3.7 GREENHOUSE GAS EMISSIONS

GREENHOUSE GAS EMISSIONS –Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.7.1 Environmental Setting

Greenhouse gases (GHGs), are defined as any gas that absorbs infrared radiation in the atmosphere, include, but are not limited to, water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorocarbons. These GHGs lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the Greenhouse Effect. The atmosphere and the oceans are reaching their capacity to absorb CO_2 and other GHGs without significantly changing the earth's climate. Unlike criteria pollutants and TACs, which are pollutants of regional and local concern; GHGs and climate change are a local, regional, and global issue.

As stated on California's Climate Change Portal (www.climatechange.ca.gov):

> *Climate change is expected to have significant, widespread impacts on California's economy and environment. California's unique and valuable natural treasures - hundreds of miles of coastline, high value forestry and agriculture, snow-melt fed fresh water supply, vast snow and water fueled recreational opportunities, as well as other natural wonders - are especially at risk.*

In addition, the Intergovernmental Panel on Climate Change (IPCC), in the section of its Fifth Assessment Report by Working Group II, Climate Change 2014: Impacts, Adaptation, and Vulnerability (IPCC 2014) specific to North America (Chapter 26), stated in part:

> *North American ecosystems are under increasing stress from rising temperatures, CO_2 concentrations, and sea-levels, and are particularly vulnerable to climate extremes (very high confidence). Climate stresses occur alongside other anthropogenic influences on ecosystems, including land-use changes, non-native species, and pollution, and in many cases would exacerbate these pressures (very high confidence). [26.4.1; 26.4.3]. Evidence since the Fourth Assessment Report (IPCC 2014) highlights increased ecosystem vulnerability to multiple and interacting*

> *climate stresses in forest ecosystems, through wildfire activity, regional drought, high temperatures, and infestations (medium confidence) [26.4.2.1; Box 26-2]; and in coastal zones due to increasing temperatures, ocean acidification, coral reef bleaching, increased sediment load in run-off, sea level rise, storms, and storm surges (high confidence) [26.4.3.1].*

Climate change is having widespread impacts on California's economy and environment, and will continue to affect communities across the state in the future. Many impacts, including increased fires, floods, severe storms and heat waves are occurring already (California Climate Change Center 2014). Documented effects of climate change in California include increased average, maximum, and minimum temperatures; decreased spring run-off to the Sacramento River; shrinking glaciers in the Sierra Nevada; a rise in sea level at the Golden Gate; warmer temperatures in major lakes such Lake Tahoe, Clear Lake, and Mono Lake; and changes in elevations for plant and animal species (Office of Environmental Health Hazard Assessment] 2013).

According to the IPCC, the concentration of CO_2, the primary GHG, has increased from approximately 280 ppm in pre-industrial times to well over 380 ppm. The current rate of increase in CO_2 concentrations is about 1.9 ppm/year; present CO_2 concentrations are higher than any time in at least the last 650,000 years. To meet the statewide GHG reduction target for 2020, requiring California to reduce its total statewide GHG emissions to the level they were in 1990 (Health & Saf. Code, § 38550), and the 2050 goal of 80 percent below 1990 levels (Executive Order S-3-05), not only must projects contribute to slowing the increase in GHG emissions, but, ultimately, projects should contribute to reducing the State's output of GHGs. To reach California's GHG reduction targets, it is estimated that per capita emissions would need to be reduced by slightly less than 5 percent per year during the 2020 to 2030 period, with continued reductions required through midcentury.

In its 2008 "Report on Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act," the California Air Pollution Control Officers Association (CAPCOA 2008) stated:

> *[w]hile it may be true that many GHG sources are individually too small to make any noticeable difference to climate change, it is also true that the countless small sources around the globe combine to produce a very substantial portion of total GHG emissions.*

The quantification of GHG emissions associated with a project can be complex and relies on a number of assumptions. GHG emissions are generally classified as direct and indirect. Direct emissions are associated with the production of GHG emissions from the immediate Project area. These include the combustion of natural gas as well as the combustion of fuel in engines and construction vehicles used on the site. In

addition, direct emissions include fugitive emissions from valves and connections of equipment used during implementation or throughout the project life. Indirect emissions include the emissions from vehicles (both gasoline and diesel) delivering materials and equipment to the site (e.g., haul trucks).

CO_2 is the most common reference gas for climate change. To account for the warming potential of GHG, their emissions are often quantified and reported as CO_2 equivalents (CO_2e). With the warming potential of CO_2 set at a reference value of 1, CH_4 has a warming potential of 21 (i.e., one ton of methane has the same warming potential as 21 tons of CO_2 [USEPA 2013a,b)]), while N_2O has a warming potential of 310. There is widespread international scientific consensus that human-caused increases in GHG have and will continue to contribute to climate change, although there is uncertainty concerning the magnitude and rate of the warming.

The San Francisco Bay Area as a whole emitted an estimated 95.8 million metric tons (MT) of CO_2e in 2007 (BAAQMD 2010b), and the estimated emissions in unincorporated County were 1,667,070 MT of CO_2e in 2005 (Contra Costa County 2012).

3.7.2 Regulatory Setting

Federal and State laws and regulations pertaining to this issue area and relevant to the Project are identified in Table 3.7-1.

Table 3.7-1. Laws, Regulations, and Policies (GHGs)

U.S.	Federal Clean Air Act (FCAA) (42 USC 7401 et seq.)	In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO_2) is an air pollutant as defined under the FCAA, and that the USEPA has authority to regulate GHG emissions.
CA	California Global Warming Solutions Act of 2006 (AB 32)	Under AB 32, CARB is responsible for monitoring and reducing GHG emissions in the State and for establishing a statewide GHG emissions cap for 2020 that is based on 1990 emissions levels. CARB (2009) has adopted the AB 32 Climate Change Scoping Plan (Scoping Plan), which contains the main strategies for California to implement to reduce CO_2 equivalent (CO_2e) emissions by 169 million metric tons (MMT) from the State's projected 2020 emissions level of 596 MMT CO_2e under a business-as-usual scenario. The Scoping Plan breaks down the amount of GHG emissions reductions the CARB recommends for each emissions sector of the State's GHG inventory, but does not directly discuss GHG emissions generated by construction activities.
CA	Senate Bills (SB) 97 and 375	• Pursuant to SB 97, the State Office of Planning and Research prepared and the Natural Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. Effective as of March 2010, the revisions to the CEQA Environmental Checklist Form (Appendix G) and the Energy Conservation Appendix (Appendix F) provide a framework to address global climate change impacts in the CEQA process; State CEQA Guidelines section 15064.4 was also added to provide an approach to assessing impacts from GHGs.

		• SB 375 (effective January 1, 2009) requires CARB to develop regional reduction targets for GHG emissions, and prompted the creation of regional land use and transportation plans to reduce emissions from passenger vehicle use throughout the State. The targets apply to the regions covered by California's 18 metropolitan planning organizations (MPOs). The 18 MPOs must develop regional land use and transportation plans and demonstrate an ability to attain the proposed reduction targets by 2020 and 2035.
CA	Executive Orders	Executive Order B-30-15 (Governor Brown, April 2015) established a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It additionally directed all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve GHG emissions reductions to meet the 2030 and 2050 targets.
		Executive Order S-01-07 (Governor Schwarzenegger, January 2007) established a low carbon fuel standard for California, and directs the carbon intensity of California's transportations fuels to be reduced by at least 10 percent by 2020.
		Executive Order S-3-05 (Governor Schwarzenegger, June 2005) directed the state to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 level by 2050.

The Project site is within an area of Contra Costa County that was annexed by the city of Antioch in 2013; however, because the City does not have specific policies for GHG, Contra Costa County information is provided here.

In December 2012, Contra Costa County released a Draft Climate Action Plan for the unincorporated parts of the County for public review and comment. This Draft Climate Action Plan identifies specific measures on how the County can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHG, the Draft Climate Action Plan includes proposed policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term greenhouse reduction goals for 2020 and 2035 (Contra Costa County 2012).

3.7.3 Impact Analysis

With the exception of very large projects, GHG from individual projects are typically less than significant at the project scale; however, GHG emissions cumulatively have a substantial environmental impact. The revisions to the State CEQA Guidelines adopted December 30, 2009 (§ 15064, subd. (h)(3)) provide the basis for assessing cumulative impacts of GHG emissions. Section 15064 indicates that a

> *…lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not*

limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

The guidance also encourages lead agencies to quantify GHG emissions where possible.

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

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. The CARB AB 32 Climate Change Scoping Plan (2008) establishes GHG reduction strategies and goals for California's future. The plan primarily aims to deal with large contributors to California's GHG emissions such as power generation and transportation. This is in large part due to the global nature of climate change where significant contributors are on a much larger scale than the Project. Although the BAAQMD has adopted 1,100 MT/year as a GHG operational emissions significance criterion for development projects, there is no similar adopted threshold for project construction emissions. Construction of the Project would generate about 145.6 MT of GHGs during its 3-month construction period, as indicated in Appendix A. After Project construction is completed, there would be no sources of operational or ongoing GHG emissions that would undermine or conflict with the established GHG reduction targets. Because construction emissions would be short-term and would cease upon completion, GHGs from construction activities would not substantially contribute to the global GHG emissions burden. Additionally, construction of this Project would not conflict with any County or State policy to reduce GHG emissions, including Executive Orders S-3-05, S-01-07, and B-30-15. Therefore, GHG emissions from the Project would not have a significant impact on the environment or conflict with applicable plans, policies, or regulations.

3.7.4 Mitigation Summary

The Project would not result in significant impacts to GHG Emissions; therefore, no mitigation is required.