

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

Table 3.4-5
Summary of Impact Conclusions—Air Quality and Greenhouse Gas Emissions

| Impact Statement | Construction Activities | Constructed Facilities and Operations and Maintenance |
|---|-------------------------|---|
| 3.4-1: Implementing future restoration projects permitted under the Order could conflict with an applicable air quality plan. | SU | LTS |
| 3.4-2: Emissions from future restoration projects permitted under the Order could 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. | SU | LTS |
| 3.4-3: Emissions from future restoration projects permitted under the Order could result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people. | LTS | LTS |
| 3.4-4: Emissions from future restoration projects permitted under the Order could expose sensitive receptors to substantial pollutant concentrations. | SU | LTS |
| 3.4-5: Implementing future restoration projects permitted under the Order could result in an increase in GHG emissions that may have a significant impact on the environment. | SU | LTS |
| 3.4-6: Implementing future restoration projects permitted under the Order could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. | SU | LTS |

SOURCE: Data compiled by Environmental Science Associates in 2019 and 2020

NOTES: LTS = less than significant; SU = significant and unavoidable

Impact 3.4-1: Implementing future restoration projects permitted under the Order could conflict with an applicable air quality plan.

As described in Section 3.4.3, *Regulatory Setting*, most of the air districts in the study area have one or more air quality management plans that include control measures, rules, and regulations to bring air districts into attainment for certain criteria air pollutants.

Effects of Project Construction Activities

Construction activities permitted under the Order would include construction of culverts, bridges, fish screens, ladders, and pilings; removal of small dams, tide gates, flood

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

gates, and legacy structures; placement of bioengineered stabilization materials; grading and excavation to reconnect, set back, or breach levees; reconnection of stream and river channels; creation of depressions, berms, and drainage features; and installation of cofferdams during construction. These activities could require the use of mobile diesel-powered construction equipment such as excavators, graders, scrapers, bulldozers, and backhoes. For example, haul trucks would be used to move borrow and/or spoils and other materials and would emit pollutants. ROG, NO_x, PM₁₀, PM_{2.5}, CO, and CO₂ would be emitted during the combustion of fuels in construction equipment and material transport trucks.

It is reasonable to assume that the construction of projects would comply with the control measures, rules, and regulations stated in the AQMPs of local air districts. For example, analysis of a project designed to restore the natural geomorphic processes and ecological functions at a marsh could find that the generation of construction-related emissions of ROG, NO_x, and PM₁₀ would not violate or contribute substantially to an existing or projected air quality violation.

AQMPs set forth rules, regulations, and control measures to bring an air district into attainment for certain criteria pollutants. If a project would substantially contribute to pollutant concentrations that exceed the NAAQS and CAAQS, it may also conflict with the local AQMP. As discussed for Impact 3.4-2 below, emissions from construction activities permitted under the Order could violate an air quality standard; contribute substantially to an air quality violation; and/or result in a short-term cumulatively considerable net increase in pollutants for which the region is non-attainment. Therefore, it is possible that construction activities for restoration projects permitted under the Order could conflict with an applicable air quality plan.

The specific locations and emissions of possible construction activities are not known at this time. Therefore, the potential for a conflict between a given restoration project permitted under the Order and an applicable air quality plan cannot be determined. Factors necessary to identify specific impacts include the location and size of the project, construction characteristics, attainment status of the local air basin or basins, and the applicable AQMPs of the local air quality district. Because air pollutant emissions from restoration projects permitted under the Order could conflict with applicable air quality plans, this impact would be **potentially significant**.

Projects implementing applicable general protection measures (Appendix E) included in the Order would further reduce impacts to air quality and greenhouse gas emissions. The following general protection measures may apply to air quality and greenhouse gas emissions:

- ◆ GPM-8: Work Area and Speed Limits
- ◆ GPM-17: Fugitive Dust Reduction

Integration of these general protection measures into project designs and plans would reduce the impact of air pollutant emissions from project construction activities, but not to a less-than-significant level. This impact would be **potentially significant**.

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure AIR-1 would be required when applicable to a given project. Implementation of this mitigation measure would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

Mitigation Measure AIR-1: Minimize Conflicts with Applicable Air Quality Plans

Proponents of restoration projects permitted under the Order and their construction contractors shall implement the following measures to minimize conflicts between project construction and applicable air quality plans:

- ◆ Use equipment and vehicles that comply with CARB requirements and emission standards for on-road and off-road fleets and engines. New engines and retrofit control systems should reduce NO_x and PM emissions from diesel-fueled on-road and off-road vehicles and equipment.
- ◆ Minimize idling times, either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure, Title 13, Section 2485 of the California Code of Regulations). Clear signage should be posted for construction workers at all entrances to the site.
- ◆ Maintain all equipment in proper working condition according to the manufacturer's specifications.
- ◆ Use electric equipment when possible. Use lower emitting alternative fuels to power vehicles and equipment where feasible.
- ◆ Use low-volatile organic compound (VOC) coatings and chemicals; minimize chemical use.

Mitigation measures for individual restoration projects would also include recommendations or requirements of the local air district(s). Project proponents would coordinate with local air district(s) regarding project-specific mitigation and implement applicable measures during construction. For example, the Bay Area Air Quality Management District (BAAQMD) lists basic and additional mitigation measures to reduce emissions from project construction (BAAQMD 2010, 2017). The following basic construction mitigation measures are recommended for restoration projects permitted under the Order:

- ◆ All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- ◆ All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- ◆ 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.
- ◆ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

- ◆ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- ◆ Post a publicly visible sign with the telephone number and person at the lead agency to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The air district's phone number shall also be visible to ensure compliance with applicable regulations.

The following additional construction mitigation measures are recommended for projects with construction emissions above the threshold determined for the local AQMP:

- ◆ 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.
- ◆ All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- ◆ Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- ◆ 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.
- ◆ 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.
- ◆ 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.
- ◆ Erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- ◆ The idling time of diesel-powered construction equipment shall be minimized to 2 minutes.
- ◆ The project 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 NO_x reduction and 45 percent PM reduction compared to the most recent 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 such become available.

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

- ◆ The project shall use low-VOC (i.e., ROG) coatings beyond local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
- ◆ All construction equipment, diesel trucks, and generators shall be equipped with best available control technology for emission reductions of NO_x and PM.
- ◆ All contractors shall use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines.

Mitigation Measure AIR-1 would be implemented to reduce the impacts of restoration projects permitted under the Order. However, because the extent and location of such actions are not known at this time, it is not possible to conclude that the mitigation measure, or equally effective mitigation measures, would reduce significant impacts to a less-than-significant level in all cases. Therefore, this impact would be **significant and unavoidable**.

Effects of Constructed Facilities (Natural or Artificial Infrastructure) and Operations and Maintenance of those Facilities

Restoration projects permitted under the Order could require periodic and routine maintenance. For example, operations and maintenance (O&M) necessary to support the functionality of constructed infrastructure may include maintenance and cleaning of fish screens, removal of debris and sediment from stream crossings, and O&M of fishways, which would produce air pollutant emissions from the use of equipment and vehicles that could conflict with applicable air quality plans. Emissions-generating activities would be similar to those described for the construction of restoration projects; however, the level of activity would be less intense and less frequent in the operational phase than during construction. Therefore, it is anticipated that emissions from restoration projects permitted under the Order would not violate an air quality standard, contribute substantially to an air quality violation, or result in a short-term cumulatively considerable net increase of non-attainment pollutants. Therefore, this impact would be **less than significant**.

The general protection measures listed above for project construction would be followed to further reduce the impacts of ground-disturbing activities for restoration projects permitted under the Order related to work area and speed limits and dust suppression.

Integration of these general protection measures into project designs and plans would continue to reduce the **less-than-significant** impacts of constructed facilities related to a conflict with an applicable air quality plan.

Impact 3.4-2: Emissions from future restoration projects permitted under the Order could 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.

Construction activities from restoration projects permitted under the Order could be located in one or more air basins. Most of these air basins have established numeric thresholds for construction-generated emissions of criteria air pollutants and precursors,

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

indicating when emissions are significant at the project level and when emissions are cumulatively considerable.

Effects of Project Construction Activities

Construction activities for restoration projects permitted under the Order could require the use of diesel-powered construction equipment such as excavators, graders, scrapers, bulldozers, and backhoes. Haul trucks would be used to move borrow and/or spoils and other materials and would emit pollutants. ROG, NO_x, PM₁₀, PM_{2.5}, CO, and CO₂ would be emitted during the combustion of fuels in construction equipment and material transport trucks. Construction of restoration projects would emit fugitive PM₁₀ and PM_{2.5} dust, primarily during earthmoving activities. Other sources of fugitive dust would include vehicle travel on paved and unpaved roads, creation and management of borrow sites, concrete batch plants, and material handling, storage, and transport.

It is reasonable to expect that construction activities for restoration projects permitted under the Order may be intensive enough to result in substantial pollutant emissions. For example, floodplain restoration projects within the jurisdictional area of BAAQMD (e.g., including setting back, breaching, and removal of levees, berms, and dikes, and hydraulic reconnection and revegetation) may require the extensive use of heavy equipment and haul trips that would generate NO_x emissions in excess of BAAQMD's maximum daily threshold of 54 pounds per day, one of the more stringent thresholds in the study area.

Construction activities for restoration projects permitted under the Order could emit air pollutants. However, the specific locations and emissions of possible future facilities are not known at this time. Therefore, the potential for substantial construction-related emissions impacts cannot be determined. Factors necessary to identify site- or resource-specific impacts include the project's location, duration, and construction characteristics, and the thresholds of the local air quality district. Because the construction activities for restoration projects permitted under the Order could result in a cumulatively considerable net increase of a criteria pollutant for which a project region is in non-attainment status under an applicable federal or state ambient air quality standard, this impact would be **potentially significant**.

The general protection measures listed for Impact 3.4-1 would be followed to reduce the impacts of ground-disturbing activities for restoration projects permitted under the Order related to work area and speed limits and dust suppression.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure AIR-1 would be required when applicable to a given project. Implementation of this mitigation measure would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

Mitigation Measure AIR-1 would be implemented to reduce the impacts of restoration projects permitted under the Order. However, because the extent and location of such actions are not known at this time, it is not possible to conclude that the mitigation measure, or equally effective mitigation measures, would reduce the significant impacts

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

of restoration projects constructed by other agencies to a less-than-significant level in all cases. Therefore, this impact would be **significant and unavoidable**.

Effects of Constructed Facilities (Natural or Artificial Infrastructure) and Operations and Maintenance of those Facilities

Restoration projects permitted under the Order could require periodic and routine maintenance. For example, O&M activities necessary to support the functionality of constructed infrastructure may include maintenance and cleaning of fish screens, removal of debris and sediment from stream crossings, and fishways O&M. These activities would produce air pollutant emissions that could result in a cumulatively considerable net increase of a criteria pollutant for which a project region is non-attainment under an applicable federal or state ambient air quality standard. Emissions-generating activities would be similar to those described for the construction of projects; however, the level of activity would be less intense and less frequent in the operational phase than during construction.

Routine O&M activities for restoration projects permitted under the Order would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which a project region is non-attainment under an applicable federal or state ambient air quality standard. Therefore, this impact would be **less than significant**.

The general protection measures listed for Impact 3.4-1 would be followed to further reduce the impacts of ground-disturbing O&M activities for restoration projects permitted under the Order related to work area and speed limits and dust suppression.

Integration of these general protection measures into project designs and plans would continue to reduce the **less-than-significant** impacts of constructed facilities related to the potential for a cumulatively considerable net increase of any criteria pollutant for which a project region is non-attainment under an applicable federal or state ambient air quality standard.

Impact 3.4-3: Emissions from future restoration projects permitted under the Order could result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people.

The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Effects of Project Construction Activities

Construction of restoration projects permitted under the Order could require the use of diesel-powered equipment and haul trucks such as excavators, graders, scrapers, bulldozers, and backhoes. Exhaust emissions from diesel equipment may generate odors. Haul trucks would move borrow and/or spoils and other materials and would emit exhaust. Odors may also be emitted during dredging and the placement of dredge spoils on adjacent lands for drying; if present, organic material could release gases, specifically hydrogen sulfide (H₂S), commonly described as having a foul or “rotten egg” smell.

Sources of construction-related emissions generally would not be in one location for long periods of time. The emissions would be intermittent and would dissipate from the

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

source rapidly over a short distance. For example, the analysis of a project designed to restore natural geomorphic processes and ecological functions at a marsh could find that the project would not result in any major sources of odors and that construction odors would be intermittent and short-term.

Construction activities for restoration projects permitted under the Order could temporarily generate odorous emissions. The specific locations and emissions of possible future projects are not currently known; therefore, the precise odor impacts cannot be identified at this time. Factors necessary to identify specific impacts include the project's location, construction characteristics, frequency and duration, and the location of sensitive receptors. However, given the temporary and intermittent nature of the impacts and the dissipation of odors, objectionable odors are unlikely to affect a substantial number of people. Impacts would be **less than significant**.

Projects implementing applicable general protection measures (Appendix E) included in the Order would further reduce impacts to air quality and greenhouse gas emissions. The following general protection measures may apply to air quality and greenhouse gas emissions:

- ◆ IWW-13: Dredging Operations and Dredging Materials Reuse Plan

Integration of this general protection measure into project designs and plans would further reduce the **less-than-significant** impact related to other emissions (such as those leading to odors).

Effects of Constructed Facilities (Natural or Artificial Infrastructure) and Operations and Maintenance of those Facilities

Restoration projects constructed under the Order could require periodic and routine maintenance work, such as sediment removal within or near the facilities, vegetation removal, and inspection and maintenance of facilities. Odor-generating activities would be similar to those described for construction of projects; however, the level of activity would be less intensive in the operational phase than during construction. For example, repairing damage to a fish screen may require the use of heavy equipment that would create odorous diesel emissions, but the activity would not be as intense as during the initial construction of the fish screen.

In addition to maintenance activities, the operational characteristics of restoration projects permitted under the Order could generate odors. For example, floodplain restoration, including setting back, breaching, and removal of levees, berms, and dikes, and hydraulic reconnection and revegetation may increase the acreage that could be temporarily flooded, which could expose decomposing organic matter to the atmosphere and create objectionable odors. However, odorous emissions would be intermittent and dissipate from the source rapidly over a short distance. Thus, it is unlikely that projects would create objectionable odors affecting a substantial number of people.

Restoration projects permitted under the Order could temporarily generate odorous emissions. The specific locations and emissions of future facilities are not currently known; therefore, the precise odor impacts cannot be identified at this time. Factors necessary to identify specific impacts include the project's location, operational

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

characteristics, frequency and duration, and the location of sensitive receptors. However, given the temporary and intermittent nature of the impacts and the dissipation of odors, objectionable odors are unlikely to affect a substantial number of people. Impacts would be **less than significant**.

Projects implementing applicable general protection measures (Appendix E) included in the Order would further reduce impacts to air quality and greenhouse gas emissions. The following general protection measures may apply to air quality and greenhouse gas emissions:

- ◆ IWW-13: Dredging Operations and Dredging Materials Reuse Plan

Integration of this general protection measure into project designs and plans would further reduce **less-than-significant** impacts related to other emissions (such as those leading to odors).

Impact 3.4-4: Emissions from future restoration projects permitted under the Order could expose sensitive receptors to substantial pollutant concentrations.

High concentrations of fugitive dust, CO, and TACs generated during construction activities are of particular concern for sensitive receptors. The study area contains vast rural areas that are sparsely populated as well as cities of significant size, density, and population.

Effects of Project Construction Activities

Construction activities from restoration projects permitted under the Order could include activities that would generate air pollutant emissions such as fugitive dust, CO, and TACs that could present health risks to sensitive receptors. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance and the duration of exposure. According to the California Office of Environmental Health Hazard Assessment, health risk assessments that determine the exposure of sensitive receptors to TAC emissions should be based on a 30-year exposure period (OEHHA 2015:8-1).

It is therefore important to consider that the use of off-road heavy-duty diesel equipment for construction of restoration projects permitted under the Order would be temporary, occurring in any one location for short periods of time. For example, setback levee construction is linear, and emissions would not take place in just one location for the duration of construction, which would take far less than 30 years.

It is also important to consider the proximity of the nearby sensitive receptors. Studies show that DPM is highly dispersive (e.g., DPM concentrations decrease by 70 percent at 500 feet from the source) (Zhu et al. 2002), and receptors must be close to emissions sources to result in the possibility of exposure to concentrations of concern. Although some projects, such as a setback levee, could be located near cities and communities of substantial size, density, and population, many would be far from sensitive receptors. For example, analysis of a project designed to restore the natural geomorphic processes and ecological functions of a marsh could find that the project would not

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

result in any major sources of emissions and would be required to comply with established standards and regulations for emissions.

The health impacts from exposure to these pollutants depend on the concentrations to which sensitive receptors are exposed, the duration of the exposure, and the toxicity of the pollutant. Although construction-related emissions would last no more than a few years and are transient, some construction activities for restoration projects permitted under the Order could occur over several years and could be close to sensitive receptors. For example, setback levee construction may be required near existing infrastructure, potentially exposing sensitive receptors to substantial concentrations of air pollutant emissions and TACs.

Because the construction activities for restoration projects permitted under the Order could expose sensitive receptors to substantial pollutant concentrations, this impact would be **potentially significant**.

The general protection measures listed for Impact 3.4-1 would be followed to reduce the impacts of ground-disturbing O&M activities for restoration projects permitted under the Order related to work area and speed limits and dust suppression.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure AIR-2 would be required when applicable to a given project. Implementation of this mitigation measure would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

Mitigation Measure AIR-2: Minimize Construction Air Pollutant Emissions

Air quality analyses prepared for future restoration projects shall evaluate human health risks from potential exposures of sensitive receptors to substantial pollutant concentrations from the projects. The need for a human health risk analysis should be evaluated using approved screening tools, and discussed with the local air quality management district or air pollution control district during the preparation of the air quality analysis.

If the project's health risk is determined to be significant, control measures should be implemented to reduce health risks to levels below the applicable air district threshold.

Implementation of one or more of the following requirements, where feasible and appropriate, would reduce the effects of construction:

- ◆ Use equipment with diesel engines designed or retrofitted to minimize DPM emissions, usually through the use of catalytic particulate filters in the exhaust.
- ◆ Use electric equipment to eliminate local combustion emissions.
- ◆ Use alternative fuels, such as compressed natural gas or liquefied natural gas.

If the restoration project would result in significant emissions of airborne, naturally occurring asbestos, or metals from excavation, hauling, blasting, tunneling, placement, or other handling of rocks or soil, a dust mitigation and air monitoring plan shall identify individual restoration project measures to minimize emissions and

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

ensure that airborne concentrations of the TACs of concern do not exceed regulatory or risk-based trigger levels.

Mitigation Measure AIR-1 and AIR-2 would be implemented to reduce the impacts of restoration projects permitted under the Order. However, because the extent and location of such actions are not known at this time, it is not possible to conclude that the mitigation measure or equally effective mitigation measures, would reduce significant impacts to a less-than-significant level in all cases. Therefore, this impact would be **significant and unavoidable**.

Effects of Constructed Facilities (Natural or Artificial Infrastructure) and Operations and Maintenance of those Facilities

Restoration projects constructed under the Order could require periodic and routine maintenance work, such as removal of sediment within or near the facilities, vegetation removal, and inspection and maintenance of facilities. These O&M activities could generate emissions of air pollutants such as fugitive dust, CO, and TACs that, at high dosages, present health risks to sensitive receptors. For example, O&M activities necessary to support the functionality of constructed infrastructure may include maintenance and cleaning of fish screens, removal of debris and sediment from stream crossings, and fishways O&M, which would generate pollutant emissions.

Emissions-generating activities during the operational phase would be similar to those described for construction; however, the level of activity would be much lower in the operational phase than during construction. Sensitive receptors could be located in the vicinity of O&M activities, and thus could be exposed to air pollutants. As described above for construction impacts, the health impacts from exposure to these pollutants depend on the concentrations to which sensitive receptors are exposed, the duration of the exposure, and the toxicity of the pollutant. Operational activities would not be of sufficient duration or intensity to rise to the level of chronic exposure necessary to cause health impacts because: (1) routine O&M work would be temporary and intermittent, (2) activity levels would be less intense and less frequent during the operational phase than during construction, and (3) pollutants that would be emitted would not be of substantial toxicity at anticipated concentrations and duration. For example, the analysis of a project designed to restore the natural geomorphic processes and ecological functions of a marsh could find that the project would not result in any major sources of emissions and would be required to comply with established standards and regulations for emissions.

Restoration projects permitted under the Order could temporarily generate emissions of air pollutants. The specific locations and emissions of possible future facilities during O&M activities are not currently known; therefore, the precise air pollutant emissions impacts cannot be identified at this time. Factors necessary to identify specific impacts include the project's location and operational characteristics, frequency and duration of emissions, and the location of sensitive receptors. However, given the temporary and intermittent nature of the impacts and the dissipation of pollutant concentrations, such emissions are unlikely to affect a substantial number of people. Impacts would be **less than significant**.

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

The general protection measures listed for Impact 3.4-1 would be followed to further reduce the **less-than-significant** impacts of ground-disturbing O&M activities for restoration projects permitted under the Order related to work area and speed limits and dust suppression.

Impact 3.4-5: Implementing future restoration projects permitted under the Order could result in an increase in GHG emissions that may have a significant impact on the environment.

Restoration projects permitted under the Order could be located in one or more air basins, some of which have established numeric thresholds for construction-generated GHG emissions that indicate when emissions are significant.

Effects of Project Construction Activities

Construction activities for restoration projects permitted under the Order could emit GHGs from fuel combustion during the use of construction equipment, trucks, worker vehicles, and dredging equipment. For example, a levee setback project would require extensive use of heavy equipment, such as excavators, graders, scrapers, bulldozers, backhoes, and dredges, which would result in GHG emissions. Numerous haul truck trips would be required to move borrow and/or spoils and other materials.

Equipment used for the construction of restoration projects permitted under the Order could increase GHG emissions in the short term. Following project completion, all construction emissions would cease.

Despite the intensity and duration of construction activities, and the lack of available mitigation measures to abate GHG emissions from heavy-duty construction equipment and on-road hauling emissions, the incremental contribution to climate change by the project's construction emissions could be short term and minimal. However, construction activities permitted under the Order could increase GHG emissions. The specific locations and GHG emissions of possible future projects are not currently known; therefore, the potential for significant construction-related GHG emissions impacts cannot be identified at this time. Factors necessary to identify specific impacts include the project's location and construction characteristics, and the frequency and duration of emissions. Impacts would be **potentially significant**. The Order does not include any general protection measures applicable to this impact.

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure AIR-3 would be required when applicable to a given project. Implementation of this mitigation measure would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

Mitigation Measure AIR-3: Minimize GHG Emissions

Restoration projects permitted under the Order shall implement the GHG mitigation measures listed in the most recent air district guidance documents (e.g., CAPCOA

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

2010; BAAQMD 2011), as appropriate for the project site and conditions. Current versions of such guidance documents list the following for construction of projects:

- ◆ Use alternative fuels for construction equipment.
- ◆ Use electric and hybrid construction equipment.
- ◆ Limit construction equipment idling beyond regulatory requirements.
- ◆ Institute a heavy-duty off-road vehicle plan.
- ◆ Implement a construction vehicle inventory tracking system.
- ◆ Use local building materials for at least 10 percent of total materials.
- ◆ Recycle or reuse at least 50 percent of construction waste or demolition materials.

In addition, the California Attorney General's Office has developed a list of measures and strategies to reduce GHG emissions at the individual project level. As appropriate, the measures can be included as design features of a restoration project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures are examples; the list is not intended to be exhaustive. The following are best management practices to consider and implement (as applicable) during design, construction, and O&M of project facilities.

Transportation and Motor Vehicles

- ◆ Limit idling time for commercial vehicles, including delivery and construction vehicles.
- ◆ Use low- or zero-emission vehicles, including construction vehicles.
- ◆ Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system for construction projects.
- ◆ Promote ridesharing.
- ◆ Provide the necessary facilities and infrastructure to encourage the use of low- or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).
- ◆ Provide a shuttle service to public transit/work sites.
- ◆ Provide information on all options for individuals and businesses to reduce transportation-related emissions.

SmartWay Truck Efficiency

This strategy involves requiring existing trucks/trailers to be retrofitted with the best available "SmartWay Transport" and/or CARB-approved technology. Technologies that reduce GHG emissions from trucks include devices that reduce aerodynamic drag and rolling resistance. Aerodynamic drag may be reduced using devices such as cab roof fairings, cab side gap fairings, cab side skirts, and on the trailer side, skirts, gap fairings, and trailer tail. Rolling resistance can be reduced using single wide tires or low-rolling resistance tires and automatic tire inflation systems on both the tractor and the trailer.

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

Tire Inflation Program

The strategy involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications.

Blended Cements

The strategy to reduce CO₂ emissions involves the addition of blending materials such as limestone, fly ash, natural pozzolan, and/or slag to replace some of the clinker in the production of Portland cement.

Anti-Idling Enforcement

The strategy guarantees emissions reductions as claimed by increasing compliance with anti-idling rules, thereby reducing the amount of fuel burned through unnecessary idling. Measures include enhanced field enforcement of anti-idling regulations, increased penalties for violations of anti-idling regulations, and restriction on registrations of heavy-duty diesel vehicles with uncorrected idling violations.

Because the extent and location of such actions are not known at this time, it is not possible to conclude that Mitigation Measure AIR-3, or equally effective mitigation measures, would reduce significant impacts to a less-than-significant level in all cases. It is reasonable to expect that construction activities could result in substantial GHG emissions, especially given the wide range of air district GHG emissions thresholds. For example, it is likely that GHG emissions would exceed local air district thresholds if the permitted action is undertaken by a lead agency that has adopted a net zero GHG emissions threshold. Therefore, this impact would be **significant and unavoidable**.

Effects of Constructed Facilities (Natural or Artificial Infrastructure) and Operations and Maintenance of those Facilities

Restoration projects permitted under the Order could consist of periodic and routine maintenance work such as sediment removal within or near the facilities, vegetation removal, and inspection and maintenance of facilities. Maintenance activities that would generate GHG emissions would be similar to those described for the construction of projects permitted under the Order; however, the level of activity, and therefore the level of emissions, would be much lower in the operational phase than during construction because activity would not be as intense during operations. Additionally, establishing, restoring, and enhancing tidal, subtidal, and freshwater wetlands would result in the creation of new wetlands, which sequester carbon. Carbon sequestration plays an important role in preventing global climate change by reducing greenhouse gas emissions and by preserving carbon "sinks" such as forests and wetlands. Therefore, establishing, restoring, and enhancing tidal, subtidal, and freshwater wetlands would provide more trees and plants which store carbon as they absorb CO₂ from the air, thus reducing net GHG emissions.

Restoration projects permitted under the Order could result in GHG emissions during O&M activities. However, the specific locations and emissions of possible future facilities are not known at this time. Factors necessary to identify site- or resource-specific impacts include the project's location and construction characteristics, duration

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

of emissions, and the specific GHG thresholds of the local air quality district. Activities that generate GHG emissions would be similar to those described for the construction of projects permitted under the Order; however, the level of activity, and therefore the level of emissions, would be much lower during operations than during construction because activity would not cause an equal duration or concentration of emissions. Because operational emissions would not approach CARB's recommended thresholds and legislation that has established screening levels, the projects' GHG emissions would not be substantial and would not conflict with state and local planning efforts. Therefore, this impact would be **less than significant**. The Order does not include any general protection measures applicable to this impact.

Impact 3.4-6: Implementing future restoration projects permitted under the Order could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

As described in Section 3.4.3, *Regulatory Setting*, most air districts, cities, and counties in the study area have plans and policies regarding the reduction of GHGs.

Effects of Project Construction Activities

Construction activities from restoration projects permitted under the Order could require the use of diesel-powered construction equipment such as excavators, graders, scrapers, bulldozers, and backhoes. Haul trucks would move borrow and/or spoils and other materials. These activities would emit GHGs. It is assumed that projects would be constructed in compliance with any policies that have been adopted as rules or regulations to reduce emissions of GHGs. However, construction activities may not be consistent with policies that have not been adopted as rules or regulations. For example, the construction of setback levees requires the use of some specialized off-road equipment that could result in significant GHG emissions. It may not be feasible to use electric or alternatively fueled equipment, which would conflict with a specific county's climate action plan. For example, the analysis of a project designed to restore the natural geomorphic processes and ecological functions of a marsh could find that, although any increase in GHG emissions would add to the quantity of emissions that contribute to global climate change, emissions associated with construction of the project would occur over a limited period. Following completion of the project, all construction emissions would cease and the project's construction-related GHG emissions would not be substantial and would not conflict with state and local planning efforts.

Construction of projects permitted under the Order could conflict with GHG emissions reduction policies, plans, and regulations. However, the specific locations and scale of possible future facilities are not currently known; therefore, the precise conflicts and subsequent impacts cannot be identified at this time. Factors necessary to identify specific impacts include the project's location, design features, and size, and the applicable GHG emissions reduction plans and policies of jurisdictions. Because it may not be feasible in all cases to comply with GHG emissions plans and policies, this impact would be **potentially significant**. The Order does not include any general protection measures applicable to this impact.

CONSOLIDATED FINAL RESTORATION PROJECTS STATEWIDE ORDER
PROGRAM ENVIRONMENTAL IMPACT REPORT
CHAPTER 3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES
3.4 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

As part of the State Water Board or Regional Board's issuance of a NOA for a restoration project under the Order, compliance with Mitigation Measure AIR-1, AIR-2, and AIR-3 would be required when applicable to a given project. Implementation of this mitigation measure would be the responsibility of the project proponent(s) under the jurisdiction of the State Water Board, appropriate Regional Board, or other authorizing regulatory agency.

Mitigation Measures AIR-1, AIR-2, and AIR-3 would reduce the impacts of restoration projects permitted under the Order. However, because the extent and location of such actions are not known at this time, it is not possible to conclude that the mitigation measures, or equally effective mitigation measures, would reduce significant impacts to a less-than-significant level in all cases. It is possible that construction activities may not be consistent with policies that have not been adopted as rules or regulations. Therefore, this impact would be **significant and unavoidable**.

Effects of Constructed Facilities (Natural or Artificial Infrastructure) and Operations and Maintenance of those Facilities

Restoration projects permitted under the Order could would require periodic and routine maintenance work such as monitoring restoration projects and cleaning fish screens. Activities that would generate GHG emissions would be similar to those described for construction of projects permitted under the Order; however, activities would be less intense and less frequent in the operational phase than during construction. It is assumed that projects would be operated in compliance with any policies that have been adopted as rules or regulations to reduce emissions of GHGs.

The specific locations and scale of possible future facilities are not known at this time. Factors necessary to identify specific impacts include the project's location, design features, size, and the applicable GHG reduction plans and policies of jurisdictions. However, the level of activity and therefore the level of emissions would be much lower in the O&M phase than during construction because activity would not be as intense. Also, it is assumed that projects would be operated and maintained in compliance with any policies that have been adopted as rules or regulations to reduce emissions of GHGs. Therefore, this impact would be **less than significant**. The Order does not include any general protection measures applicable to this impact.