

1 **3.3 AIR QUALITY AND GREENHOUSE GAS EMISSIONS**

AIR QUALITY AND GREENHOUSE GAS EMISSIONS – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2 **3.3.1 Environmental Setting**

3 Criteria air pollutants are a group of pollutants for which Federal or State regulatory
 4 agencies have adopted ambient air quality standards. Criteria air pollutants include
 5 ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate
 6 matter (both PM₁₀ and PM_{2.5}), and lead. Most of the criteria pollutants are directly
 7 emitted; ozone is a secondary pollutant that is formed in the atmosphere by chemical
 8 reactions between oxides of nitrogen (NO_x) and reactive organic gases (ROG).

9 Criteria air pollutants concentrations are classified in each air basin, county, or in some
 10 cases, within a specific urbanized area. The classification is determined by comparing
 11 actual monitoring data with State and Federal standards. If a pollutant concentration is
 12 lower than the standard, the area is classified as “attainment” for that pollutant and if an
 13 area exceeds the standard, the area is classified as “non-attainment” for that pollutant. If

1 there are not enough data available to determine whether the standard is exceeded in
2 an area, the area is designated “unclassified.”

3 The San Francisco Bay Area Air Basin (Basin) is classified as non-attainment for State
4 PM₁₀ standards as well as State 1- and 8-hour ozone (BAAQMD 2013) standards.
5 Recent findings (CARB 2012) indicate that the San Francisco Bay Area is currently in
6 attainment for small particulate matter (PM_{2.5}). With respect to Federal standards, the
7 Basin is classified as being in non-attainment for the federal PM_{2.5} standard, and
8 marginal non-attainment for the 8-hour ozone standard. For all other State and Federal
9 criteria air pollutant standards, the Basin is classified as either unclassified or as
10 attainment (BAAQMD 2013a).

11 **3.3.1.1 Sensitive Receptors**

12 For the purposes of air quality and public health analyses, sensitive receptors are
13 generally defined as land uses with population concentrations that would be particularly
14 susceptible to disturbance from dust, air pollutant concentrations, or other disruptions
15 associated with Project construction and/or operation. These receptors generally
16 include schools, day care centers, hospitals, residential areas, and parks. Some
17 receptors are considered more sensitive than others to air pollutants. The reasons for
18 greater than average sensitivity include pre-existing health problems, proximity to
19 emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and
20 convalescent homes are considered to be relatively sensitive to poor air quality because
21 children, elderly people, and the infirm are more susceptible to respiratory distress and
22 other air quality-related health problems than the general public. Residential areas are
23 considered sensitive to poor air quality because people usually stay home for extended
24 periods of time, with associated greater exposure to ambient air quality. Recreational
25 uses are also considered sensitive due to the greater exposure to ambient air quality
26 conditions because vigorous exercise associated with recreation places a high demand
27 on the human respiratory system.

28 The Project’s onshore work area is approximately 250 feet from the closest residences
29 in Rodeo, and within 550 feet of residences in the City’s Subdivision. The boundary of
30 Park is approximately 100 feet east of the onshore work area. Work would therefore
31 occur within 250 to 2,250 feet of the closest residence, and within 100 to 2,100 feet of
32 the closest Park area.

33 **3.3.1.1 Greenhouse Gas (GHG) Emissions and Climate Change**

34 Some gases in the atmosphere affect the earth’s heat balance by absorbing infrared
35 radiation. These gases can prevent the escape of heat in much the same way as glass
36 in a greenhouse. This is often referred to as the “greenhouse effect,” and it is
37 responsible for maintaining a habitable climate. On earth the gases believed to be have

1 the most greenhouse potential are carbon dioxide (CO₂), methane, nitrous oxide,
2 hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

3 Enhancement of the greenhouse effect can occur when concentrations of these gases
4 exceed the natural concentrations in the atmosphere. Of these gases, CO₂ and
5 methane are emitted in the greatest quantities from human activities. Emissions of CO₂
6 are largely by-products of fossil fuel combustion, whereas methane results primarily
7 from off-gassing associated with agricultural practices and landfills. Some methane is
8 emitted during fossil fuel combustion. Nitrous oxide (N₂O) is the other GHG that is
9 commonly associated with fossil fuel combustion.

10 CO₂ is the most common reference gas for climate change. To account for the warming
11 potential of GHGs, GHG emissions are often quantified and reported as CO₂
12 equivalents (CO₂e). With the warming potential of CO₂ set at a reference value of 1,
13 methane has a warming potential of 21, and N₂O has a warming potential of 310; i.e., 1
14 ton of methane has the same warming potential as 21 tons of CO₂ (USEPA 2013a,b).
15 There is widespread international scientific consensus that human-caused increases in
16 GHGs have and will continue to contribute to climate change, although there is
17 uncertainty concerning the magnitude and rate of the warming.

18 Some of the potential resulting effects in California of global warming may include loss
19 of snow pack, sea level rise, more extreme heat days per year, more high ozone
20 concentration days, more large forest fires, and more drought years (CARB 2008).
21 Globally, climate change has the potential to impact numerous environmental resources
22 through potential, though uncertain, impacts related to future air temperatures and
23 precipitation patterns. The projected effects of climate change on weather and climate
24 are likely to vary regionally, but are expected to include the following direct effects
25 (IPCC 2001): higher maximum temperatures and more hot days over nearly all land
26 areas; higher minimum temperatures, fewer cold days and frost days over nearly all
27 land areas; reduced diurnal temperature range over most land areas; increase of heat
28 index over land areas; and more intense precipitation events.

29 Secondary effects that are projected to result from climate change include global rise in
30 sea level, impacts to agriculture, increasing intensity of storms, changes in disease
31 vectors, and changes in habitat and biodiversity. While the possible outcomes and
32 feedback mechanisms involved are not fully understood, and research continues, the
33 potential for substantial environmental, social, and economic consequences over the
34 long term is likely to be great.

35 The San Francisco Bay Area as a whole emitted an estimated 95.8 million metric tons
36 (MT) of CO₂e in 2007 (BAAQMD 2010), and the estimated emissions in unincorporated
37 County were 1,667,070 MT of CO₂e in 2005 (Contra Costa County 2012). No estimate
38 is available for the City.

1 **3.3.2 Regulatory Setting**

2 Federal and State laws and regulations pertaining to this issue area and relevant to the
3 Project are identified in Table 3-1. Local goals, policies, and/or regulations applicable to
4 this issue area are summarized below.

5 With the exception of very large projects, GHG from individual projects are typically less
6 than significant at the project scale; however, GHG emissions cumulatively have a
7 substantial environmental impact. The revisions to the State CEQA Guidelines adopted
8 December 30, 2009 (§ 15064, subd. (h)(3)) provide the basis for assessing cumulative
9 impacts of GHG emissions. Section 15064 indicates that a "...lead agency may
10 determine that a project's incremental contribution to a cumulative effect is not
11 cumulatively considerable if the project will comply with the requirements in a previously
12 approved plan or mitigation program (including, but not limited to, water quality control
13 plan, air quality attainment or maintenance plan, integrated waste management plan,
14 habitat conservation plan, natural community conservation plan, plans or regulations for
15 the reduction of greenhouse gas emissions) that provides specific requirements that will
16 avoid or substantially lessen the cumulative problem within the geographic area in
17 which the project is located." The guidance also encourages lead agencies to quantify
18 GHG emissions where possible.

19 The Bay Area Air Quality Management District (BAAQMD) has developed CEQA
20 Guidelines to assist local jurisdictions and lead agencies in complying with the
21 requirements of CEQA regarding potentially adverse impacts to air quality, including
22 GHGs. The BAAQMD CEQA Guidelines were updated in June 2010 to include
23 reference to thresholds of significance ("Thresholds") adopted by the Air District Board
24 on June 2, 2010 and were set aside on March 5, 2012, by the Alameda County Superior
25 Court. BAAQMD has appealed the decision, and an appeal is currently pending.

26 While the appeal is pending, BAAQMD is no longer recommending that the 2010
27 Thresholds be used as a generally applicable measure of a project's significant air
28 quality and GHG impacts. BAAQMD indicates that lead agencies may continue to rely
29 on the BAAQMD's 1999 Thresholds of Significance (BAAQMD 2013c).

30 The San Francisco Bay Area as a whole does not have a Climate Action Plan (CAP).
31 BAAQMD adopted a resolution in 2005 establishing a Climate Protection Program and
32 acknowledging the link between climate protection and programs to reduce air pollution
33 in the Bay Area, and formed a standing committee on climate protection to provide
34 direction on BAAQMD's climate protection activities. BAAQMD focus is to integrate
35 climate protection activities into existing BAAQMD programs (BAAQMD 2013b). A Draft
36 CAP exists for unincorporated County. The City does not have a CAP.

1 **3.3.3 Impact Analysis**

2 **a) Conflict with or obstruct implementation of the applicable air quality plan?**

3 **Less than Significant Impact.** The Project consists of construction activities of about 3
4 weeks only. There would be no air emissions from the Project following construction.
5 Consistent with the 1999 BAAQMD CEQA Guidelines, applicable basic measures will
6 be incorporated into any construction activities that could generate dust. Consequently,
7 this impact would be less than significant.

8 **b) Violate any air quality standard or contribute substantially to an existing or**
9 **projected air quality violation?**

10 **Less than Significant Impact.** The Project consists of construction activities only.
11 There would be no air emissions from the Project following construction. Consistent with
12 the 1999 BAAQMD CEQA Guidelines, applicable basic measures will be incorporated
13 into any construction activities that could generate dust. Consequently, this impact
14 would be less than significant.

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

19 **Less than Significant Impact.** The Project would not create any new permanent
20 stationary or non-stationary source of air emissions, is not subject to the thresholds of
21 significance that apply to operational impacts created by new permanent sources, and
22 is, therefore, evaluated in the context of construction-related impacts only. The
23 proposed activities would not produce substantial daily amounts of particulate matter,
24 ozone, or ozone precursors such as ROG or NO_x. The Project would not violate any air
25 quality standard or contribute substantially to an existing or projected air quality
26 violation.

27 Nevertheless, BAAQMD (2012) recommends that a Project implement certain basic
28 construction control measures to the extent applicable and needed for sites of less than
29 4 acres (the active onshore work area is expected to be approximately 200 square feet)
30 and sites that are not expected to be particularly dusty. Most basic measures
31 recommended by the BAAQMD are unlikely to be needed, such as applying water to
32 construction areas or sweeping public streets, given the nature of the work, its location
33 on the shore of the Bay, and the extremely small size of the work area subject to ground
34 disturbance. The Project would minimize overall emissions by shuttling the crew from a
35 near-by marina, minimizing the use of tugs and other boats, and ensuring that all
36 equipment used on the Project is kept in good working order.

1 **d) Expose sensitive receptors to substantial pollutant concentrations?**

2 **Less than Significant Impact.** The Project would only generate small quantities of
3 emissions during construction, and the duration of any activities in the vicinity of
4 potential sensitive receptors is small (up to 3 weeks). While the Park is located within
5 approximately 100 feet of the onshore work area, and the closest residence located in
6 Rodeo is approximately 250 feet from the onshore work area, the short duration and
7 small amount of emissions associated with the Project render this impact less than
8 significant for these sensitive receptors. The closest school is approximately 0.38 mile
9 from the location of the onshore work, and is therefore unlikely to be affected.
10 Consequently, this potential impact is less than significant.

11 **e) Create objectionable odors affecting a substantial number of people?**

12 **Less than Significant Impact.** The Project would uncover a small area of
13 embankment, and possibly excavate a small section of pipe. These activities could
14 disturb oxygen-deficient, organic-rich soils, and result in odors. The Project is not
15 expected to generate odors that are significantly different or stronger than existing odors
16 occurring during low tides and periods of elevated temperature.

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

19 **Less than Significant Impact.** The Project consists of construction activities of about 3
20 weeks only. There would be no air emissions from the Project following construction.
21 The Project would generate an estimated 54.5 MT of CO₂e from direct emissions (see
22 Appendix B, Greenhouse Gas Emissions Estimates). This is a very small value
23 compared to the 95.8 million MT released within the Bay Area in 2007 (BAAQMD 2010).
24 The Project would minimize overall emissions by shuttling the crew from a near-by
25 marina, minimizing the use of tugs and other boats, and ensuring that all equipment
26 used on the Project is kept in good working order.

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

29 **No Impact.** The Project would be of short duration (3 weeks), require only a small
30 amount of equipment (see Appendix B), and would include a contractual requirement to
31 use equipment that meets applicable emissions standards. The Project would not
32 prevent or conflict with implementation of any applicable plan, policy or regulation
33 adopted for the purpose of reducing GHG emission.

34 **3.3.4 Mitigation Summary**

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