

3.3 Air Quality

This section evaluates potential impacts related to air quality during construction, invasive plant management and maintenance of the Project. Construction activities include the earthwork involved in the estuarine restoration and infrastructure improvement portions of the Project. Invasive plant management activities include the removal of dense-flowered cordgrass (*Spartina densiflora*), European beachgrass (*Ammophila arenaria*), and dwarf eelgrass (*Zostera japonica*) using any one or a combination of the methods described in Section 2.5 (Proposed Invasive Plant Management). Maintenance activities include periodic repairs and improvements to the non-motorized boat put-in, trails, parking lots and road within the Project Area, and also include monitoring activities. For the purposes of this analysis, invasive plant management activities are anticipated to occur for up to ten years or as long as needed to achieve control and/or eradication. Potential impacts from public access related to air quality are also considered in this section. The study area for this section includes the Project Area and adjacent lands where sensitive receptors may be impacted by air emissions caused by the Project.

3.3.1 Setting

North Coast Air Basin

The Project Area is located in Humboldt County in the North Coast Air Basin, which is comprised of Del Norte, Humboldt, Mendocino, and Trinity Counties, as well as the northern and western portion of Sonoma County. The Project Area is located within the North Coast Unified Air Quality Management District (NCUAQMD).

Climate

The local climates, or sub-climates, within the North Coast Air Basin are affected by elevation and proximity to the Pacific Ocean. Humboldt County contains sub-climates that are created by local topography and proximity to the ocean. The study area is located proximal to the Pacific Ocean and is influenced by coastal fog throughout the year. Precipitation within the County is seasonal, with 90 percent of the annual precipitation occurring between October and April. During the winter, moderate temperatures, frequent fog, and moderate to heavy precipitation cause inversions, which impact air quality. Inversions are created when warm air traps cool air near the ground surface and hinders vertical dispersion. Humboldt County commonly experiences two types of inversions, vertical and horizontal, that affect the vertical depth of the atmosphere through which pollutants can be mixed. Vertical air movement is important in spreading pollutants through a thicker layer of air. Horizontal movement is important in spreading pollutants over a wider area. Upward dispersion of pollutants is hindered wherever the atmosphere is stable; that is, where warm air overlies cooler air below (Humboldt County 2017).

Sensitive Receptors

Sensitive receptors are people who are particularly susceptible to the adverse effects of air pollution. The California Air Resources Board (CARB) has identified the following people most likely to be affected by air pollution: children, the elderly,

the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. Agricultural areas are less sensitive to poor air quality because population density is low.

The Project Area is located in an undeveloped agricultural area. The closest residences to the Project Area are located approximately 350 feet (107 meters) east along Indianola Reservation Road. Other rural residences are located approximately 3,600 feet (1,097 meters) east of McNulty Slough, on the east side of the Project Area.

Existing Air Quality – Criteria Air Pollutants

The CARB and the U.S. Environmental Protection Agency (EPA) currently focus on the following criteria air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO); nitrogen dioxide, sulfur dioxide; lead, and particulate matter (PM). Table 3.3-1 summarizes state and federal ambient air quality standards. The region is in attainment for lead, sulfur dioxide, and nitrogen dioxide; therefore, those pollutants are not further discussed. The following section discusses the remaining criteria pollutants - PM, ozone, and CO - for which PM and ozone are of greatest concern in the region (NCUAQMD 2019).

Table 3.3-1 Relevant California and National Ambient Air Quality Standards and Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Standard	Humboldt County Status	Standard	Humboldt County Status
Ozone	8-hour	0.070 ppm (137 µg/m ³)	Attainment	0.075 ppm (147 µg/m ³)	Unclassified/ Attainment
	1-hour	0.09 ppm (180 µg/m ³)	Attainment	None	NA
Carbon Monoxide	1-hour	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Unclassified/ Attainment
	8-hour	9.0 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	
Nitrogen Dioxide	1-hour	0.18 ppm (339 µg/m ³)	Attainment	0.100 ppm (188 µg/m ³)	Unclassified/ Attainment
	Annual	0.030 ppm (57 µg/m ³)	Status not reported	0.053 ppm (100 µg/m ³)	

Pollutant	Averaging Time	California Standards		National Standards	
		Standard	Humboldt County Status	Standard	Humboldt County Status
Sulfur Dioxide	1-hour	0.25 ppm (655 µg/m ³)	Attainment	0.075 ppm (196 µg/m ³)	Unclassified
	24-hour	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (365 µg/m ³)	
	Annual	None	NA	0.03 ppm (56 µg/m ³)	
Respirable Particulate Matter (PM ₁₀)	24-hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
	Annual	20 µg/m ³	Attainment	None	
Fine Particulate Matter (PM _{2.5})	24-hour	None	NA	35 µg/m ³	Unclassified/ Attainment
	Annual	12 µg/m ³	Attainment	12 µg/m ³	

Sources: CARB 2016. CARB 2018. NCUAQMD 2019.

Notes:

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Particulate Matter

Particulate matter is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as respirable particulate matter or PM₁₀. Fine particles are 2.5 microns or less in diameter (PM_{2.5}) and, while also respirable, can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the study area is emitted either directly or indirectly by motor vehicles, agricultural activities, and wind erosion of disturbed areas. Most PM_{2.5} is comprised of combustion products such as smoke. Extended exposure to PM can increase the risk of chronic respiratory disease (BAAQMD 2017).

Ozone

Ground-level ozone is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of

reactive organic gases (ROG) and nitrogen oxides (NO_x), which are known as ozone precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant. Motor vehicles create the majority of ROG and NO_x emissions in California. Exposure to levels of ozone above current ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung function. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms (BAAQMD 2017). The greatest risk for harmful health effects belongs to outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during periods of high ozone levels, typically during the summer.

Carbon Monoxide

Carbon monoxide is a non-reactive pollutant that is toxic, invisible, and odorless. It is formed by the incomplete combustion of fuels. The largest sources of CO emissions are motor vehicles, wood stoves, and fireplaces. Carbon monoxide is directly emitted to the atmosphere, where levels are strongly influenced by meteorological factors such as wind speed and atmospheric stability. The health threat from elevated ambient levels of CO is most serious for those who suffer from heart disease, like angina, clogged arteries, or congestive heart failure; however, high levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants listed in Table 3.3-1. Toxic Air Contaminants are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). Toxic Air Contaminants are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway).

According to the CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program, and recently adopted new regulations requiring the retrofit and/or replacement of construction equipment, on-highway diesel trucks, and diesel buses in order to lower PM_{2.5} emissions and reduce statewide cancer risk from diesel exhaust (see Section 3.3.2 below).

3.3.2 Regulatory Framework

The federal Clean Air Act of 1977 (CAA) governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act.

Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that for criteria air pollutants that have established ambient air quality standards. Specifically, TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

Federal

The EPA is responsible for enforcing the federal CAA and for establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS are required under the CAA and subsequent amendments.

State

In California, the CARB, which is part of the California Environmental Protection Agency, is responsible for meeting the state requirements of the federal CAA, administering the California Clean Air Act, and establishing the California Ambient Air Quality Standards (CAAQS). The California Clean Air Act, as amended in 1992, requires all air districts in the state to endeavour to achieve and maintain the CAAQS. The CARB regulates mobile air pollution sources, such as motor vehicles. It is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

Regional and Local

North Coast Unified Air Quality Management District

The NCUAQMD, one of 35 air districts in California, has jurisdiction over Humboldt, Del Norte, and Trinity counties. The NCUAQMD's primary responsibility is for controlling air pollution from stationary sources and maintaining healthful air quality throughout the tri-county jurisdiction. The NCUAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The NCUAQMD monitors air quality; enforces local, state and federal air quality regulations for counties within its jurisdiction; inventories and assesses the health risks of TACs; and adopts rules that limit pollution.

Humboldt County is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards except for the state 24-hour particulate (PM₁₀) standard (Table 3.3-1). The NCUAQMD has not formally adopted significance thresholds that would apply to the proposed Project. For construction emissions, the NCUAQMD has indicated that emissions are not considered regionally significant for projects whose construction would be of relatively short duration (i.e., lasting less than one year). For project construction that lasts more than one year or that involves above average construction intensity in volume of equipment or area disturbed, construction emissions may be compared to stationary source thresholds (NCUAQMD 2015).

Construction activities are subject to Rule 104 (Prohibitions) Section D (Fugitive Dust Emission), which requires reasonable precautions be taken to prevent PM from becoming airborne. These precautions include but are not limited to: 1) covering open bodied trucks when used for transporting materials likely to give rise to airborne dust; and 2) the use of water during the grading of roads or the clearing of land.

Prescribed burning activities are also subject to Regulation II – Open Burning and require a Non-Standard Burn Permit. Depending on the type of burn project, the NCUAQMD may also require a Smoke Management Plan. Burn day status (i.e., days when prescribed burning is allowed) are determined by the CARB on a daily basis. Inversion layer and wind direction are included among the factors used in determining burn day status.

Finally, Rule 110 - New Source Review (NSR) And Prevention of Significant Deterioration establishes the pre-construction review requirements for new and modified stationary sources of air pollution. This Project does not include any new stationary sources; therefore, Rule 110 would not apply.

Humboldt County General Plan

Portions of the study area (i.e., areas outside of the Project Area that are not owned by CDFW) are subject to local oversight and compliance with the Humboldt County General Plan and Eel River Area Local Coastal Plan. The goals and policies within the Humboldt County General Plan that regulate air quality include the following:

AQ-1. Improved Air Quality

Air quality that meets state and federal ambient air quality standards.

AQ-2. Particulate Emissions

Successful attainment of CAAQS for PM.

AQ-G3. Other Criteria Pollutants

Maintain attainment of CAAQS for ozone and other criteria pollutants which may be subject to tightening standards.

AQ-P2. Reduce Localized Concentrated Air Pollution

Reduce or minimize the creation of hot spots or localized places of concentrated automobile emissions.

AQ-P4. Construction and Grading Dust Control

Dust control practices on construction and grading sites shall achieve compliance with NCUAQMD fugitive dust emission standards.

AQ-P7. Interagency Coordination

Coordinate with the NCUAQMD early in the permit review process to identify expected regulatory outcomes and minimize delays for projects involving:

- A. CEQA environmental review;
- B. Building demolition projects that may involve removal of asbestos-containing material subject to National Emission Standards for Hazardous Air Pollutants; and

- C. Grading and mining operations subject to State Airborne Toxic Control Measures for naturally occurring asbestos. Rely on the air quality standards, permitting processes, and enforcement capacity of the NCUAQMD to define thresholds of significance and set adequate mitigations under CEQA to the maximum extent allowable.

Eel River Area Local Coastal Plan

No air quality regulations are listed or discussed in the Eel River Area Local Coastal Plan.

3.3.3 Evaluation Criteria and Significance Thresholds

The evaluation criteria and significance thresholds summarized below are used to determine if the Project would have a significant effect related to air quality. The Project would cause a significant impact related to air quality, as defined by the CEQA Guidelines (Appendix G), if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- 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;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The NCUAQMD does not have established CEQA significance criteria to determine the significance of impacts that would result from projects such as the proposed Project; however, the NCUAQMD does have criteria pollutant significance thresholds for new or modified stationary source projects proposed within the NCUAQMD's jurisdiction. NCUAQMD has indicated that it is appropriate for lead agencies to compare proposed construction emissions that last more than one year to its stationary source significance thresholds, which are:

- NO_x – 40 tons per year
- ROG – 40 tons per year
- PM₁₀ – 15 tons per year
- CO – 100 tons per year.

If an individual project's emission of a particular criteria pollutant is within the thresholds outlined above, the project's effects concerning that pollutant are considered to be less-than significant.

Impacts related to construction dust are considered significant if dust is allowed to leave the site (NCUAQMD 2015).

3.3.4 Methodology

California Emissions Estimator Model (CalEEMod, Version 2016.3.2) was used to estimate air pollutant emissions from Project construction, invasive plant

management and maintenance activities and public access. The construction emissions modelling was based on the construction equipment inventories, schedule, and estimated hauling quantities developed for the Project. Construction-related fugitive dust emissions are discussed qualitatively.

Criteria pollutant emissions from the proposed prescribed burning of 279 acres of European beachgrass and 571 acres of dense-flowered cordgrass were estimated using the EPA's AP42 emission factors (13.1 Wildfires & Prescribed Burning) and estimated fuel loading from the Pacific Northwest U.S. Department of Agriculture's (USDA) Digital Photo Series for California Grasslands (USDA 2019). The annual rate of prescribed burning is currently unknown; prescribed burning could occur up to 10 years or more. For the purposes of a conservative analysis, the emissions quantification assumes that all prescribed burning could occur within one year.

Post-construction Project emissions were also estimated using CalEEMod to evaluate emissions from invasive plant management activities, site maintenance, and use of the Project Area by the public, at an assumed rate of 6 trips per day. These emissions were modelled for year 2022. It was assumed that ongoing invasive plant management activities include the use of one (1) excavator and two (2) tractors/loaders/backhoes.

3.3.5 Impacts and Mitigation Measures

Impact AQ-1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Construction

This impact relates to consistency with an adopted attainment plan. Within the study area, the NCUAQMD is responsible for monitoring and enforcing local, state, and federal air quality standards. As summarized in Table 3.3-1, Humboldt County is designated 'attainment' for all NAAQS. With regard to the CAAQS, Humboldt County is designated attainment for all pollutants except PM₁₀ (where it is designated as "non-attainment")(Table 3.3-1). Therefore, any use or activity that generates airborne PM, including construction-related dust, may be of concern to the NCUAQMD. As noted above, Rule 104, Section D – Fugitive Dust Emissions is used by the NCUAQMD to address non-attainment for PM₁₀. Pursuant to Rule 104 Section D, reasonable precautions must be taken when handling, transporting or storing materials to prevent PM from becoming airborne.

Vehicle trips to and from the Project Area and earth moving activities that would occur during Project construction would generate fugitive dust (PM₁₀). The amount of dust generated at any given time would be highly variable and dependent on the size of the area disturbed, amount of activity, soil conditions, meteorological conditions, and number of vehicle trips. Fugitive dust emissions during construction of the Project could be a significant impact; Mitigation Measure AQ-1 would be implemented to reduce this potential impact to a level that would be less than significant.

Invasive Plant Management

Invasive plant management may include hand removal or mechanical excavation of dense-flowered cordgrass and hand removal or smothering of dwarf eelgrass, both of which are located in wet environments where exposed earth is not likely to become airborne. Excavations of European beachgrass with heavy equipment is a potential method for its removal. Invasive plant management may include prescribed burning as a method to reduce European beachgrass and/or dense-flowered cordgrass biomass, which would cause a temporary increase in the amount of airborne PM during the period the fire is burning. Prescribed burns are anticipated to be utilized intermittently as a means of long-term land management and would occur infrequently (e.g., a few times a year at most). Due to the limited handling, transport or open storage of materials, and prescribed burns in which PM may become airborne, invasive plant management is not expected to conflict with NCUAQMD's Rule 104 Section D. A less than significant impact on air quality from invasive plant management would occur.

Maintenance

Maintenance of the Project would typically not include the handling, transporting or open storage of materials in which PM may become airborne. However, although expected to be infrequent, maintenance may require additional gravel, soil or similar material to be brought on site, should the need for such materials arise. Maintenance would also involve driving on the proposed road and potentially off-road, which has the potential to result in PM becoming airborne. However, maintenance activities would be limited in duration and infrequent. Due to the limited driving, handling, transport or open storage of materials in which PM may become airborne, maintenance of the Project is not expected to conflict with NCUAQMD's Rule 104 Section D. A less than significant impact on air quality from maintenance of the Project would occur.

Mitigation Measures: Implement Mitigation Measure AQ-1.

Mitigation Measure AQ-1: Dust Control Measures During Construction

The contractor shall implement the following measures during construction:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, active graded areas, excavations, and unpaved access roads) shall be watered two times per day in areas of active construction.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph), unless the unpaved road surface has been treated for dust suppression with water, rock, wood chip mulch, or other dust prevention measures.
- All surfaces to be paved shall be paved as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear

signage regarding the same shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications.
- A publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints shall be posted. This person shall respond and take corrective action within 48 hours. The NCUAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-1 complies with the best management practices recommended by the NCUAQMD to reduce construction-related dust to a less-than-significant level. Therefore, Impact AQ-1 would be reduced to less than significant with implementation of Mitigation Measure AQ-1.

Impact AQ-2: Would the Project 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?

Localized PM₁₀

The County is designated attainment for all state and federal standards, with the exception of the state's PM₁₀ standard. Localized PM₁₀ is of concern during construction because of the potential to emit fugitive dust during earth-disturbing activities.

The Project includes clearing and grubbing, excavation, grading, vegetation removal, embankment work, and construction of public access facilities. Generally, the most substantial air pollutant emissions would be dust generated from site clearing and grubbing, grading, and excavation. These emissions could lead to both health and nuisance impacts. Construction activities would also temporarily generate emissions of equipment exhaust and other air contaminants. The Project's potential impacts from equipment exhaust are assessed separately in question (c) below.

The NCUAQMD does not have formally adopted thresholds of significance for fugitive, dust-related PM emissions above and beyond Rule 104, Section D which does not provide quantitative standards. For the purposes of analysis, this document uses the Bay Area Air Quality Management District (BAAQMD) approach to determining significance for fugitive dust emissions from Project construction. The BAAQMD bases the determination of significance for fugitive dust on a consideration of the control measures to be implemented. If all appropriate emissions control measures recommended by BAAQMD are implemented for a project, then fugitive dust emissions during construction are not considered significant. BAAQMD recommends a specific set of Basic Construction Measures to reduce emissions of construction-generated PM₁₀ to less than significant. Without

incorporation of these Basic Construction Measures, the Project's construction-generated fugitive PM₁₀ (dust) would result in a potentially significant impact.

The Basic Construction Measure controls recommended by the BAAQMD are incorporated into Mitigation Measure AQ-1. These controls are consistent with NCUAQMD Rule 104 Section D for Fugitive Dust Emission and provide supplemental control of fugitive dust emissions beyond that which would occur with Rule 104 Section D compliance alone. Therefore, with implementation of Mitigation Measure AQ-1 the Project would result in a less than significant impact for construction-related PM₁₀ generation and would not violate or substantially contribute to an existing or projected air quality violation.

Construction

The NCUAQMD does not consider emissions regionally significant for projects whose construction would be of relatively short duration, lasting less than one year. Emission modelling was conducted based on a two-year construction window, or 131 days of Project work per year.

The NCUAQMD does not have established CEQA significance criteria to determine the significance of impacts that may result from a project; however, the NCUAQMD does have criteria pollutant significance thresholds for new or modified stationary source projects proposed within the NCUAQMD's jurisdiction. NCUAQMD has indicated that it is appropriate for lead agencies to compare proposed construction emissions that last more than one year to its stationary source significance thresholds. If an individual project's emission of a particular criteria pollutant is within the thresholds outlined above, the project's effects concerning that pollutant are considered to be less than significant.

CalEEMod version 2016.3.2 was used to estimate air pollutant emissions from Project construction equipment and earthmoving. Construction of the Project is expected to require two years to complete.

Detailed construction equipment activity was estimated based on Project construction components and detailed data from the Project engineer. Table 3.3-2 – Construction Criteria Pollutant Emissions summarizes construction-related emissions. Modelling results indicate the Project's construction emissions will not exceed the NCUAQMD's stationary sources emission thresholds in any year of construction. Therefore, the impact from construction emissions would be less than significant.

Table 3.3-2 Construction Criteria Air Pollutant Emissions (tons)

Parameter	ROG	NO _x	PM ₁₀	Carbon Monoxide
Year 1				
Construction Equipment and Fugitive Dust Emissions	0.28	2.38	0.13	2.36
Year 2				
Construction Equipment and Fugitive Dust Emissions	0.25	1.92	0.11	2.27
Annual Threshold	40	40	15	100
Exceed Threshold (Yes or No)	No	No	No	No

Invasive Plant Management and Maintenance

The Project would include prescribed burning of invasive plants, as described in the Methodology section. Additionally, it is estimated that the Project may generate up to 6 visitor trips per day and ongoing invasive plant management through mechanical removal. These activities would be infrequent and short-term in nature. Invasive plant management activities would be substantially less in intensity and duration than construction.

As described above, EPA AP42 emission factors were used to estimate PM₁₀ emissions from prescribed burning of European beachgrass and dense-flowered cordgrass. For the purposes of this analysis, prescribed burning of all 279 acres of European beachgrass and 571 acres of dense-flowered cordgrass were assumed to occur within the same year (conservative analysis). Table 3.3-3 – Annual Invasive Plant Management and Maintenance Criteria Air Pollutant Emissions summarizes annual emissions from invasive plant management and maintenance activities. Modelling results indicate the Project's emissions would not exceed the NCUAQMD's stationary sources emission thresholds under the conservative analysis scenario. Invasive plant management activities would occur for up to ten years or as long as needed to achieve control and/or eradication of dense-flowered cordgrass and European beachgrass. Annual emissions are far below the threshold of significance. Therefore, the impact from invasive plant management and maintenance emissions would be less than significant.

Table 3.3-3 Annual Invasive Plant Management and Maintenance Criteria Air Pollutant Emissions (tons)

Parameter	ROG	NO _x	PM ₁₀	Carbon Monoxide
Mobile (Trips to Project site for invasive plant management, maintenance and public access)	0.02	0.15	0.08	0.35
Invasive Plant Management (Off-road equipment)	0.01	0.08	0.00	0.12
Prescribed Burning (European beach grass)	-	-	0.84	-
Prescribed Burning (dense-flowered cordgrass)	-	-	1.71	-
Annual Total	0.03	0.23	2.63	0.47
Annual Threshold	40	40	15	100
Exceed Threshold (Yes or No)	No	No	No	No

Mitigation Measures: Implement Mitigation Measure AQ-1.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-1 complies with the Basic Construction Measures recommended by air districts to reduce construction-generated dust to a less-than-significant level. Therefore, Impact AQ-2 would be reduced to less than significant with implementation of Mitigation Measure AQ-1.

Impact AQ-3: Would the Project expose sensitive receptors to substantial pollutant concentrations?

The only sensitive receptors within the vicinity include residences approximately 350 feet (107 meters) from the Project Area boundary near Area C and Area D. Due to the large size of the Project Area, invasive plant management activities in the dune restoration area, and construction and invasive plant management activities in Area A, Area B, and Area E would be considerably farther from identified sensitive receptors on Indianola Reservation Road – between 0.5 mile (0.80 kilometer) and 2.0 miles (3.2 kilometers) away.

Construction-Generated Emissions

BAAQMD's Basic Construction Measures included in Mitigation Measure AQ-1 minimize idling times for trucks and equipment to five minutes and ensures construction equipment is maintained in accordance with manufacturer's specifications.

The majority of construction equipment in Area C and Area D would be active at a distance of 350 feet (107 meters) or greater from sensitive receptors. Construction occurring in Area A, Area B, Area E, and the dune restoration area would be considerably farther away. Project construction activities would occur in phased segments throughout the Project Area, and are not expected to include intensive or prolonged construction equipment use in any one location for longer than one year of construction. Due to constraints related to resources other than air quality, construction would generally occur for 131 days or less during any construction season.

Due to the distance from construction activities, and implementation of Mitigation Measure AQ-1 to control fugitive dust, the Project would not result in the exposure of sensitive receptors to substantial pollutant concentrations. Therefore, the construction-related impact would be less than significant with mitigation.

Invasive Plant Management-Generated Emissions

The Project includes prescribed burning as a treatment method for managing invasive plants. Prescribed burns are subject to NCUAQMD Regulation II (Open Burning) and permitting requirements. Regulation II and permitting requirements minimize the potential impact of prescribed burning on sensitive receptors. Additionally, the Project would be required to develop and implement Burn Plans coordinated with the California Department of Forestry and Fire Protection (CAL FIRE), as detailed in Section 2, Project Description, of this Draft EIR. Therefore, invasive plant management activities proposed under the Project would not expose nearby sensitive receptors to substantial levels of pollutants. The invasive plant management-related impact would be less than significant.

Maintenance-Generated Emissions

Temporary and infrequent maintenance activities would occur at the Project Area. Typical emissions expected to occur from maintenance activities include emissions from driving to and from the Project Site. This type of emission is ubiquitous and would not expose nearby sensitive receptors to substantial levels of pollutants. There would be no impact due to maintenance activities.

Mitigation Measures: Implement Mitigation Measure AQ-1.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-1 complies with the Basic Construction Measures recommended by air districts to reduce construction-generated dust that may otherwise reach sensitive receptors to a less than significant level. Therefore, Impact AQ-3 would be reduced to less than significant with implementation of Mitigation Measure AQ-1.

Impact AQ-4: **Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

The Project Area is located in rural Humboldt County and surrounded by open space in most directions. A small neighborhood formerly on the Wiyot Tribe's Table Bluff Reservation is west of the Project Area along Indianola Reservation Road nearest

Area D at the upstream-most extent of McNulty Slough. As noted above, the closest residence to Area D is approximately 350 feet (107 meters) away from the Project Area boundary. Construction would be dispersed throughout the entire Project Area and would not be concentrated adjacent to the residential neighborhood.

The Project would create limited exhaust fumes from the operation of gas and diesel powered equipment during Project construction. The likelihood of these odors and emissions reaching nearby receptors is influenced by atmospheric conditions, specifically wind direction. Should the wind blow odors and emissions toward the adjacent neighborhood, any potential impact would be short-term and temporary, limited to the length of construction on a given day. Due to the distance between residences and the majority of the Project Area, variable atmospheric conditions, the relative short-term nature of construction, and the small number of people residing adjacent to the Project Area, emissions or odors caused by construction of the Project would not adversely affect a substantial amount of people. Therefore, a less than significant impact would occur.

Following construction, implementation of the Project would not result in any major sources of odor or emissions, except for the uncommon use of fuel-powered equipment or minor prescribed burning during ongoing invasive plant management activities. There would be a less than significant impact with the implementation of Mitigation Measure AQ-1.

Mitigation Measures: Implement Mitigation Measure AQ-1.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-1 complies with the Basic Construction Measures recommended by air districts to reduce construction-generated dust and associated odors to a less-than-significant level. Therefore, Impact AQ-4 would be reduced to less than significant with implementation of Mitigation Measure AQ-1.

3.3.6 Cumulative Impacts

Impact AQ-C-1: Would the Project contribute to a cumulatively significant impact to air quality?

By their nature, air pollution, greenhouse gas emissions and energy usage are largely cumulative impacts. As above, with implementation of Mitigation Measure AQ-1, the Project would not conflict with or obstruct applicable air quality plans or exceed BAAQMD thresholds of significance for criteria air pollutants. A project that would not exceed the BAAQMD thresholds of significance on a project level also would not be considered to result in a cumulatively considerable contribution to these regional air quality impacts. This impact would be cumulatively less than significant.

Mitigation Measures: Implement Mitigation Measure AQ-1.

Level of Significance: Less than significant with mitigation.

3.3.7 References

- California Air Resources Board (CARB). 2016. Ambient Air Quality Standards. Available at: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf> Accessed on January 26, 2020.
- CARB. 2018. Area Designations Maps / State and National. Available at: <http://www.arb.ca.gov/desig/adm/adm.htm>. Accessed on January 26, 2020.
- Bay Area Air Quality Management District (BAAQMD). 2017. California Environmental Quality Act Air Quality Guidelines.
- Humboldt County. 2017. Humboldt County General Plan Update Final Environmental Impact Report. September.
- North Coast Unified Air Quality Management District (NCUAQMD). 2019. Air Quality Planning & CEQA. Available at: <http://www.ncuaqmd.org/index.php?page=aqplanning.ceqa> Accessed on January 26, 2020.
- United States Department of Agriculture (USDA). 2019. Digital Photo Series. Available at: <https://depts.washington.edu/nwfire/dps/>. Accessed on January 24, 2019.