

3.5 Climate Change and Greenhouse Gases

This section describes how construction and operation of the components of the PWIMP would affect climate change and greenhouse gases. This evaluation was based on an initial review of existing reports and literature from the City of Oxnard and the Ventura County Air Pollution Control District.

3.3.1 Introduction

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, similar to a greenhouse. The accumulation of GHGs has been implicated as a driving force for Global Climate Change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and the impact of human activities that alter the composition of the global atmosphere. Both natural processes and human activities emit GHGs. The major concern is that increases in GHGs are causing Global Climate Change. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Although there is disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, the vast majority of the scientific community now agrees that there is a direct link between increased emission of GHGs and long-term global temperature. Potential global warming impacts in California may include, but are not limited to, 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 (California Air Resources Board, 2006). Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities such as electricity production and motor vehicles have elevated the concentration of GHGs in the atmosphere. This accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and contributed to Global Climate Change. The principal GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H₂O). Carbon dioxide is the reference gas for climate change because it gets the most attention and is considered the most important greenhouse gas. To account for the warming potential of GHGs, greenhouse gas emissions are often quantified and reported as CO₂ equivalents (CO₂e). The effects of GHG emission sources (i.e., individual projects) are reported in metric tons/year of CO₂e.

HISTORICAL CONTEXT

As noted in the Climate Action Team Report to Governor Schwarzenegger and the Legislature ("CAT Report") (Climate Action Team, 2006), the Earth's climate has always changed and evolved. This is most clearly exemplified in the 100,000-year ice-age cycles that have occurred. As described in the CAT Report, the last 10,000 years, and more specifically the last millennium, has been warm and one of the most stable climates observed (Climate Action Team, 2006). Yet

the CAT Report states that during the 20th century a rapid change in the climate and climate change pollutants has occurred and these changes are attributable to human activities. Climate change is described by the CAT Report as a “shift in the “average weather” that a given region experiences” (Climate Action Team, 2006), and that this can be measured by changes in temperature, wind patterns, precipitation, and storms.

According to the CAT Report, human activities including the burning of coal, oil, and natural gas, and the destruction of forests have contributed to an increase in CO₂ in the atmosphere by approximately 30 percent since the late 1800s, and that the increase in CO₂ and other greenhouse gases, and change in land surface has had a major influence on some of the “key factors that govern climate change...”

POTENTIAL EFFECTS OF HUMAN ACTIVITY ON CLIMATE CHANGE

Globally, climate change has the potential to impact numerous environmental resources through potential, 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 could be taking place, including substantial ice loss in the Arctic (Intergovernmental Panel on Climate Change, 2007). 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 (Intergovernmental Panel on Climate Change, 2001).

According to the California Air Resources Board (CARB), 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. 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 coarse a scale to make accurate regional assessments. Below is a summary of some of the potential effects reported by an array of studies that could be affected by 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. 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, 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 (CCCC, 2006).

Water Supply. Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Various studies have found that a considerable amount of uncertainty regarding the precise impacts of climate change on California's hydrology and water resources will remain until more precise and consistent information about how precipitation patterns, timing, and intensity will change. For example, some studies identify little change in total annual precipitation as projected for California. Other studies show significantly more precipitation. Even assuming that climate change leads to long-term increases in precipitation, an analysis of these impacts related to climate change is further complicated by the fact that no studies have identified or quantified the runoff impacts associated with changes in precipitation would have on particular watersheds. Also, little is known about how groundwater recharge and water quality will be affected. Higher rainfall could lead to greater groundwater recharge, although reductions in spring runoff and higher evapotranspiration could reduce the amount of water available for recharge.

The California Department of Water Resources (DWR 2006) report on climate change and affects on the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta concludes 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 (DWR, 2006). 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 (DWR, 2006). DWR adds that "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future." 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 (Kiparsky 2003; DWR 2005; Cayan 2006, Cayan, D., et al, 2006).

Hydrology. As discussed above, climate changes could potentially affect: 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 jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events. Sea level could rise as much as two feet along most of the U.S. coast.

Agriculture. California has a \$30 billion agricultural industry that produces half the country's fruits and vegetables. Higher CO₂ 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 certain crops, such as wine grapes, bloom or ripen, and thus affect their quality (CCCC, 2006).

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. Rising temperatures could have four major impacts on 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 (Parmesan, 2004; Parmesan, C. and H. Galbraith 2004.)

CURRENT CONTEXT

On December 30, 2009, the Natural Resources Agency adopted Amendments to the State CEQA Guidelines for greenhouse gas (GHG) emissions, pursuant to SB 97 (Statutes of 2007). These amendments, which became effective on March 18, 2010, specifically require that an EIR include an analysis of the proposed project's GHG impacts.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. The proper context for addressing this issue in an EIR is as a discussion of cumulative impacts, because although the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change. In turn, global climate change has the potential to result in rising sea levels, which can inundate low-lying areas; to affect rainfall and snowfall, leading to changes in water supply; to affect habitat, leading to adverse effects on biological resources; and to result in other effects.

Therefore, the cumulative global climate change analysis presented in this section of the Draft Program EIR analyzes the GHG emissions associated with construction activities and operation of the PWIMP. The potential effects of global climate change on the project are also identified based on available scientific data.

Cumulative impacts are the collective impacts of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. In determining the significance of a proposed project's contribution to anticipated adverse future conditions, a lead agency should generally undertake a two-step analysis. The first question is whether the *combined* effects from *both* the proposed project *and* other projects would be cumulatively significant. If the agency answers this inquiry in the affirmative, the second question is whether "the proposed project's *incremental* effects are cumulatively considerable" and thus significant in and of themselves. The cumulative project list for this issue (climate change) comprises anthropogenic (i.e., human-made) GHG emissions sources across the globe, and no project alone would reasonably be expected to contribute to a noticeable incremental change to the global climate. However, legislation and executive orders on the subject of climate change in California have established a statewide context for and a process for developing an enforceable statewide cap on GHG emissions. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies consider evaluating the cumulative impacts of GHGs, even relatively small (on a global basis) additions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and therefore significant.

The analysis is presented here, rather than the cumulative impacts section of this Draft Program EIR (Chapter 5), because this issue is presented here in greater detail. This discussion presents a

summary of applicable regulations, the current state of climate change science and GHG emissions sources in California, and a description of projected PWIMP generated GHG emissions and their contribution to global climate change.

3.4.2 Regulatory Context

Relevant Federal, State, and local guidelines specific to biological resource issues are discussed in this section.

3.4.2.1 Federal Regulations

The relevant federal regulations are discussed below.

SUPREME COURT RULING

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). The Supreme Court of the United States ruled on April 2, 2007, that carbon dioxide (CO₂) is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in this case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

EPA ACTIONS

In response to the mounting issue of climate change, EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

GREENHOUSE GAS PERMITTING REQUIREMENTS

New major stationary emissions sources and major modifications at existing stationary sources are required by the CAA to obtain an air pollution permit before commencing construction. On May 13, 2010, EPA issued the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailor Rule (EPA 2011). This final rule sets thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

PSD and Title V permitting requirements now cover new construction projects that emit GHG emissions of at least 100,000 tons carbon dioxide equivalent (CO₂e) (90,718 metric tons [MT]) per year even if they do not exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that increase GHG emissions by at least 75,000 tons (68,039 MT) per year will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant.

As part of the PSD and Title V rules, EPA undertook another rulemaking on June 29, 2012. This action issued a final rule that continues to focus permitting on the largest emitters. The EPA did not revise the GHG permitting thresholds that were established by the GHG Tailoring Rule. Therefore, at this time, PSD and Title V permitting requirements are not applicable to smaller sources of GHG emissions such as the proposed project (EPA 2012).

MANDATORY GREENHOUSE GAS REPORTING RULE

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large

GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 MT or more of CO₂ per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85% of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

NATIONAL PROGRAM TO CUT GREENHOUSE GAS EMISSIONS AND IMPROVE FUEL ECONOMY FOR CARS AND TRUCKS

On August 28, 2012 EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) issued joint Final Rules for Corporate Average Fuel Economy (CAFE) standards for vehicle Model Years 2017 and beyond (NHTSA 2012). These first-ever national GHG emissions standards will increase fuel economy to the equivalent of 54.5 mpg for cars and light-duty trucks by Model Year 2025. EPA approved these standards under the CAA, and NHTSA approved them under the Energy Policy and Conservation Act.

3.4.2.2 State Regulations

The relevant state regulations are discussed below.

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total GHG emission reduction targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

ASSEMBLY BILL 32, THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs the California Air Resources Board (ARB) to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

ASSEMBLY BILL 32 CLIMATE CHANGE SCOPING PLAN

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO₂e, or approximately 22% from the state's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10

percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO₂e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). The Scoping Plan reapproved by ARB in August 2011 includes the Final Supplement to the Scoping Plan Functional Equivalent Document (FED), which further examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by implementing the following measures and standards (ARB 2011):

- Improved emissions standards for light-duty vehicles (26.1 MMT CO₂e);
- The Low-Carbon Fuel Standard (LCFS) (15.0 MMT CO₂e);
- Energy efficiency measures in buildings and appliances (11.9 MMT CO₂e); and
- A renewable portfolio and electricity standards for electricity production (23.4 MMT CO₂e).

In 2011, ARB adopted the cap-and-trade regulation. The cap-and-trade program covers major sources of GHG emissions in the state such as refineries, power plants, industrial facilities, and transportation fuels. The cap-and-trade program includes an enforceable emissions cap that will decline over time. The state will distribute allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources under the cap will need to surrender allowances and offsets equal to their emissions at the end of each compliance period (ARB 2012).

With regard to land use planning, the Scoping Plan expects that reductions of approximately 3.0 MMT CO₂e will be achieved through implementation of Senate Bill (SB) 375, which is discussed further below (ARB 2011).

SENATE BILL 97

As directed by Senate Bill (SB) 97, the California Natural Resources Agency (CNRA) adopted Amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010. This EIR complies with these new guidelines, which includes new Appendix G checklist questions referenced in the impact analysis later in this chapter.

SENATE BILL 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG emission 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), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG emission reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

SENATE BILL X7-7

SB x7-7, enacted in November 2009, requires all water suppliers in California to increase water use efficiency. Specifically, the legislation sets an overall goal for the State of California to reduce per capita urban water use by 20% by December 31, 2020. An interim goal of a 10% per capita reduction was set for December 31, 2015.

The legislation set forth different requirements for urban water suppliers and agriculture water suppliers. All urban retail water suppliers were required to develop water use targets and an interim water use target by July 1, 2011. Urban retail water suppliers were also required to prepare a water management plan by July 2011, containing baseline per capita water use, water use targets, interim water use targets, and compliance with daily per capita water use. Agriculture water suppliers were required to adopt agriculture water management plans by December 31, 2010 and update those plans by December 31, 2015 and every 5 years thereafter (DWR 2010).

3.4.2.3 Local Regulations

The relevant local regulations are discussed below.

OXNARD 2030 GENERAL PLAN

The 2030 General Plan Goals and Policies discuss the issue of greenhouse gas emissions and climate change in Chapter 2 Sustainable Community. The General Plan discussion includes a review of key planning terms involved in sustainability concepts, many of which relate to greenhouse gas (GHG) emissions, their effect on global climate change, and the resulting environmental conditions that require planning and adaptation in coastal communities.

GHG emissions – mainly carbon dioxide from the burning of fossil fuels for energy production and for powering motor vehicles – are contributing toward global climate change. Among other effects, this climate change is expected to lead to a rise in sea level that will increase the potential for flooding in coastal areas. The State of California, through both Executive Orders by the Governor and through legislation, has adopted a number of policies and programs intended to reduce GHG emissions. These policies involve actions in a number of areas, including additional energy conservation through building design, increased fuel efficiency in motor vehicles, and measures to reduce the use of motor vehicles through land use and transportation strategies that promote alternative means of travel.

As of 2015, the City of Oxnard has adopted the 2030 General Plan, which includes a Sustainable Community chapter. The 2030 General Plan contains numerous statements of goals, policies, and implementation measures that relate to complying with the state direction to respond to the issue of GHG emissions and climate change. The policies are directed at improving energy conservation, and at reducing the consumption of energy for vehicle travel and other common urban purposes (the provision of water service, management of solid waste). In addition, the 2030 General Plan includes several policies to address the need for updated coastal planning in response to anticipated sea level rise (SLR).

Over the next few hundred years, global sea level is expected to rise because, at present, Earth's radiation budget is out of balance and Earth, especially the oceans, is still heating. Also, in the foreseeable future, projected increases in GHGs and associated increases in temperature are expected to further warm the oceans as well as increase the amount of ground-based ice melt.

Projections of global SLR range from approximately six to 32 centimeters above 1990 levels by 2035-2064, with an increase from 10 to 72 centimeters projected by 2070-2100 (Cayan 2008). As of 2017, Oxnard's Local Coastal Program (LCP) does not include a specific discussion of SLR, which is identified in the 2030 General Plan as a necessary update as of 2017 an LCP update is being undertaken. The current LCP identifies the coastal zone and coastal areas of the city and policies that impact the coastal zone identified. The policies relate to resources, such as agriculture, habitat areas, commercial fishing, visual resources, hazards, access and recreation, as well as development, that includes diking, dredging, filling, and shoreline structures, industrial and energy development, commercial visitor-serving facilities, as well as housing.

The 2030 General Plan EIR concluded that development of the Oxnard Planning Area consistent with the land uses and policies in the General Plan would have a significant and unavoidable impact relative to the issue of GHG emissions and climate change. The major reason for this conclusion is the current (2015) lack of specific criteria with which to judge the effects of GHG emissions and the evolving nature of plans and programs to address the issue, as well as the fact that the EIR was addressing the cumulative development of the City of Oxnard within its Planning Area. The impact statement is as follows:

Impact 5.7-6 The Project would potentially conflict with implementation of state goals for reducing greenhouse emissions.

For land use and transportation related projects, the degree of compliance with policies intended to minimize GHG emissions will remain an important element of assessing their impacts. The lists of related policies are long, but not all policies would apply to all projects. Many of the goals and policies related to reducing GHG emissions through energy conservation and minimizing vehicle use also relate to reducing air pollution in general. These policies are presented above and are not repeated here. The additional policies are identified in the 2030 General Plan EIR, which apply to the issue of GHG emissions and climate change.

3.5.3 Environmental Setting

The City of Oxnard lies entirely within the Oxnard Plain, which is in Ventura County. Ventura County's diverse topography, which affects the County's air quality, is characterized by mountains to the north, hills to the east between Ventura and Los Angeles Counties, two major river valleys (the Santa Clara River which flows east-west and the Ventura River which flows roughly north-south), and the Oxnard Plain to the south and west. The Santa Monica Mountains rise above the Oxnard Plain to the south and continue east into Los Angeles County. The mountainous topography surrounding the lower lying portions of Ventura County, where most pollutants are emitted, contributes to poor air quality by acting as a barrier, which prevents winds from blowing away polluted air.

3.5.3.1 Climate and Atmospheric Conditions

The air above the PWIMP Planning Area often exhibits weak vertical and horizontal dispersion characteristics. The region experiences temperature inversions, which limit atmosphere mixing and trap pollutants, resulting in high pollutant concentrations near ground level. Surface inversions (0 - 500 feet) are most frequent during winter; subsidence inversions (1,000 – 2,000 feet) are most frequent during summer. Generally, the lower the inversion base height and the greater the temperature increase from the top, the more pronounced the effect the inversion will

have on the inhibiting dispersion. The City's climate is characterized by cool winters and generally moderate summers. Marine air influences the climate throughout the year. According to the Western Regional Climate Center, average temperatures range from about 75 degrees F (24 degrees C) in summer to 65 degrees F (18 degrees C) in winter. Annual rainfall averages about 15 inches per year, with most rainfall occurring between November and April.

3.5.3.2 Existing Emission Sources and Emission Levels

Emissions are divided into two main categories: stationary and mobile. Stationary sources are those emission sources, such as industrial processes, burning crop residuals, and exposed soils/minerals (source of dust or Particulate Matter - PM₁₀) that are fixed in place. Within the City, stationary-source pollutants include ozone precursors associated with local industrial processes and PM₁₀ emissions associated with road dust, burning, construction and demolition activities, and fuel combustion (at stationary locations, such as industry residences). Natural sources of PM₁₀ emissions include those resulting from wildfires. The primary source of mobile emissions is vehicles (automobiles, passenger trucks, trucks, and buses). Vehicle emissions are also the primary source of ozone precursors.

The VCAPCD has established several monitoring stations in the South Central Coast Air Basin to measure air quality conditions. The nearest monitoring station to the City is located in El Rio, which is adjacent and to the north of the City of Oxnard. Monitoring data from the El Rio monitoring station is shown in Table 3.3-2.

PM₁₀ and PM_{2.5}. The State 24-hour PM₁₀ standard was exceeded between 0 and 5 times from 1999 to 2004 at the El Rio monitoring station. There is no State 24-hour PM_{2.5} standard. The Federal 24-hour PM_{2.5} standard was exceeded one time in 2003 and at no other time from 1999 to 2004.

Ozone. The State 1-hour ozone standard was exceed once in 1999 and has not been exceeded since. The State 8-hour standard is not expected to become effective until early 2006. Initial 8-hour monitoring data indicates that the State 8-hour standard may occasional be exceeded at the El Rio monitoring station.

**Table 3.3-2
Summary of PM₁₀, PM_{2.5}, and Ozone Air Quality Monitoring Data (1999-2004)**

Pollutant Monitoring Station	Parameter	Standard		Year					
		Federal	California	1999	2000	2001	2002	2003	2004
PM₁₀ (µg/m³)									
El Rio	Annual geometric mean	NA	20	29	28	29	29	NA	29
	Annual arithmetic mean	50	NA	28	27	28	28	31	28
	24-hour maximum	150	50	50	52	53	100	127	59
	Days above State standards	-	-	0	1	3	2	5	1
PM_{2.5}									

**Table 3.3-2
Summary of PM10, PM2.5, and Ozone Air Quality Monitoring Data (1999-2004)**

Pollutant Monitoring Station	Parameter	Standard		Year					
		Federal	California	1999	2000	2001	2002	2003	2004
El Rio	Annual geometric mean	N/A	12	N/A	N/A	13	N/A	N/A	11
	Annual arithmetic mean	15	N/A	N/A	N/A	N/A	13	12	11
	24-hour maximum	65	N/A	37	46	41	29	82	29
	Days above State standards			0	0	0	0	1	0
Ozone (ppm)									
El Rio	1-hour maximum	NA	0.09	0.10	0.08	0.09	0.09	0.08	0.08
	Days above State Standards			1	0	0	0	0	0
	8-hour Maximum	0.08	0.076	0.08	0.07	0.07	0.07	0.07	0.08
	Days above State Standards			N/A	N/A	N/A	N/A	N/A	N/A
Notes: N/A = not available. Days above standard means days with one or more exceedance of the 1-hour ozone standards – The State 8-hour ozone standard was approved by the CARB on April 28, 2005 and is expected to become effective in early 2006.									
Source: California Air Resources Board, 2005									

As of 2015, the Ventura County air basin is in attainment with, or is unclassified with respect to, all federal and state ambient air quality standards except for ozone and PM₁₀.

3.5.3.3 Sensitive Receptors in the City

Sensitive receptors are typically defined as populations or uses that are more susceptible to the effects of air pollution than the general population. For the PWIMP Planning Area, sensitive receptors include the following populations or uses: long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities.

3.5.4 Impact Analyses

This section includes a discussion of the relevant significance criteria, the approach and methodology to the analyses, and any identified impacts and mitigation measures.

3.5.4.1 Significance Criteria

Significance thresholds below are based on Appendix G (Environmental Checklist Form) of the *CEQA Guidelines* and modified from the City's *May 2017 CEQA Guidelines*, which indicates that a potentially significant impact on would occur if the PWIMP would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases or otherwise conflict with state goals for reducing GHG emissions in California; and/or
- Contribute or be subject to potential secondary effects of climate change (e.g., sea level rise, increase fire hazard).

3.5.4.2 Approach and Methodology

As described in Chapter 2, Project Description, the City's PWIMP is comprised of improvements to the City's Water Supply System, Recycled Water System, Wastewater System, and Stormwater System through build-out of the City's 2030 General Plan. However, the design details, final options, and the timing of construction phases are not precisely known, despite the best estimates provided in the schedules in Chapter 2. Further, it is not practical or prudent to try to provide project-level or detailed quantitative analysis at this time as many of the details are not known and the timing will likely change and/or the requirements for project-level analysis could change and be different in the future. As such, the environmental impact analysis for this section has been prepared at a programmatic level of detail and it addresses the full range of potential environmental effects associated with implementation of the PWIMP, but the analysis is more qualitative and general. Specifically, the analysis focuses on providing a discussion on potential significant impacts and provides broad mitigation measures that can and should be implemented at the project-level. This approach is consistent with the State CEQA Guidelines provisions for a Program EIR, as described in Section 15168, which suggests that the level of detail is dictated by "ripeness"; detailed analysis should be reserved for issues that are ripe for consideration.

The methods used to assess the significance of the PWIMP's GHG emissions are based on a review of recent publications and actions from the Governor's Office of Planning and Research (OPR) and guidance from the VCAPCD. OPR published a technical advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. This advisory acknowledges the need for a set threshold for GHG emissions and notes that OPR has asked CARB to recommend a method for setting thresholds to encourage consistency and uniformity in GHG analyses in CEQA documents throughout the State. In the interim, OPR recommends that compliance with CEQA be evaluated using three steps: 1) identify and quantify the GHG emissions generated by a project; 2) assess the significance of the impact on climate change; and 3) identify alternatives and/or mitigation measures if the impacts are determined to be significant (OPR, 2008).

For this evaluation a stationary source significance threshold for operational emissions of 10,000 metric tons of CO₂e per year for stationary source projects will be used. Since the VCAPCD has not adopted a significance threshold for construction emissions, this analysis amortizes the total GHG construction emissions from the Project over the lifetime of the Project (assumed to be 30 years) and adds them to the Project's operational emissions. The total GHG emissions are compared to the 10,000 metric tons of CO₂e significance threshold. The Project is also assessed for significant impacts with conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

3.5.4.3 Impacts and Mitigation Measures

Based on the significance criteria and approach and methodology described above, the potential impacts are discussed below.

Impact 3.5-1: Implementation of the PWIMP and/or identified components/facilities could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. The potential impacts due to temporary construction and long-term operations are discussed below.

Temporary Construction Impacts

The construction of the new PWIMP facilities and the rehabilitation and/or replacement of existing facilities could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. This is a potentially significant impact.

The PWIMP would be located within the jurisdiction of VCAPCD, the regional agency empowered to regulate air pollutant emissions from stationary sources in the Ventura County. VCAPCD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review process. Construction activities generate Reactive Organic Compounds (ROC) and Nitrogen Oxides (NOx) which contribute to GHGs. Construction emissions are considered by VCAPCD to be temporary in nature and are not included in overall emissions when determining if project impacts are significant. However and pursuant to VCAPCD policy, construction-related emissions should be mitigated if estimates of ROC and NOx emissions exceed 25 pounds per day. PWIMP construction activities would occur over many years, but any one individual project, or a collection of several projects being constructed at the same time have the potential to exceed these estimates. VCAPCD's approach to analyses of construction impacts is to emphasize implementation of effective and comprehensive basic construction control measures in all aspects of construction. With implementation of the **Mitigation Measures 3.5-1a through 3.5-1c**¹ below, the PWIMP's construction-related impacts would be considered to be less than significant.

Construction Mitigation Measures

The following mitigation measures shall be implemented.

Mitigation Measure 3.5-1a: Calculate Air Emissions. For each individual PWIMP project(s), set of Projects, and/ or construction activity, the City shall calculate air quality emissions using an appropriate air emissions computer program, as appropriate. VCAPCD recommends using the URBEMIS computer program that was originally developed by the California Air Board. However, other models such as the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model can be effective in assessing the emissions of linear construction projects. The model run(s) will establish estimated construction emissions, which will be used to establish a construction emissions control plan as described in Mitigation Measure 3.5-1b below.

Mitigation Measure 3.5-1b: Construction Emissions Control Plan. For each individual PWIMP project(s), set of Projects and/ or construction activity, the City shall prepare a Construction Emissions Control Plan that outlines an approach for phasing construction activities to ensure that daily construction emissions do not exceed the VCAPCD's significance thresholds

¹ These are consistent with and/or duplicative of the applicable mitigation measures in Section 3.3 Air Quality.

for construction activities. The plan shall be submitted to the VCAPCD for review and approval at least 30 days prior to the estimated start of construction activities. The City shall require the approved plan to be implemented during all construction activities by including the approved plan in construction contracts. The plan shall include, at a minimum, a detailed description of the construction equipment inventory and use requirements for each component of the project, including daily activity phasing. The plan shall include documentation that the equipment used to construct the project(s) is properly maintained and shall include the maintenance schedule of the equipment, consistent with manufacturers' specifications. To ensure that emissions remain below VCAPCD's daily significance threshold of 25 pounds per day of ROC and NO_x, the plan shall be designed to achieve emission levels that are no higher than 22.5 pounds per day of ROC and NO_x (i.e., 90 percent of the daily threshold). All aspects of construction activity, including but not limited to truck trips per day, miles per trip, miles of dirt road travel per day, daily equipment inventories, equipment hours, and amounts of total areas and volumes of material to be disturbed shall be clearly defined in the plan and implemented in the field so that it can be determined by a third party construction monitor that the agreed upon plan is adequately implemented.

Mitigation Measure 3.5-1c: ROC and NO_x Construction Measures. For each individual PWIMP Project(s), set of Projects, and/ or construction activity, the City shall, to the extent applicable and possible, require its construction contractor(s) to implement ROC and NO_x construction measures.

- Minimize equipment idling time.
- Maintain equipment engines in good condition and in proper tune as per manufacturers' specifications.
- Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.
- Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

Significance After Mitigation: Less-than-Significant Impact

Long-Term Operational Impacts

With regard to long-term operations, there would be no permanent stationary sources associated with the PWIMP, with the exception of emergency generators, and mobile sources would be limited to commuting workers to PWIMP facilities and limited truck trips to inspect the pipeline and conveyance facilities. However, operation of the new wells and expanded wastewater and advance recycled water treatment facilities will require additional electricity and would be the primary source of GHG emissions. If the annual operational emissions of these new or expanded PWIMP facilities exceed 10,000 metric tons of CO₂e per year above existing conditions, then the project would be considered to have a significant impact. However, with the Mitigation Measure 3.5-1a above and Mitigation Measure 3.5-1d below, then any impacts would be considered to be less than significant.

Long-Term Operational Mitigation Measures

The following mitigation measures shall be implemented.

Mitigation Measure 3.5-1d: Purchase of GHG Offset Credits. If it is determined that the Proposed new PWMIMP facilities would exceed 10,000 metric tons of CO₂e per year above existing conditions, then the City shall purchase GHG offset credits from a reputable purveyor of the GHG offset credits in compliance with CAPCOA's GHG Registry.

Significance after Mitigation: Less-than-Significant Impact

Impact 3.5-2: Implementation of the PWIMP and/or identified components/facilities could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases or otherwise conflict with state goals for reducing GHG emissions in California. The potential impacts due to temporary construction and long-term operations are discussed below.

As discussed above, the PWIMP would be located within the jurisdiction of VCAPCD, the regional agency empowered to regulate air pollutant emissions from stationary sources in the Ventura County. VCAPCD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review process. Construction activities generate Reactive Organic Compounds (ROC) and Nitrogen Oxides (NO_x) which contribute to GHGs. Construction emissions are considered by VCAPCD to be temporary in nature and are not included in overall emissions when determining if project impacts are significant. However and pursuant to VCPACD policy, construction-related emissions should be mitigated if estimates of ROC and NO_x emissions exceed 25 pounds per day. PWIMP construction activities would occur over many years, but any one individual project, or a collection of several projects being constructed at the same time have the potential to exceed these estimates. VCAPCD's approach to analyses of construction impacts is to emphasize implementation of effective and comprehensive basic construction control measures in all aspects of construction. With implementation of the **Mitigation Measures 3.5-1a through 3.5-1c** above, the PWIMP's construction-related GHG impacts would be considered to be less than significant.

Significance after Mitigation: Less-than-Significant Impact

Long-Term Operational Impacts

As stated above and with regard to long-term operations, there would be no permanent stationary sources associated with the PWIMP, with the exception of emergency generators, and mobile sources would be limited to commuting workers to PWIMP facilities and limited truck trips to inspect the pipeline and conveyance facilities. However, operation of the new wells and expanded wastewater and advance recycled water treatment facilities will require additional electricity and would be the primary source of GHG emissions. If the annual operational emissions of these new or expanded PWIMP facilities exceed 10,000 metric tons of CO₂e per year above existing conditions, then the project would be considered to have a significant impact. However, with the implementation of **Mitigation Measures 3.5-1a and 3.5-1d** above, then any impacts would be considered to be less than significant.

Significance after Mitigation: Less-than-Significant Impact

Impact 3.5-3: Implementation of the PWIMP and/or identified components/facilities could contribute or be subject to potential secondary effects of climate change (e.g., sea level rise, increase fire hazard). The potential impacts due to temporary construction and long-term operations are discussed below.

As discussed above, the PWIMP would be located within the jurisdiction of VCAPCD, the regional agency empowered to regulate air pollutant emissions from stationary sources in the Ventura County. VCAPCD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review process. Construction activities generate Reactive Organic Compounds (ROC) and Nitrogen Oxides (NOx) which contribute to GHGs. Construction emissions are considered by VCAPCD to be temporary in nature and are not included in overall emissions when determining if project impacts are significant. However and pursuant to VCPACD policy, construction-related emissions should be mitigated if estimates of ROC and NOx emissions exceed 25 pounds per day. PWIMP construction activities would occur over many years, but any one individual project, or a collection of several projects being constructed at the same time have the potential to exceed these estimates. VCAPCD's approach to analyses of construction impacts is to emphasize implementation of effective and comprehensive basic construction control measures in all aspects of construction. With implementation of the **Mitigation Measures 3.5-1a through 3.5-1c** above, the PWIMP's construction-related GHG impacts including any potential to contribute or be subject to potential secondary effects of climate change (e.g., sea level rise, increase fire hazard) would be considered to be less than significant.

Significance after Mitigation: Less-than-Significant Impact

Long-Term Operational Impacts

As stated above and with regard to long-term operations, there would be no permanent stationary sources associated with the PWIMP, with the exception of emergency generators, and mobile sources would be limited to commuting workers to PWIMP facilities and limited truck trips to inspect the pipeline and conveyance facilities. However, operation of the new wells and expanded wastewater and advance recycled water treatment facilities will require additional electricity and would be the primary source of GHG emissions. If the annual operational emissions of these new or expanded PWIMP facilities exceed 10,000 metric tons of CO₂e per year above existing conditions, then the project would be considered to have a significant impact. However, with the implementation of **Mitigation Measures 3.5-1a and 3.5-1d** above, then any operational GHG impacts including any potential to contribute or be subject to potential secondary effects of climate change (e.g., sea level rise, increase fire hazard) would be considered to be less than significant.

Significance after Mitigation: Less-than-Significant Impact

3.5.5 Cumulative Effects

As discussed above, the PWIMP would be located within the jurisdiction of VCAPCD, the regional agency empowered to regulate air pollutant emissions from stationary sources in the Ventura County. VCAPCD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review process. Construction activities generate Reactive Organic Compounds (ROC) and Nitrogen Oxides (NOx) which contribute to GHGs. Construction emissions are considered by VCAPCD to be temporary in nature and are not included in overall emissions when determining if project impacts are significant. However and pursuant to VCAPCD policy, construction-related emissions should be mitigated if estimates of ROC and NOx emissions exceed 25 pounds per day. PWIMP construction activities would occur over many years, but any one individual project, or a collection of several projects being constructed at the same time have the potential to exceed these estimates. VCAPCD's approach to analyses of construction impacts is to emphasize implementation of effective and comprehensive basic construction control measures in all aspects of construction. With implementation of the **Mitigation Measures 3.5-1a through 3.5-1c** above, the PWIMP's construction-related GHG impacts would be considered to be less than significant. As a result, the PWIMP construction activities are not expected to have any cumulative impacts to GHGs.

As stated above and with regard to long-term operations, there would be no permanent stationary sources associated with the PWIMP, with the exception of emergency generators, and mobile sources would be limited to commuting workers to PWIMP facilities and limited truck trips to inspect the pipeline and conveyance facilities. However, operation of the new wells and expanded wastewater and advance recycled water treatment facilities will require additional electricity and would be the primary source of GHG emissions. If the annual operational emissions of these new or expanded PWIMP facilities exceed 10,000 metric tons of CO₂e per year above existing conditions, then the project would be considered to have a significant impact. However, with the implementation of **Mitigation Measures 3.5-1a and 3.5-1d** above, then any impacts would be considered to be less than significant. As a result, the PWIMP operational activities are not expected to have any cumulative impacts to GHGs.