effects from global warming include global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

Potential Effects of Climate Change on State of California

According to the California Air Resources Board (ARB), some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years.[17] Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system, and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts. In addition, projecting regional impacts of climate change and variability relies on large-scale scenarios of changing climate parameters, using information that is typically at too general a scale to make accurate regional assessments.[18]

Below is a summary of some of the potential effects reported in an array of studies that could be experienced in California as a result of global warming and climate change:

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate change and/or weather are less well studied, and even less well understood.[19] If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally,

[17] California Air Resources Board (ARB), 2006c. Public Workshop to Discuss Establishing the 1990 Emissions Level and the California 2020 Limit and Developing Regulations to Require Reporting of Greenhouse Gas Emissions, Sacramento, CA. December 1.

[18] Kiparsky, M. and P.H. Gleick, 2003. *Climate Change and California Water Resources: A Survey and Summary of the Literature*. Oakland, CA: Pacific Institute for Studies in Development. July 2003

[19] U.S. EPA, 2007, op. cit.

severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State.[20]

Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. For example, models that predict drier conditions (i.e., parallel climate model (PCM)) suggest decreased reservoir inflows and storage and decreased river flows relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows.[21]

A July 2006 technical report prepared by the California Department of Water Resources (DWR) addresses the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta. Although the report projects that "[c]limate change will likely have a significant effect on California's future water resources . . . [and] future water demand," it also reports that "much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain. This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood."[22] DWR adds that "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future."[23] Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows.[24] Water purveyors, such as the East Bay Municipal Utilities District (EBMUD), are required by state law to prepare Urban Water Management Plans (UWMPs) (discussed below, under Regulatory Context for Greenhouse Gas Emissions and Climate Change) that consider climatic variations and corresponding impacts on long-term water supplies.[25] DWR has published a 2005 SWP Delivery Reliability Report, which presents information from computer simulations of the SWP operations based on historical data over a 73-year period (1922–1994). The DWR notes that the results of those model studies "represent the best available assessment of the delivery capability of the SWP." In addition, the DWR is continuing to update its studies and analysis of water supplies. EBMUD would incorporate this information from DWR in its update of its current UWMP 2005 (required every five years per the California Water Code), and information from the UWMP can be incorporated into Water Supply Assessments (WSAs) and Water Verifications prepared for certain development projects in accordance with Cal. Water Code Section 10910, et. seq. and Cal. Government Code Section 66473.7, et. seq.

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[20] California Climate Change Center (CCCC), 2006. Our Changing Climate: Assessing the Risks to California, CEC-500-2006-077, Sacramento, CA. July.

[21] Brekke, L.D., et al, 2004. "Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California." Journal of the American Water Resources Association. 40(2): 149–164. Malden, MA, Blackwell Synergy for AWRA.

[22] California Department of Water Resources (DWR), 2006. Progress on Incorporating Climate Change into Management of California Water Resources, Sacramento, CA. July.

[23] Ibid.

[24] Kiparsky 2003, op. cit; DWR, 2005, op. cit.; Cayan, D., et al, 2006. Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF), Sacramento, CA. February.

[25] California Water Code, Section 10631(c).

Hydrology

As discussed above, climate change could potentially affect the following: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes -- expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could also jeopardize California's water supply. In particular, saltwater intrusion would threaten the quality and reliability of the state's major fresh water supply that is pumped from the southern portion of the Sacramento/San Joaquin River Delta. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a $30 billion agricultural industry that produces half the country's fruits and vegetables. The California Climate Change Center (CCCC) notes that higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase, crop-yield could be threatened by a less reliable water supply, and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year that certain crops, such as wine grapes, bloom or ripen, and thus affect their quality.[26]

Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. In 2004, the Pew Center on Global Climate Change released a report examining the possible impacts of climate change on ecosystems and wildlife.[27] The report outlines four major ways in which it is thought that climate change could affect plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage.

Regulatory Context

Global climate change is addressed through the efforts of various federal, state, regional and local government agencies as well as national and international scientific and governmental conventions and programs. These agencies work jointly, as well as individually to understand and regulate the effects of greenhouse gas emissions and resulting climate change through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies, conventions and programs focused on global climate change are discussed below.

[26] California Climate Change Center (CCCC), 2006, op. cit.

[27] Parmesan, C. and H. Galbraith, *Observed Impacts of Global Climate Change in the U.S.*, Arlington, VA: Pew Center on Global Climate Change, November 2004.

International and Federal

Kyoto Protocol

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008–2012. It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments.

Copenhagen Summit

The 2009 United Nations Climate Change Conference (Copenhagen Summit) was held in Denmark in December 2009. The conference included the 15 Conference of the Parties to the United Nations Framework Convention on Climate Change, and the fifth meeting of the Parties to the Kyoto Protocol. A framework for climate change mitigation beyond 2012 was to be agreed there. The Copenhagen Accord was drafted by the U.S., China, India, Brazil, and South Africa on December 18, 2009 and judged to be a "meaningful agreement" by the United Stated government. It was "taken note of" but not "adopted" in a debate of all the participating countries the next day. The document recognized that climate change is one of the greatest challenges of the present day and that actions should be taken to keep any temperature increases to below 2 degrees C. The document is not legally binding and does not contain any legally binding commitments for reducing CO2 emissions.

Climate Change Technology Program

The United States has opted for a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (which is led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative.[28]

U.S. Environmental Protection Agency

To date, the U.S. EPA has not regulated GHGs under the Clean Air Act (discussed above) based on its assertion in *Massachusetts et. al. v. EPA et. al*[29] that the "Clean Air Act does not authorize it to issue mandatory regulations to address global climate change and that it would be unwise to regulate GHG emissions because a causal link between GHGs and the increase in global surface air temperatures has not been unequivocally established." However, in the same case from 2007 (*Massachusetts v. EPA*), the U.S. Supreme Court held that the U.S. EPA can, and should, consider regulating motor-vehicle GHG emissions.

In December of 2009, the U.S. EPA issued an "endangerment" finding about carbon dioxide and other greenhouse gases. The endangerment finding classified six greenhouse gases as pollutants that threaten

[28] Climate Change Technology Program (CCTP), About the U.S. Climate Change Technology Program (web page), Washington, D.C., last updated April 2006, http://www.climatetechnology.gov/about/index.htm, accessed July 24, 2007.

[29] U.S. Supreme Court, Massachusetts et. al. v. EPA et. al (No. 05-1120, 415F 3d 50), April 2, 2007.

health: carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, per-fluorocarbons and sulfur hexafluoride. These findings could potentially enable the EPA to make rules restricting greenhouse gas emissions under the Clean Air Act, but to date no such rules have been enacted. However, this action was a prerequisite for implementing greenhouse gas emissions standards. Current efforts include issuing greenhouse gas emission standards for new motor vehicles, developing and implementing renewable fuel standard program regulations, proposing carbon pollution standards for new power plants, and setting greenhouse gas emissions thresholds to define when permits are required for new and existing industrial facilities under the Clean Air Act, and establishing a greenhouse gas reporting program.

State of California

Assembly Bill (AB) 1493

On July 1, 2002, the California Assembly passed Assembly Bill (AB) 1493 (signed into law on July 22, 2002), requiring the ARB to "adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." The regulations were to be adopted by January 1, 2005, and apply to 2009 and later model-year vehicles. In September 2004, ARB responded by adopting "CO_2-equivalent fleet average emission" standards. The standards will be phased in from 2009 to 2016, reducing emissions by 22 percent in the "near term" (2009–2012) and 30 percent in the "mid-term" (2013–2016), as compared to 2002 fleets.

Executive Order (EO) S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05, establishing statewide GHG emission reduction targets. This EO provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent below 1990 levels. The Secretary of the California Environmental Protection Agency (CalEPA) is charged with coordinating oversight of efforts to meet these targets and formed the Climate Action Team (CAT) to carry out the EO.

California Assembly Bill 32 (AB 32)

On August 31, 2006, the California Assembly passed Bill 32 (AB 32) (signed into law on September 27, 2006), the California Global Warming Solutions Act of 2006. AB 32 commits California to reduce GHG emissions to 1990 levels by 2020 and establishes a multi-year regulatory process under the jurisdiction of the ARB to establish regulations to achieve these goals. The regulations shall require monitoring and annual reporting of GHG emissions from selected sectors or categories of emitters of GHGs.

On December 11, 2008, ARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. The Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions to meet AB 32 targets. The 2020 emissions baseline used in the 2008 Scoping Plan is 596 million metric tons (MMT) CO2e. This estimate of statewide 2020 emissions was developed using pre-recession 2007 data and reflects GHG emissions expected to occur in the absence of any reduction measures in 2010. ARB re-evaluated the baseline in light of the economic downturn and updated the projected 2020 emissions to 545 MMT CO_2e. Two reduction measures (Pavley I and the Renewables Portfolio Standard of 20 percent by 2020) not previously included in the 2008 Scoping Plan baseline were incorporated into the updated baseline, further reducing the 2020 statewide emissions projection to 507 MMT CO_2e. The updated forecast of 507 MMT CO_2e is referred to

as the AB 32 2020 baseline. Reduction of an estimated 80 MMTCO_2e are necessary to reduce statewide emissions to the AB 32 target of 427 MMT CO_2e by 2020.

The Scoping Plan also includes recommended measures that were developed to reduce greenhouse gas emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures, shown below in Table 4.6-2 by sector, also put the state on a path to meet the long-term 2050 goal of reducing California's greenhouse gas emissions to 80 percent below 1990 levels.

Table 4.4-2
AB 32 Scoping Plan GHG Reduction Actions by Sector

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
Transportation		
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15.0
T-3[1]	Regional Transportation-Related Greenhouse Gas Targets	5.0
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures. -Ship Electrification at Ports, System-Wide Efficiency Improvements	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5
T-9	High Speed Rail	1.0
Electricity and Natural Gas		
E-1	Energy Efficiency (32,000 GWh of Reduced Demand) - Increased Utility Energy Efficiency Programs, More Stringent Building & Appliance Standards, Additional Efficiency and Conservation Programs	15.2
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities) Target of 3000 MW Total Installation by 2020	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions) - Utility Energy Efficiency Programs, Building and Appliance Standards, Additional Efficiency and Conservation Programs	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1
Green Buildings		
GB-1	Green Buildings	26.0
Water		
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†

Industry		
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01

[1]The Scoping Plan identified 5.0 MMT CO2e as a placeholder for what could be achieved by the Sustainable Communities and Climate Protection Act of 2008 (SB 375) through sustainable regional transportation and local land use planning. The SB 375 Staff Report identifies 3.0 MMT CO2e, which is the aggregate from the regional passenger vehicle GHG reduction targets established for the 18 Metropolitan Planning Organizations approved in 2010.

[†]GHG emission reduction estimates are not included in calculating the total reductions needed to meet the 2020 target

While ARB has identified a GHG reduction target of 15 percent for local governments themselves, it has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions. However, the Scoping Plan does state 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. ARB 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.

The Scoping Plan identified 5.0 MMT CO_2e as a placeholder for what could be achieved by the Sustainable Communities and Climate Protection Act of 2008 (SB 375) through sustainable regional transportation and local land use planning. The SB 375 Staff Report identifies 3.0 MMT CO_2e, which is the aggregate from the regional passenger vehicle GHG reduction targets established for the 18 Metropolitan Planning Organizations approved in 2010.

California Senate Bill 97 (SB 97)

SB 97, signed by governor of California in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Resources Agency by July 1,2009 guidelines for mitigating GHG emissions or the effects of GHG emissions, as required by CEQA. The California Resources Agency was required to certify and adopt these guidelines by January 1, 2010. Amendments to the CEQA Guidelines pursuant to SB 97 were adopted in March 2010.

Amendments to the CEQA Guidelines

Amendments to the CEQA Guidelines pursuant to SB 97 became effective on March 18, 2010. Among the changes included in these recent CEQA Guidelines amendments are guidance for determining the significance of impacts from greenhouse gas emissions (CEQA Guidelines §15064.4). These guidelines indicate that "The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency . . . A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." A lead agency shall have discretion to determine, in the context of a

particular project, whether to use a model or other methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use, or whether to rely on a qualitative analysis or performance based standard.

These Guidelines also indicate that a lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

- "The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."

In determining thresholds of significance, § 15064.7 indicates that "Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. When adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

Finally, in considering mitigation measures related to greenhouse gas emissions, § 15126.4 indicates that "lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

- Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
- Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions; and
- Measures that sequester greenhouse gases;
- In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

California Senate Bill 375 (SB 375)

Governor Schwarzenegger signed SB 375 into law in September 2008 (Chapter 728, Statutes of 2008). The legislation aligns regional transportation planning efforts, regional GHG reduction targets, and land

use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) that will prescribe land use allocation in the MPO's regional transportation plan. ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from 5 years to 8 years for local governments located in an MPO that meets certain requirements. City or County land use policies (e.g., General Plans) are not required to be consistent with the RTP including associated SCSs or APSs. Qualified projects consistent with an approved SCS or APS and categorized as "transit priority projects" would receive incentives under new provisions of CEQA.

California Green Building Standards Code (CALGreen)

The California Green Building Standards Code (CALGreen) supplements the California Building Standards Code (Title 24) and requires all new buildings in the state to incorporate energy saving features. New standards include the following:

- Water efficiency: New buildings must demonstrate at least a 20 percent reduction in water use over typical baseline conditions.
- Construction waste: At least 50 percent of construction waste must be recycled, reused, or otherwise diverted from landfilling.
- Interior finishes: Interior finishes such as paints, carpet, vinyl flooring, particle board, and other similar materials must be low-pollutant emitting.
- Landscape irrigation: In non-residential buildings, separate water meters must be provided for a building's indoor and outdoor water use. Large landscape projects must use moisture-sensing irrigation systems to limit unnecessary watering.
- Mandatory inspections of energy systems: In non-residential buildings over 10,000 square feet mandatory inspections of energy systems (e.g., heat furnace, air conditioner and mechanical equipment) are required to ensure that such systems are working at their maximum capacity and according to their design efficiencies.

California Urban Water Management Planning Act

The California Urban Water Management Planning Act requires various water purveyors throughout the State of California (such as EBMUD) to prepare UWMPs, which assess the purveyor's water supplies and demands over a 20-year horizon (California Water Code, Section 10631 *et seq*.). As required by that statute, UWMPs are updated by the purveyors every five years. As discussed above, this is relevant to global climate change which may affect future water supplies in California, as conditions may become drier or wetter, affecting reservoir inflows and storage and increased river flows.[30]

[30] Brekke, 2004, op. cit.

Regional

Bay Area Air Quality Management District (BAAQMD)

CEQA Air Quality Guidelines and Thresholds of Significance

In 2010, the BAAQMD's Board of Directors adopted the CEQA Air Quality Guidelines and Thresholds of Significance (BAAQMD, Revised 2011) as an effort to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the San Francisco Bay Area Air Basin. In response to a legal challenge, the BAAQMD no longer recommends the thresholds be used as a generally applicable measure of significant impacts.[31]

However, the BAAQMD CEQA Air Quality Guidelines include recommendations for analysis procedures and an Appendix D (Threshold of Significance Justification); the BAAQMD also prepared detailed documentation for CEQA thresholds prior to its 2010 adoption of the guidelines (BAAQMD, 2010). The City of Oakland Planning, Building, and Neighborhood Preservation Department as lead agency used this documentation as evidence in developing thresholds of significance for criteria air pollutants and community risk and hazards. The preparers of this EIR have reviewed the evidence used to formulate the BAAQMD CEQA Guidelines including BAAQMD's May 2010 staff report recommending the adoption of the thresholds and its attachments, and conclude that substantial evidence supports the continued use of BAAQMD's 2010 thresholds of significance as thresholds of significance for air quality and greenhouse gas impacts in this EIR.

BAAQMD Climate Protection Program

BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts.

Bay Area 2010 Clean Air Plan

The Bay Area 2010 Clean Air Plan (CAP) provides policy recommendations for achieving greenhouse gas emission reductions through transportation control measures (TCMs) and land use measures (LUMs). Major stationary sources of GHG are within the jurisdiction of the BAAQMD, and as of 2012, BAAQMD is developing rules for permitting new and modified stationary sources of GHG. See Section 4.1, Air Quality, for a discussion of how the CAP relates to the Specific Plan.

[31] The BAAQMD describes the status of its CEQA Guidelines at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQAGuidelines.aspx. The May 2010 staff report can also be found here.

City of Oakland

Oakland Energy and Climate Action Plan

In 2009, the City Council directed staff to develop an Energy and Climate Action Plan (ECAP) using a preliminary planning GHG reduction target equivalent to 36% below 2005 GHG emissions by 2020 and 80 percent below 2005 levels by 2050, with annual benchmarks for meeting the target. Based on Oakland's baseline 2005 GHG inventory, totaling approximately 3 million metric tons of CO2e emissions and current forecasts of business-as-usual emissions growth, reducing GHG emissions by the equivalent of 36% below 2005 levels by 2020 will require taking actions that cumulatively add up to approximately 1.1 million metric tons of CO2e reductions. On December 4, 2012, the City Council adopted the ECAP which evaluates and prioritizes opportunities to reduce energy consumption and GHG emissions in its own government operations and throughout the community.

The ECAP also includes a set of actions aimed at increasing local resilience and helping Oakland adapt to the projected impacts of climate change. In addition, Oakland is participating in the regional Adapting to Rising Tides (ART) project, led by the San Francisco Bay Conservation Development Commission (BCDC) and the National Oceanic and Atmospheric Administration (NOAA). The ART project, which began in late 2010, was created to advance regional understanding of how sea level rise and other climate change impacts will affect the Bay Area and to begin to explore adaptation strategies that may benefit Oakland and the region.

Other City of Oakland Programs and Policies

The City of Oakland has supported and adopted a number of programs and policies designed to reduce GHG emissions and continue Oakland's progress toward becoming a model sustainable city. Other relevant programs and policies include:

- Sustainable Oakland Program. Oakland's sustainability efforts are coordinated through the Sustainable Oakland program, a product of the Oakland Sustainability Community Development Initiative (SDI) created in 1998 (Ordinance 74678 C.M.S.).
- Green Economy, Business and Jobs / Green Business – The Alameda County Green Business Program offers technical assistance and incentives to businesses and agencies wishing to go beyond basic regulatory requirements. Additionally, the City implemented a Socially Responsible Business Task Force, which created a checklist designed to measure the relative level of social and environmental responsibility of firms nominated to receive major financial assistance from the City.
- Downtown Housing – The 10K Downtown Housing Initiative has a goal of attracting 10,000 new residents to downtown Oakland by encouraging the development of 6,000 market-rate housing units. This effort is consistent with Smart Growth principles.
- Waste Reduction and Recycling – The City of Oakland has implemented a residential recycling program increasing collection of yard trimmings and food waste. This program has increased total yard trimming collections by 46 percent compared to 2004, and recycling tonnage by 37 percent. The City has also adopted Construction and Demolition Recycling requirements, described above.
- Polystyrene Foam Ban Ordinance - In June 2006, the Oakland City Council passed the Green Food Service Ware Ordinance (Ordinance 14727, effective as of January 1, 2007), which prohibits the use of polystyrene foam disposable food service ware and requires, when cost neutral, the use of biodegradable or compostable disposable food service ware by food vendors and City facilities.

- Zero Waste Resolution - In March 2006, the Oakland City Council adopted a Zero Waste Goal by 2020 Resolution (Resolution 79774 C.M.S.), and commissioned the creation of a Zero Waste Strategic Plan to achieve the goal.
- Stormwater Management - Provision C.3 of the NPDES permit is the section of the permit containing stormwater pollution management requirements for new development and redevelopment projects. Among other things, Provision C.3 requires that certain new development and redevelopment projects incorporate post-construction stormwater pollution management measures, including stormwater treatment measures, stormwater site design measures, and source control measures, to reduce stormwater pollution after the construction of the project. These requirements are in addition to standard stormwater-related best management practices (BMPs) required during construction.
- Healthy Food Systems - The Mayor's office, working with graduate students from the University of California, developed a resolution authorizing an initial food systems assessment study. The study, authorized by the City Council on January 17, 2006 through Resolution No. 79680 C.M.S., examines current trends in Oakland's food system and recommends programs and policies that promote a sustainable food system for Oakland. One of the goals of the Healthy Food Systems program is the utilization and support of local agriculture as a potential means to reduce the truck miles necessary to distribute food locally, thereby reducing their contribution to GHG emissions.
- Community Gardens and Farmer's Markets - Community gardening locations include Arroyo Viejo, Bella Vista, Bushrod, Golden Gate, Lakeside Horticultural Center, Marston Campbell, Temescal, and Verdese Carter. Weekly Farmer's Markets locations include (among others) the Jack London Square, Old Oakland, Grand Lake, Mandela, Montclair, and Temescal districts. Both efforts promote and facilitate the principal of growing and purchasing locally, which effects reductions in truck and vehicle use and GHG emissions.

General Plan

Land Use and Transportation Element

The City of Oakland General Plan Land Use and Transportation Element (LUTE), which includes the Pedestrian Master Plan and the Bicycle Master Plan, includes the following policies related to GHG emissions and climate change:

> *Policy T.2.1:* Transit-oriented development should be encouraged at existing or proposed transit nodes, defined by the convergence of two or more modes of public transit such as BART, bus, shuttle service, light rail or electric trolley, ferry, and inter-city or commuter rail.
>
> *Policy T.2.2:* Transit-oriented developments should be pedestrian-oriented, encourage night and day time use, provide the neighborhood with needed goods and services, contain a mix of land uses, and be designed to be compatible with the character of surrounding neighborhoods.
>
> *Policy T3.5:* The City should include bikeways and pedestrian ways in the planning of new, reconstructed, or realigned streets, wherever possible.
>
> *Policy T3.6:* The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated "transit streets" as shown on the Transportation Plan.
>
> *Policy T4.2:* Through cooperation with other agencies, the City should create incentives to encourage travelers to use alternative transportation options.

Policy N3.2: In order to facilitate the construction of needed housing units, infill development that is consistent with the General Plan should take place throughout the City of Oakland.

Policy T4.5: The City should prepare, adopt, and implement a Bicycle and Pedestrian Master Plan as a part of the Transportation Element of [the] General Plan.

Open Space, Conservation and Recreation Element

The Open Space, Conservation and Recreation Element (OSCAR) includes the following policies related to GHG emissions and climate change. These policies encourage the provision of open space, which contains vegetation that reduces solar heat gain and absorbs CO_2; encourage stormwater management, which relates to potential increases in the frequency of storms and flooding; and encourage energy efficiency and alternative energy sources.

Policy OS-1.1: Conserve existing City and Regional Parks characterized by steep slopes, large groundwater recharge areas, native plant and animal communities, extreme fire hazards, or similar conditions.

Policy OS-2.1: Manage Oakland's urban parks to protect and enhance their open space character while accommodating a wide range of outdoor recreational activities.

Policy CO-5.3: Employ a broad range of strategies, compatible with the Alameda Countywide Clean Water Program. See Policy CO-12.1 under OSCAR policies that address general air quality.

*Policy CO-12.1:*Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.

Policy CO-12.3: Expand existing transportation systems management and transportation demand management strategies which reduce congestion, vehicle idling, and travel in single passenger autos. See Policy CO-12.4 under OSCAR policies that address general air quality.

Policy CO-12.4: Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.

Policy CO-12.5: Require new industry to use best available control technology to remove pollutants, including filtering, washing, or electrostatic treatment of emissions.

Policy CO-13.2: Support public information campaigns, energy audits, the use of energy-saving appliances and vehicles, and other efforts which help Oakland residents, businesses, and City operations become more energy efficient.

Policy CO-13.3: Encourage the use of energy-efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.

Policy CO-13.4: Accommodate the development and use of alternative energy resources, including solar energy and technologies which convert waste or industrial byproducts to energy,

provided that such activities are compatible with surrounding land uses and regional air and water quality requirements.

Historic Preservation Element

A Historic Preservation Element policy relevant to climate change encourages the reuse of existing building resources (and building materials), which could reduce the amount of waste disposed of in landfills (a source of methane, a particularly potent GHG), and avoid the need to manufacture and transport new building materials and to transport waste materials to disposal sites.[32]

Safety Element

The Safety Element includes the following policies related to GHG emissions and climate change. These policies are related potential increases in the frequency of storms and flooding caused by climate change.

Policy FL-1: Enforce and update local ordinances and comply with regional orders that would reduce the risk of storm-induced flooding.

Policy FL-2: Continue or strengthen city programs that seek to minimize the storm-induced flooding hazard.

Policy FL-3: Prioritize the reduction of the wildfire hazard, with an emphasis on prevention wildfires.

Green Building (OMC Chapter 18.02)

The Green Building Ordinance was adopted by the City of Oakland in 2005, in conjunction with the Sustainable Communities Initiative of 1998, in order to maintain high standards of green development and new construction throughout the City. This ordinance requires green performance in major civic projects and provides policies to assist private development projects in improving green performance.

In October of 2010, the city adopted the Green Building Ordinance for Private Development Projects. The ordinance affects a wide range of projects from new construction of single- and multi-family residential as well as non-residential projects, additions and alterations, modifications or demolition of historic resources, construction of affordable housing and mixed-use projects, as well as projects requiring a landscape plan. Projects that are affected based on defined thresholds in the ordinance include:

- Residential and non-residential new construction, additions, and alterations;
- Removal of an historic resource and new construction;
- Historic residential and non-residential additions and alterations;
- Mixed use construction; and
- Construction requiring a landscape plan.

[32] U.S. EPA, 2006a. General Information on the Link Between Solid Waste and Greenhouse Gas Emissions (web page), October, http://www.epa.gov/climatechange/wycd/waste/generalinfo.html, accessed August 10, 2007.

Certain types of projects are required to receive certification through a non-governmental green rating agency, including:

- All new residential construction and residential additions or alterations over 1,000 square feet, certified through Build It Green's GreenPoint Rated program; and
- All new non-residential construction and non-residential additions or alterations.

In addition to Oakland's local Green Building Ordinance, the State of California recently adopted the new Green Building Code known as CALGreen (described above). Both the City's local ordinance and CALGreen are now in effect.

Construction and Demolition Waste Reduction and Recycling

Chapter 15.34, Construction and Demolition Debris Waste Reduction and Recycling Requirements of the Oakland Municipal Code requires non-residential and apartment house demolition and new construction projects, and alterations with a valuation of $50,000 or more, to recycle 100 percent of all asphalt and concrete materials and 65 percent of all other materials.

Zero Waste Resolution

In March 2006, the Oakland City Council adopted a Zero Waste Goal by 2020 Resolution (Resolution 79774 C.M.S.), and commissioned the creation of a Zero Waste Strategic Plan to achieve the goal.

Community Gardens and Farmer's Markets

Community Garden locations include Arroyo Viejo, Bella Vista, Bushrod, Golden Gate, Lakeside Horticultural Center, Marston Campbell, Temescal, and Verdese Carter. Weekly Farmer's Market locations include the Jack London Square, Old Oakland, Grand Lake, Mandela, and Temescal districts. Both efforts promote and facilitate the principal of growing and purchasing locally, which reduces truck and vehicle use, and GHG emissions.

Uniformly Applied Development Standards Imposed as Standard Conditions of Approval

The City's Standard Conditions of Approval relevant to GHG emissions are identified below. These Standard Conditions of Approval would be adopted as requirements of subsequent individual development projects pursuant to the Specific Plan, if and when such projects are approved by the City to help ensure that no significant GHG emissions impacts occur.

The following SCA GHG-1 below would apply to subsequent projects pursuant to the Specific Plan under any of the following scenarios:

- **Scenario A**: Projects which (a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District (BAAQMD) to operate), (b) exceed the greenhouse gas (GHG) emissions screening criteria contained in the BAAQMD CEQA Guidelines,[33]

[33] For residential development projects, refer to the City's 2007-2014 Housing Element EIR screening criteria. The Housing Element EIR's analysis showed that residential development projects of less than 172 units would not result in a significant climate change impact and, therefore, no project-specific GHG analysis is required for such projects. Under an alternative approach in the Housing Element EIR, the analysis found that **ANY** residential development project (including those containing 172 or more units) would not result in a significant climate change impact and that no project-specific GHG analysis would be required. For residential projects containing 172 or more units, please consult with City Planning staff and the City Attorney's office on

AND (c) after a GHG analysis is prepared would produce total GHG emissions of more than 1,100 metric tons of CO_2e annually AND more than 4.6 metric tons of CO_2e per service population annually (with "service population" defined as the total number of employees and residents of the project).

- **Scenario B**: Projects which (a) involve a land use development, (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines,[34] (c) after a GHG analysis is prepared would exceed at least one of the BAAQMD Thresholds of Significance (more than 1,100 metric tons of CO_2e annually OR more than 4.6 metric tons of CO_2e per service population annually), AND (d) are considered to be "Very Large Projects."[35]
- **Scenario C**: Projects which (a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) AND (b) after a GHG analysis is prepared would produce total GHG emissions of more than 10,000 metric tons of CO_2e annually.

> **SCA F: Greenhouse Gas (GHG) Reduction Plan. (***Prior to issuance of a construction-related permit and ongoing as specified*). The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval. The applicant shall implement the approved GHG Reduction Plan.
>
> The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below [INCLUDE IF SCENARIO A OR B] at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO_2e per year or 4.6 metric tons of CO_2e per year per service population) [INCLUDE IF SCENARIO C] the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (10,000 metric tons of CO_2e per year) [INCLUDE IF SCENARIO B] AND to reduce GHG emissions by 36 percent below the project's "adjusted" baseline GHG emissions (as explained below) to help achieve the City's goal of reducing GHG emissions. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of

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the appropriate GHG review. For nonresidential development projects and mixed-use development projects, the nonresidential component of the project must be compared to the BAAQMD screening criteria and the applicable threshold if the screening criteria are exceeded, independently from any residential component the project.

[34] See footnote #1 above.

[35] A "Very Large Project" is defined as any of the following:

(A) Residential development of more than 500 dwelling units;

(B) Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;

(C) Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;

(D) Hotel/motel development of more than 500 rooms;

(E) Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or

(F) Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), (c) a comprehensive set of quantified additional GHG reduction measures available to further reduce GHG emissions beyond the adjusted GHG emissions, and (d) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase.

Specifically**,** the applicant/sponsor shall adhere to the following:

a. ***GHG Reduction Measures Program.*** Prepare and submit to the City Planning Director or his/her designee for review and approval a GHG Reduction Plan that specifies and quantifies GHG reduction measures that the project will implement by phase.

   Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures Document (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

   The proposed GHG reduction measures must be reviewed and approved by the City Planning Director or his/her designee. The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "offset carbon credits," pursuant to item "b" below).

   The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States.

b. ***Offset Carbon Credits Guidelines.*** For GHG reduction measures involving the purchase of offset carbon credits, evidence of the payment/purchase shall be submitted to the City Planning Director or his/her designee for review and approval prior to completion of the project (or prior to completion of the project phase, if the project includes more one phase).

   As with preferred locations for the implementation of all GHG reductions measures, the preference for offset carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of offset carbon credit purchases shall be based on current market value at the time purchased and shall be based on the Project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

c. ***Plan Implementation and Documentation.*** For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits. For operational GHG reduction measures to be incorporated into the project, the measures shall be implemented on an indefinite and ongoing basis beginning at the time of project completion (or at the completion of the project phase for phased projects).

   For physical GHG reduction measures to be incorporated into off-site projects, the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval and then installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into off-site projects, the measures shall be implemented on an indefinite and

ongoing basis beginning at the time of completion of the subject project (or at the completion of the project phase for phased projects).

d. ***Compliance, Monitoring and Reporting.*** Upon City review and approval of the GHG Reduction Plan program by phase, the applicant/sponsor shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the Project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

   Implementation of the GHG reduction measures and related requirements shall be ensured through the project applicant/sponsor's compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant/sponsor shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report (Annual Report), subject to the City Planning Director or his/her designee for review and approval. The Annual Report shall be submitted to an independent reviewer of the City Planning Director's or his/her designee's choosing, to be paid for by the project applicant/sponsor (see *Funding*, below), within two months of the anniversary of the Certificate of Occupancy.

   The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan.

   The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds [INCLUDE IF SCENARIO B] AND GHG emissions are 36 percent below the project's "adjusted" baseline GHG emissions, as confirmed by the City Planning Director or his/her designee through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

e. ***Funding.*** Within two months after the Certificate of Occupancy, the project applicant/sponsor shall fund an escrow-type account or endowment fund to be used exclusively for preparation of Annual Reports and review and evaluation by the City Planning Director or his/her designee, or its selected peer reviewers. The escrow-type account shall be initially funded by the project applicant/sponsor in an amount determined by the City Planning Director or his/her designee and shall be replenished by the project applicant/sponsor so that the amount does not fall below an amount determined by the City Planning Director or his/her designee. The mechanism of this account shall be mutually agreed upon by the project applicant/sponsor and the City Planning Director or his/her designee, including the ability of the City to access the funds if the project applicant/sponsor is not complying with the GHG Reduction Plan requirements, and/or to reimburse the City for its monitoring and enforcement costs.

f. ***Corrective Procedure.*** If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant/sponsor shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures (Corrective GHG Action Plan). The project applicant/sponsor shall then implement the approved Corrective GHG Action Plan.

   If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant/owner fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City Planning Director or his/her designee may, in addition to its other remedies, (a)

assess the project applicant/sponsor a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant/sponsor has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

g. ***Timeline Discretion and Summary*.** The City Planning Director or his/her designee shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.

   i. *Fund Escrow-type Account for City Review*: Certificate of Occupancy plus 2 months

   ii. *Submit Baseline Inventory of "Actual Adjusted Emissions"*: Certificate of Occupancy plus 1 year

   iii. *Submit Annual Report #1*: Certificate of Occupancy plus 2 years

   iv. *Submit Corrective GHG Action Plan* (if needed): Certificate of Occupancy plus 4 years (based on findings of Annual Report #3)

   v. *Post Attainment Annual Reports*: Minimum every 3 years and at the City Planning Director's or his/her designee's reasonable discretion

The SCA below applies to the projects listed below:

Residential:

- New Construction of a One or Two Family Dwelling
- New Construction of a Multi-Family Dwelling (3+ units)
- Additions or Alterations to a One or Two Family Dwelling that is over 1,000 sq. ft. of total floor area
- Construction of or Alteration to Residential Units (any amount) that receive City or Redevelopment Funding (e.g., NOFA projects)

Non-Residential:

- New Construction of Non-Residential Building over 25,000 sq. ft. of total floor area
- Major Alterations (see Green Building Definitions) over 25,000 sq. ft. of total floor area to a Non-Residential Building

SCA H: Compliance with the Green Building Ordinance, OMC Chapter 18.02. (*Prior to issuance of a demolition, grading, or building permit).* The applicant shall comply with the requirements of the

California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the Green Building Ordinance, OMC Chapter 18.02.

a. The following information shall be submitted to the Building Services Division for review and approval with the application for a building permit:

    i. Documentation showing compliance with Title 24 of the 2008 California Building Energy Efficiency Standards.

    ii. Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit.

    iii. Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit.

    iv. Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (b) below.

    v. Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance.

    vi. Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit.

    vii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

b. The set of plans in subsection (a) shall demonstrate compliance with the following:

    i. CALGreen mandatory measures.

    ii. All pre-requisites per the LEED/GreenPoint Rated checklist approved during the review of the Planning and Zoning permit, or, if applicable, all the green building measures approved as part of the Unreasonable Hardship Exemption granted during the review of the Planning and Zoning permit.

    iii. Insert green building point level/certification requirement: (See Green Building Summary Table; for New Construction of Residential or Non-residential projects that remove a Historic Resource (as defined by the Green Building Ordinance) the point level certification requirement is 75 points for residential and LEED Gold for non-residential) per the appropriate checklist approved during the Planning entitlement process.

    iv. All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Planning and Zoning Division that shows the previously approved points that will be eliminated or substituted.

    v. The required green building point minimums in the appropriate credit categories.

During construction: The applicant shall comply with the applicable requirements CALGreen and the Green Building Ordinance, Chapter 18.02.

c. The following information shall be submitted to the Building Inspections Division of the Building Services Division for review and approval:

    i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit.

ii. Signed statement(s) by the Green Building Certifier during all relevant phases of construction that the project complies with the requirements of the Green Building Ordinance.

iii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

d. ***After construction, as specified below.*** Within sixty (60) days of the final inspection of the building permit for the project, the Green Building Certifier shall submit the appropriate documentation to Build It Green/Green Building Certification Institute and attain the minimum certification/point level identified in subsection (a) above. Within one year of the final inspection of the building permit for the project, the applicant shall submit to the Planning and Zoning Division the Certificate from the organization listed above demonstrating certification and compliance with the minimum point/certification level noted above.

e. The SCA below applies to the projects listed below AND that are rated using the Small Commercial or Bay Friendly Basic Landscape Checklists:

i. New Construction of Non-Residential Buildings between 5,000 and 25,000 sq. ft. of total floor area.

ii. Additions/Alterations 5,000 and 25,000 sq. ft. of total floor area to a Non-Residential Building

iii. Additions/Alterations (not meeting the Major Alteration Definition) over 25,000 sq. ft. of total floor area to a Non-Residential Building

iv. Additions/Alterations 5,000 and 25,000 sq. ft. of total floor area to a Historic Non-Residential Building

v. Additions/Alterations (not meeting the Major Alteration Definition) over 25,000 sq. ft. of total floor area to a Historic Non-Residential Building

vi. Construction projects with over 25,000 sq. ft. of total floor area of new construction requiring a landscape plan.

SCA I: Compliance with the Green Building Ordinance, OMC Chapter 18.02, for Building and Landscape Projects Using the StopWaste.Org Small Commercial or Bay Friendly Basic Landscape Checklist.

*Prior to issuance of a building permi*t: The applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the Green Building Ordinance, (OMC Chapter 18.02.) for projects using the StopWaste.Org Small Commercial or Bay Friendly Basic Landscape Checklist.

a. The following information shall be submitted to the Building Services Division for review and approval with application for a Building permit:

i. Documentation showing compliance with the 2008 Title 24, California Building Energy Efficiency Standards.

ii. Completed copy of the green building checklist approved during the review of a Planning and Zoning permit.

iii. Permit plans that show in general notes, detailed design drawings and specifications as necessary compliance with the items listed in subsection (b) below.

iv. Other documentation to prove compliance.

b. The set of plans in subsection (a) shall demonstrate compliance with the following:

i. CALGreen mandatory measures.

ii. All applicable green building measures identified on the StopWaste.Org checklist approved during the review of a Planning and Zoning permit, or submittal of a Request for Revision Plan-check application that shows the previously approved points that will be eliminated or substituted.

During construction: The applicant shall comply with the applicable requirements of CALGreen and Green Building Ordinance, Chapter 18.02 for projects using the StopWaste.Org Small Commercial or Bay Friendly Basic Landscape Checklist.

a. The following information shall be submitted to the Building Inspections Division for review and approval:

   i. Completed copy of the green building checklists approved during review of the Planning and Zoning permit and during the review of the Building permit.

   ii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

SCA A: Construction-Related Air Pollution Controls - Dust and Equipment Emissions. (Ongoing throughout demolition, grading, and/or construction). During construction, the project applicant shall require the construction contractor to implement all of the following applicable measures recommended by the Bay Area Air Quality Management District (BAAQMD):

BASIC (Applies to ALL construction sites)

a. Water all exposed surfaces of active construction areas at least twice daily (using reclaimed water if possible). Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.

b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. Pave all roadways, driveways, sidewalks, etc. as soon as feasible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

e. Enclose, cover, water twice daily or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).

f. Limit vehicle speeds on unpaved roads to 15 miles per hour.

g. Idling times shall be minimized either by shutting equipment off when not is use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations. Clear signage to this effect shall be provided for construction workers at all access points.

h. All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

i. Post a publicly visible sign that includes the contractor's name and telephone number to contact regarding dust complaints. When contacted, the contractor shall respond and take corrective action within 48 hours. The telephone numbers of contacts at the City and the BAAQMD shall also be visible. This information may be posted on other required on-site signage.

ENHANCED: All "Basic" controls listed above plus the following controls if the project involves:

   i. 114 or more single-family dwelling units;

ii. 240 or more multi-family units;

iii. Nonresidential uses that exceed the applicable screening size listed in the Bay Area Air Quality Management District's CEQA Guidelines;

iv. Demolition permit;

v. Simultaneous occurrence of more than two construction phases (e.g., grading and building construction occurring simultaneously);

vi. Extensive site preparation (i.e., the construction site is four acres or more in size); or

vii. Extensive soil transport (i.e., 10,000 or more cubic yards of soil import/export).

j. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.

k. All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph.

l. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

m. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more).

n. Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress.

o. Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize wind blown dust. Wind breaks must have a maximum 50 percent air porosity.

p. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.

q. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.

r. All trucks and equipment, including tires, shall be washed off prior to leaving the site.

s. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.

t. Minimize the idling time of diesel-powered construction equipment to two minutes.

u. The project applicant shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate matter (PM) reduction compared to the most recent California Air Resources Board (CARB) fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as they become available.

v. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).

w. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NOx and PM.

x. Off-road heavy diesel engines shall meet the CARB's most recent certification standard.SCA Air-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions).

The City has several other SCAs that aim to reduce post-construction stormwater runoff that could affect the ability to accommodate potentially increased storms and flooding within existing floodplains and infrastructure systems. These SCAs are relevant as climate change can result in increased flooding due to warmer climate (e.g., earlier and greater melting of snowpack) and inadequate infrastructure.

Impacts, Standard Conditions of Approval and Mitigation Measures

Criteria of Significance

The Specific Plan would result in a significant impact related to greenhouse gas emissions if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

   Specifically for Project-level impacts:

   a) For a project involving a stationary source,[36] produce total emissions of more than 10,000 metric tons of CO_2e annually.

   b) For a project involving a land use development,[37] produce total emissions of more than 1,100 metric tons of CO_2e annually, and more than 4.6 metric tons of CO_2e per service population[38] annually.[39]

   c) For projects that involve both a stationary source and a land use development, calculate each component separately and compare to the applicable threshold.

   For Plan-level impacts:

   d) Produce emissions of more than 6.6 metric tons of CO_2e per service population annually.

2. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.

3. Expose people or structures to a significant risk of loss, injury or death involving flooding due to predicted sea level rise associated with global climate change.

Methodology for Analysis

The BAAQMD CEQA Guidelines state that the plan-level threshold should only be used in the evaluation of general plans. For other types of plans, such as redevelopment plans and specific plans, the Guidelines state that the project-level thresholds should be used.

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[36] Stationary sources are projects that require a BAAQMD permit to operate.

[37] Land use developments are projects that do not require a BAAQMD permit to operate.

[38] The service population includes both the residents and the employees of a proposed project.

[39] A project's impact would be considered significant if the emissions exceed BOTH the 1,100 metric tons threshold and the 4.6 metric tons threshold. Accordingly, the impact would be considered less than significant if a project's emissions are below EITHER of these thresholds.

This EIR analyzes the quantity of GHG emissions attributable to projected future development within the West Oakland Specific Plan Opportunity Areas, and whether the Specific Plan could conflict with any applicable plan, policy, or regulation related to GHG management. To determine whether future development would be implemented in the most GHG-efficient manner possible, the quantity of GHG emissions can be divided by the population housed and employed by future new development. The service population is an efficiency-based measure that is used to determine the GHG emissions intensity of land use development for a general or area plan. The service population is determined by adding the number of residents to the number of jobs estimated for a given point in time.

Although there is no construction-related GHG threshold, this analysis quantifies and discloses such emissions, to the extent that they can be estimated. Construction emissions are included in the computation of GHG emissions intensity per service population, for informational purposes.

This analysis describes how the Specific Plan would guide local land use planning and urban growth decisions, and whether the foreseeable growth and use of the Specific Plan area would be aligned with land use and transportation planning efforts to achieve GHG reductions.

GHG Emissions

Impact GHG-1: Development facilitated by the Specific Plan would allow for the construction and operation of land uses that would produce greenhouse gas emissions. The level of emissions is expected to exceed the project-level threshold of 1,100 annual tons of $MTCO_2e$, but would not exceed the project-level efficiency threshold of 4.6 $MTCO_2e$ of annual emissions per service population nor would it exceed the Plan-level threshold of 6.6 $MTCOC_2e$ annually per service population. Development facilitated by the proposed Specific Plan would thus not be expected to generate greenhouse gas emissions at levels that would result, in the aggregate, in significant or cumulatively considerable GHG emissions. (**LTS**)

Existing and 2035 Baseline Emissions

Table 4.4-4 shows estimated GHG emissions under current conditions, as well as the GHG emissions projected from current land uses in the West Oakland Opportunity Areas as they would occur in 2035 (without future development as envisioned under the Specific Plan). These projected 2035 GHG emissions are based on a continuation of existing land uses, vehicle trips, and VMTs. As shown in the table, existing GHG emissions under current baseline land use conditions are estimated to be approximately 119,423 metric tons/year ($MTCO_2e$). The existing service population within the Specific Plan's Opportunity Areas is approximately 9,770 employees and 640 residents. Therefore, the effective baseline service population is 10,410 persons, and the resulting annual existing emissions are approximately 11.47 $MTCO_2e$ per service population

Over time, regulatory changes at the state level (Pavley Standards and Low Carbon Fuel Standard) are projected to go into effect, resulting in substantial improvements primarily to vehicle emissions of GHG. To quantify the effects of these regulatory changes, Table 4.4-4 also shows a 2035 Baseline condition, which does not assume any increase in land use or any new land use-based GHG emissions within the West Oakland Specific Plan's Opportunity Areas, but re-calculates GHG emissions from these existing sources assuming regulatory-based GHG emission improvements. As indicated in Table 4.4-4, the 2035 Baseline emission (presented for informational purposes only) is estimated to be 97,151 MTCO2e (an 18% reduction in emissions from the existing baseline) as a result of implementation of these new regulatory controls. These 2035 Baseline annual emissions would represent approximately 9.33 $MTCO_2e$ per service population.

Table 4.4-4: Existing (2013) and Projected 2035 Baseline CO_2e Emissions
(Metric Tons/Year of Co_2e)

	Existing (2013)	2035 Baseline (assuming no land use changes)
Operation Vehicle Emissions	86,359	64,674
Area Source	142	141
Electricity	23,818	23,654
Natural Gas (space and water heating)	2,458	2,185
Water and Wastewater	307	290
Solid Waste	6,338	6,206
Total Baseline CO_2e Emissions	**119,423**	**97,151**
Effective Service Population	10,410	10,410
GHG emissions per service population	**11.47**	**9.33**

Sources:
California Air Resources Board (ARB). 2008. Local Government Operations Protocol, For the quantification and reporting of greenhouse gas emissions inventories, Version 1.0. September 25.
California Climate Action Registry. 2009. General Reporting Protocol, Version 3.1. January. Available at: http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf
California Energy Commission. 2006. California Commercial End-Use Survey. Prepared by Itron Inc. Available at: Available at: http://www.energy.ca.gov/ceus/
EBMUD. Energy: Generating Renewable Power. Available at: http://www.ebmud.com/sites/default/files/pdfs/2010_EBMUD_Energy.pdf
Gleick, P.H.; Haasz, D.; Henges-Jeck, C.; Srinivasan, V.; Cushing, K.K.; Mann, A. 2003. Waste Not, Want Not: The Potential for Urban Water Conservation in California. Published by the Pacific Institute

Plan-Related GHG Emissions

Construction/Demolition Emissions

The Specific Plan envisions a substantial increase in the level of development within the Plan's Opportunity Areas. Individual projects developed pursuant to the Specific Plan would result in GHG emissions during demolition and construction phases. These construction-related GHG emissions would contribute to the cumulative effects of climate change.

Individual development projects would contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during demolition and construction. Using heavy equipment, mobilizing a construction workforce, and transporting construction material and debris are activities that typically entail fossil fuel combustion, which in turn causes emissions of GHGs, especially carbon dioxide, methane, and nitrous oxide. Moreover, demolition of old structures to make way for new construction leads to a release of the carbon stored in building materials. These emissions can enter into the atmosphere during decomposition.

Because adoption of the West Oakland Specific Plan does not include any individual development approvals, construction emissions are based on typical activities that would be expected to occur while building the anticipated increment of foreseeable development in the Plan Area. The estimates assume default construction phasing and equipment activity forecasts produced by the URBEMIS emissions-

estimating software, and thus do not reflect implementation of the City's SCAs, which would act to reduce construction emissions.

Construction emissions have been annualized over a 40-year period, as 40 years is the typical life expectancy of a building prior to it being demolished or substantially remodeled in a way that changes its energy efficiency. With the total one-time construction-related GHG emissions (24,500 $MTCO_2e$) annualized over 40 years, construction activity anticipated under the Specific Plan would contribute approximately 612 $MTCO_2e$ emissions each year.

Operational Emissions

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during their operational phases. Direct operational emissions include GHG emissions from new vehicle trips; area sources (woodstoves, landscaping equipment); and natural gas combusted for space heating or cooking. Indirect emissions include emissions caused by power plants producing electricity; energy required to pump, treat, and convey the water supply and wastewater; and emissions associated with waste removal, disposal, and landfill operations.

Table 4.4-5 shows estimated operational emissions for buildout of the land uses as envisioned under the West Oakland Specific Plan, by year 2035. These projections of future emissions do not include emissions from stationary sources, which are considered separately. These emissions estimates rely on mobile source activity forecasts developed from the Transportation chapter of this EIR, and the area source direct and indirect emissions produced by the URBEMIS emissions-estimating software in year 2035 (see **Appendix 4.2**). As shown, GHG emissions from operations with the West Oakland Specific Plan's Opportunity Areas are estimated to exceed 200,000 $MTCO_2e$ per year by 2035.

The modeling assumes implementation of state regulations regarding the chemical content of vehicle fuels (Pavley Standards, Low Carbon Fuel Standard). These regulations will reduce the GHG emissions potential of fuels, and are a major emissions reductions factor as indicated in the model. Future development facilitated by the Specific Plan will also adhere to the City's Green Building Ordinance, which, in conjunction with the California Green Building Standards Code (CALGreen Code) would have the effect of reducing emissions associated with energy use and water use beyond the default energy consumption levels (Title 24 compliance) as used in the model default assumptions.

Table 4.4-5: Estimated Future 2035 CO_2e Emissions, with Project
(Metric Tons/Year of Co_2e)

	Existing (2013)	2035, with Project Buildout	Net Change
Operation Vehicle Emissions	86,359	133,730	47,371
Area Source	142	2,7798	2,637
Electricity	23,818	41,986	18,168
Natural Gas (space and water heating)	2,458	9,397	6,939
Water and Wastewater	307	995	688
Solid Waste	6,338	14,409	8,071
Annualized Construction Emissions		612	612
Total Baseline CO_2e Emissions	**119,423**	203,910	**84,490**
Effective Service Population	10,410	36,396	26,166
GHG emissions per service population			**3.22**

Sources:
California Air Resources Board (ARB). 2008. Local Government Operations Protocol, For the quantification and reporting of greenhouse gas emissions inventories, Version 1.0. September 25.
California Climate Action Registry. 2009. General Reporting Protocol, Version 3.1. January. Available at: http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf
California Energy Commission. 2006. California Commercial End-Use Survey. Prepared by Itron Inc. Available at: Available at: http://www.energy.ca.gov/ceus/
EBMUD. Energy: Generating Renewable Power. Available at: http://www.ebmud.com/sites/default/files/pdfs/2010_EBMUD_Energy.pdf
Gleick, P.H.; Haasz, D.; Henges-Jeck, C.; Srinivasan, V.; Cushing, K.K.; Mann, A. 2003. Waste Not, Want Not: The Potential for Urban Water Conservation in California. Published by the Pacific Institute

Combined Operational and Construction Emissions Compared to Baseline

The net increase in GHG emissions attributable to new development as envisioned under the Specific Plan are represented by the difference between the 2035 emissions forecasted by the model, compared to existing baseline emission levels. As indicated in Table 4.4-5, these net new emissions attributable to the Specific Plan are approximately 84,500 $MTCO_2e$/year by 2035. The estimated GHG emissions from development facilitated by the West Oakland Specific Plan would substantially exceed the total annual project-level threshold of 1,100 $MTCO_2e$:

City thresholds also provide for an efficiency valuation of GHG emissions on a per service population basis. To determine the efficiency valuation, the total GHG emissions are divided by the effective service population of the service area (i.e., the West Oakland Opportunity Areas). This service population is calculated as follows:

- The Specific Plan would allow for the future construction of up to 5,090 net new residential dwelling units, which would be expected to house about 11,136 net new residents.
- The Plan would also facilitate development of approximately 4.03 million square feet of net new industrial and commercial land uses that would provide space for about 14,850 net new employees.
- Thus, the West Oakland Specific Plan would generate a net increase in service population of 26,166.

As indicated in Table 4.4-5, implementation of the Specific Plan would result in a net increase in annual emissions of approximately 84,500 $MTCO_2e$ per year. Dividing these annual emissions at buildout by the calculated service population of 26,166 people results an efficiency of approximately 3.22 $MTCO_2e$ per service population. This indicates that the estimated emissions attributable to the West Oakland Specific Plan would fall below the project-level annual threshold of 4.6 $MTCO_2e$ per service population, and below the Plan-level annual threshold of 6.6 $MTCO_2e$ per service population.

- Therefore, at a Plan-level the West Oakland Specific Plan would not exceed the City's GHG threshold, and would not represent a significant impact.
- On a project-level, the West Oakland Specific Plan would exceed the annual emission threshold of 1,100 $MTCO_2e$ per year, but would not exceed the service population threshold of 4.6 metric tons CO_2e per service population, and therefore its GHG emissions would be less than significant.

Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing GHG Emissions

Impact GHG-2: The Specific Plan does not conflict with applicable plans, policies and regulations adopted for the purpose of reducing GHG emissions. As discussed above with respect to Impact GHG-1, the Plan would not exceed the numeric thresholds at either the Plan or Project level. The West Oakland Specific Plan also includes several policy-based design features that would be effective in reducing GHG emissions on an area-wide basis as individual development projects are incrementally proposed and developed, and future development pursuant to the West Oakland Specific Plan would comply with the applicable requirements of the City's recently approved Energy and Climate Action Plan (ECAP). The West Oakland Specific Plan would not be in conflict with current plans or policies the policies adopted for the purpose of reducing GHG emissions. (**LTS**)

The City's numeric significance thresholds were formulated based on AB 32 reduction strategies. The numeric GHG significance thresholds are intended to serve as interim levels during the implementation of AB 32 and SB 375. Until AB 32 has been fully implemented in terms of adopted regulations, incentives, and programs, and until the Sustainable Communities Strategy or Alternative Planning Strategy required by SB 375 have been adopted or the California Air Resources Board (ARB) adopts a recommended threshold, the City's significance thresholds represent substantial compliance with applicable plans, policies and regulations adopted for the purpose of reducing GHG emissions. Therefore, since the Specific Plan would not exceed the numeric service population thresholds at either the Plan or Project level, the Specific Plan would not conflict with applicable plans, policies and regulations adopted for the purpose of reducing GHG emissions.

Design Features and Strategies Included in the Specific Plan for Reducing GHG

In addition to meeting the numeric threshold, the West Oakland Specific Plan includes several policy-based design features that would be effective in reducing GHG emissions on an area-wide basis as individual development projects are incrementally proposed and developed. These design features and project characteristics help implement reduction strategies identified in AB 32 and the City of Oakland's Energy and Climate Action Plan These design features are discussed below:

- Building Rehabilitation. Certain development facilitated by the Specific Plan would incorporate and support sustainable development goals through the renovation and reuse of existing buildings. The targeted reuse of existing buildings would reduce new construction-related GHG emissions by

avoiding demolition and disposal of existing resources or energy to obtain and prepare raw resources for replacement structures.

- Construction Waste: All new development pursuant to the Specific Plan will be required to comply with the City Construction and Waste Reduction Ordinance, and to submit a Construction and Demolition Waste Reduction Plan for review and approval. As a result, construction-related truck traffic, with primarily diesel-fueled engines, would be reduced, and the reuse of concrete, asphalt and other debris will reduce the amount of material introduced to area landfills.
- Transit Oriented Development: According to the City Pedestrian Master Plan, the City of Oakland has the highest walking rate of all cities in the nine-county San Francisco Bay Region. These high pedestrian trips are likely because neighborhoods are densely populated and well served by transit, including BART, AC Transit, Amtrak, and the Alameda Ferry. Development facilitated by the Specific Plan would reduce transportation-related GHG emissions compared to emissions from the same level of development elsewhere in the outer Bay Area.
- Energy Efficiency: Development under the Specific Plan would be required to comply with applicable local, state, and federal regulations related to GHG emissions and energy conservation. In particular, future projects would also be required to meet California Energy Efficiency Standards for Residential and Nonresidential Buildings, and the requirements of pertinent City policies as identified in the City of Oakland *General Plan*, helping to reduce future energy demand as well as reduce contribution to regional GHG emissions. These policies include, but are not limited to Cool Roof Coatings performance; CALGREEN; and the City's Green Building Ordinances.
- Urban Infill near Multiple Transit Modes: New residential development under the proposed Specific Plan would include higher-density housing at the West Oakland BART Station, along the Mandela Parkway and San Pablo Avenue transit corridor, and in other locations served by transit. Infill housing near transit would promote walking and non-vehicular travel to a greater extent than would be the case for similar development in outlying areas without transit availability. In addition, the higher-density development would include a greater number of potential residents that could potentially use alternative modes of travel than in a lower density development. Development in West Oakland would reduce transportation related GHG emissions compared to emissions from comparable development in less central locations. Because transit service is less available, development in those locations would likely result in increased peak-hour vehicle trips of relatively long distances, often in single-occupant vehicles, compared to development in West Oakland.

In addition to the Specific Plan's' design features listed above, the following planning objectives and strategies are particularly related to GHG emissions reductions.

- The Specific Plan encourages innovative reuse of existing buildings, more intensive use of existing facilities, and discourages removal of existing structures for parking.
- The Plan seeks to capture a greater share of local neighborhood retail sales "leakage" by providing for more neighborhood-serving shopping opportunities, developing a full-sized grocery store within the Planning Area, other missing retail uses like a drug store and eateries that serve residents and workers.
- The Specific Plan would locate new housing near transit, create higher-density and mixed-use developments, encourage a safe and pleasant pedestrian environment near transit, provide amenities such as benches, kiosks, lighting, and outdoor cafes, and limit conflicts between vehicles and pedestrians. The Specific Plan would implement the City's long-term vision of a transit-oriented development (TOD) at the West Oakland BART station.

- The Plan would provide a network of "complete streets" with mobility for all travel modes.
- The Specific Plan would encourage walking through a land use and development framework that makes walking convenient and enjoyable, maintaining a complete sidewalk network free of gaps, improving pedestrian crossing safety in areas of high pedestrian activity, and providing direct pedestrian connections between activity centers.
- The Plan would improve the network of bicycle routes through West Oakland and make bicycle riding more safe, secure and convenient.
- The Specific Plan seeks to improve AC Transit bus service – particularly at night and on the weekends. The Plan would improve mobility with an improved community transit service (i.e., a shuttle service or enhanced AC Transit bus service, with the potential for a fixed streetcar service). The transit service would link key employment centers and neighborhood destinations in West Oakland and connect to downtown Oakland, Jack London Square, Emeryville and the West Oakland, 12th Street, 19th Street and MacArthur BART Stations.
- The Specific Plan would ensure an adequate supply of parking to attract and support desired development and uses, while encouraging alternative travel modes and efficient use of parking supply. The Plan encourages a "park-once-and-walk" strategy where multiple destinations within an area can be connected by pedestrian trips.
- The Specific Plan calls for continuing, expanding and improving the Port's diesel truck replacement program.
- The Specific Plan incorporates strategies to promote the environmental health of the community when new development is proposed. The Plan would promote and require energy efficiency throughout all aspects of new development and redevelopment. The Plan would ensure that new development employs sustainable "green" building practices, facilitates access to pedestrian and transit networks, and enhances streetscapes and open spaces.

Compliance with Other City Policies and Regulations

All new development facilitated by the West Oakland Specific Plan will be reviewed for consistency with numerous relevant General Plan policies identified in the Regulatory Setting section of this chapter of the EIR that directly or indirectly result in reduced levels of GHG emissions. The Regulatory Setting section above summarizes relevant policies of the Land Use and Transportation Element and OSCAR that promote compact, transit-oriented development, alternatives to single-occupancy vehicle transportation, energy efficiency in building design and site planning, landscaping, and other measures that would individually and collectively reduce the energy usage of new developments, in turn resulting in reduced GHG emissions relative to development not subject to such policies. All new development facilitated by the West Oakland Specific Plan is also expected to be required to comply with the applicable requirements of the City's recently approved Energy and Climate Action Plan (ECAP), which implements the City of Oakland's GHG reduction target for the year 2020 of 36% below year 2005 levels. The ECAP sets forth a multifaceted approach to GHG reductions, including policies related to land use, transportation, site planning, and related considerations.

Conclusions

The West Oakland Specific Plan would not be in conflict with current plans or policies the policies adopted for the purpose of reducing GHG emissions. Because the GHG emissions of the Specific Plan would be below the numeric service population significance thresholds, and the Plan would comply with

applicable plans, policies and regulations adopted for the purpose of reducing GHG emissions. Additionally, the Specific Plan would be consistent with each of the plans, policies and regulations described above, including the 2012 Oakland Energy and Climate Action Plan (ECAP), in reducing GHG emissions as compared to a baseline business-as-usual approach.

New Stationary Sources of GHG Emissions, Individual Development Projects

Impact GHG-3: New industrial and commercial growth facilitated by the Specific Plan could introduce new stationary sources of greenhouse gases. It is possible that on an individual basis, certain development project envisioned and enabled under the Specific Plan could exceed, on an individual and project-by-project basis, the project-level GHG threshold. (**SU**)

Although the overall Specific Plan would have a less than significant impact regarding GHG emissions because of the service population ratio, this conclusion is based on full implementation of all subsequent development as envisioned under the Plan, including its full population and employment growth. There is no certainty that all development envisioned under the Plan will ultimately be implemented, or implemented at the densities envisioned under the Plan. [40]

New industrial and commercial growth facilitated by the Specific Plan could introduce new stationary sources of greenhouse gases. The nature of such future land uses would vary widely in terms of potential stationary source emissions. Potential new stationary sources that could foreseeably occur in the Plan Area include standby power generators, boilers, heaters, or other industrial process sources. It is assumed that development facilitated by the Specific Plan would replace some existing industrial uses (such as certain recycling uses) which would lead to a decrease in area-wide stationary source emissions, but the precise extent of such replacement cannot be determined with certainty.

Future uses that introduce new stationary sources would be subject to BAAQMD review and permitting for new air pollutant and GHG emissions. Any proposed new stationary sources would be subject to a separate GHG threshold of significance (10,000 MTCO2e annually), not the service-population threshold applicable to land development. The BAAQMD has found that stationary source permit applications with emissions above the 10,000 MTCO2e annual threshold account for less than 10 percent of stationary source permit applications reviewed by BAAQMD, but represent 95 percent of GHG emissions from new permits.

Because future industrial growth would be likely to include some new stationary sources, the subsequent growth in stationary source emissions may produce individual-source emissions that singly or collectively exceed 10,000 metric tons of CO2e annually. As a result, industrial land use development in the Plan Area could result in significant levels of stationary source GHG emissions. However, all such potentially new stationary sources would be subject to the BAAQMD's requirement for New Source Review, through which the BAAQMD may impose conditions that would lead to emissions reductions from any new stationary sources that may be proposed.

[40] It should be noted that the Housing Element DEIR analyzed the impact of GHG emissions increases and found that developments of 172 residential units or fewer would be considered to have less-than-significant impacts and generally would not require further environmental review with regard to climate change, assuming that 2008 Title 24 standards are met and that the project is generally in conformance with the development patterns identified in the Housing Element Project Design Features.

Standard Conditions of Approval

Each new development project within the West Oakland Specific Plan's Opportunity Areas will be required to assess whether that development project may result in individually significant levels of GHG emissions. Proposed projects exceeding pertinent screening criteria are required to undergo project-specific GHG emissions forecasts and, as appropriate, implement project-specific GHG reduction plans intended to reduce project emissions levels below relevant thresholds. GHG offsets, whether implemented on or off-site, are potentially viable components of an acceptable GHG reduction plan.

The City has also established several other SCAs and policies that would act to reduce project-specific GHG emissions. These other SCA's include:

- SCA Traf-1: Parking and Transportation Demand Management: This SCA requires that projects of a certain type and size submit for review and approval by the City of Oakland Planning and Zoning Division a Transportation Demand Management (TDM) Plan containing strategies to reduce on-site parking demand and single occupancy vehicle (SOV) travel. Generally the TDM Plan could reduce SOV trips for projects located near transit by about 10 to 20 percent, depending on the specific land use. Certain projects facilitated by the West Oakland Specific Plan would be required to prepare a TDM Plan and incorporate the resulting reduced emissions (from reduced vehicle trips) into the project's GHG emissions calculations.
- SCA Util-1: Waste Reduction and Recycling: This SCA requires a project applicant to submit a Construction & Demolition Waste Reduction and Recycling Plan (WRRP) and an Operational Diversion Plan (ODP) for review and approval by the Oakland Public Works Agency. Chapter 15.34 of the Oakland Municipal Code outlines requirements for reducing waste and optimizing construction and demolition (C&D) recycling. Affected projects include all new construction and all demolition. This SCA essentially addresses reduction in construction–related emissions, which the City combines with a project's operational emissions to assess against the significance thresholds for operational emissions, even though construction emissions are not a component of BAAQMD's Guidelines. Therefore, this SCA will contribute to reducing total emissions of development facilitated by the Specific Plan.
- Several SCAs Regarding Landscape Requirements and Tree Replacement: Several SCAs address landscape requirements for frontages of commercial buildings and replacement of trees removed as part of a project. Projects are required to install one tree for every 25 feet of street frontage in cases where sidewalks have adequate width. Additionally SCAs generally require the replacement of native trees removed as part of a project. Together, these SCAs that maintain and increase landscaping and trees create a cooler climate, reduce excessive solar gain, and absorb CO2e emissions for a contribution to emission reductions, but have no impact on the emissions inventory of development facilitated by the Specific Plan.
- Several SCAs Regarding Stormwater Management: Consistent with regional stormwater management programs and requirements that projects much comply with, the City has several SCAs that aim to reduce post-construction stormwater runoff that could affect the ability to accommodate potentially increased storms and flooding within existing floodplains and infrastructure systems. These SCAs are relevant as climate change can result in increased flooding due to warmer climate (e.g., earlier and greater melting of snowpack) and inadequate infrastructure.

SCA F: Greenhouse Gas (GHG) Reduction Plan

Under the City's required SCAs F: Greenhouse Gas Reduction Plan, individual development projects exceeding project-level screening criteria are required to undergo project-specific GHG emissions forecasts and, as appropriate, implement project-specific GHG reduction plans, with the goal of increasing energy efficiency and reducing GHG emissions to the greatest extent feasible below both applicable numeric City of Oakland CEQA Thresholds (i.e., total emissions and per service population) to help achieve the City's goal of reducing GHG emissions. As individual projects tiering off the Specific Plan occur, their specific design features and GHG reduction measures, including TDM programs, as well as specifics about project types, land use specific travel demand and the availability of transit access will be defined and factored into their GHG Reduction Plan prepared pursuant to SCA F. Not until these tiered projects are proposed and evaluated can the efficacy of each individual project's design characteristics, applicable SCAs and other City policies (particularly SCA F) in reducing GHG emissions to below relevant thresholds be determined.

Mitigation Measures

None feasible - The SCAs and City policies discussed above represent a comprehensive approach to reducing energy usage, fostering more sustainable land use development patterns, and reducing GHG emissions. No other mitigation is considered feasible in addition to those SCAs, policies, and programs mentioned above.

Significance after Mitigation

Conservatively determined to be **Significant and Unavoidable** because it cannot be guaranteed that reductions can be achieved

Flooding Impacts Related to Sea Level Rise

GHG-4: Portions of West Oakland would be subject to flooding due to predicted sea level rise associated with global climate change. With increased flooding potential in the future, development in accordance with the Specific Plan could place people, structures and other improvements in these areas at an increased risk of injury or loss from flooding. **(LTS)**

The impact of flooding related to sea level rise pertains to the impact of an existing/future environmental condition on the Planning Area. CEQA only requires an analysis of impacts pertaining to a project's impact on the environment. The impact of future growth in the West Oakland Planning Area on the environment related to the Project's GHG emissions, the cause of sea level rise, is analyzed and discussed above. Per CEQA, this Draft EIR is not required to analyze or mitigate impacts pertaining to the impact of the environment on the Planning Area. An appellate court specifically identified the effect of sea level rise on a project as an impact of the environment on a project and, therefore, not required to be analyzed under CEQA. However, although not legally required by CEQA, this Draft EIR nevertheless discusses the impact of sea level rise on the Planning Area in the interest of being conservative and providing information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, City Standard Conditions of Approval and/or project-specific non-CEQA recommendations are identified to address these issues.

Sea Level Rise Predictions

Regional sea level rise predictions for the San Francisco Bay region predict a 16-inch rise in sea level by mid-century and a 55-inch rise by the end of the century. According to San Francisco Bay Conservation

and Development Commission (BCDC) maps of shoreline areas vulnerable to sea level rise, portions of the West Oakland Planning Area could be subject to flooding due to predicted sea level rise associated with global climate change (see **Figure 4.4-1**). With increased flooding potential in the future, development in accordance with the Specific Plan could place people, structures and other improvements at an increased risk of injury or loss from flooding.

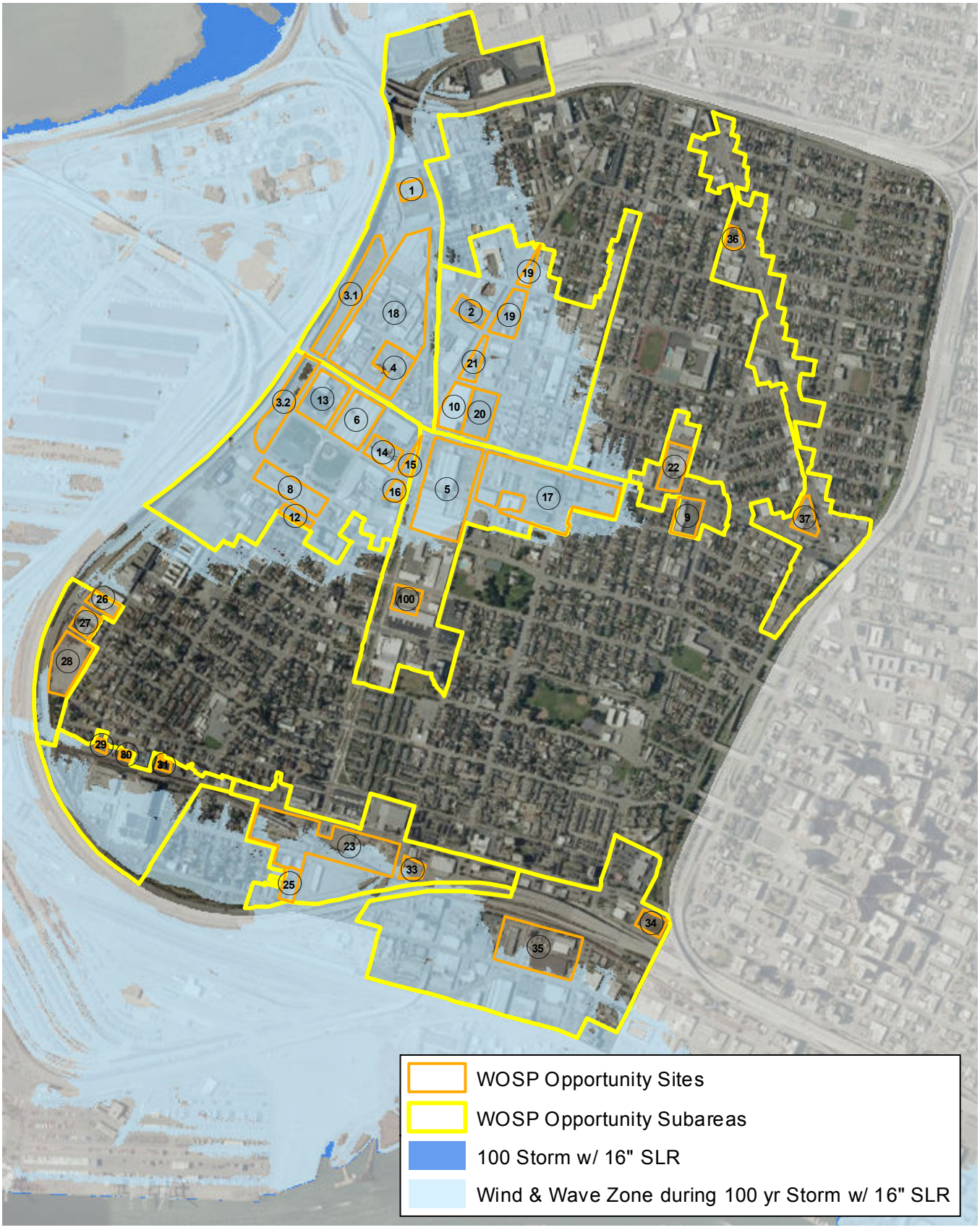
As part of its Adapting to Rising Tides project, BCDC evaluated the potential impacts and disruptions to essential community services and activities from sea level rise and storm events in West Oakland.[41] The BCDC study analyzed neighborhood vulnerability by assessing the exposure, sensitivity, adaptive capacity, and consequence of disruptions to essential community services caused by flooding related to sea level rise. Critical community facilities include police stations, fire stations, schools, hospitals, long-term care facilities, homeless shelters, food banks, jails, and emergency shelters. Critical facilities also include major components of the community infrastructure, such as the Ettie Street Pump Station. The number of exposed facilities increases as the severity of sea level rise and storm event increases. Communities depend on the continued operation of essential services to reduce the impacts of flood events.

Exposure refers to whether a particular area or a specific facility within the community is subjected to sea level rise and storm events. For the Adapting to Rising Tides project, six scenarios were modeled and mapped to show areas that may potentially become inundated by a rising Bay under 16-inch and 55-inch rises in sea level, with 100-year storm events and wind waves.

According to the most severe scenario studied in the Rising Tides Assessment (a 55-inch rise in sea level accompanied by a severe wind and wave storm event), five existing critical facilities would be exposed to flooding, including one child care facility (Oakland Head Start, at West Grand Avenue Center), one food bank (at the Mount Zion Missionary Baptist Church Community Food Giveaway), two schools (Civicorps Elementary School and Academy, and Bunche Continuation School), and one fire station (Station 3). Fire Station 3 is located at 1445 14th Street at Mandela Parkway, and houses the Oakland Fire Department's specialized hazardous materials incident response personnel, apparatus and equipment.

West Oakland residents are more likely to be renters, have less access to a vehicle, are more non-White, and have less household income than Oakland as a whole, which makes them more vulnerable to flooding impacts and less able to adapt and/or quickly recover from flooding.

[41] San Francisco Bay Conservation and Development Commission (BCDC), Adapting to Rising Tides Vulnerability Assessment: Neighborhood of West Oakland, City of Oakland, California.



Source: UC Berkeley School of Public Health

Figure 4.4-1
Susceptibility to 16-Inch Sea Level Rise

Figure 4.4-1 illustrates West Oakland's potential exposure. Flooding would occur primarily in the Mandela/West Grand Opportunity Area near the West Grand Avenue/Mandela Parkway intersection, extending into adjacent residential streets to the east and south. The West Oakland BART Station and surrounding TOD, and the 3rd Street Opportunity Area would also be exposed to flooding. A large number of known hazardous materials release sites in the West Oakland Planning Area could be exposed to flooding or affected by increases in groundwater elevation, including the former Oakland Army Base and the former AMCO Chemical facility.

Policy and Regulatory Responses

Given the potential for sea level rise, it is reasonable to anticipate that FEMA will continue to update its flood hazards mapping over time as necessary to reflect changes in sea levels. Thus, when implemented, the safety measures built into the General Plan policies in the Safety Element, and the SCAs related to construction within 100-year flood zones, and adaptive management measures to sea level rise would reduce these potential impacts to less than significant levels.

Further, although the West Oakland Planning Area is located outside of 100 feet of high tide and therefore outside of BCDC's jurisdiction, as the Bay water rises under the projected 16" and 55" sea level rise scenarios, this boundary would change and portions of the Plan Area would be subject to BCDC's regulatory authority. Should this expanded jurisdiction occur during the life of the Plan, the City's SCA 84, Regulatory Permits and Authorizations, would require compliance with BCDC in addition to other applicable requirements of regulatory agencies.

Furthermore, implicit in the discussion of global warming, greenhouse gas emissions and sea level rise is that it extends beyond specific development projects, a specific plan area, or, indeed, an entire City. As both a local and a regional issue, it must be addressed in that context. The adopted Bay Plan and Oakland's Draft ECAP specifically recognize this, and include actions to participate in the preparation of a regional climate adaption strategy.